

INTEGRATED ENERGY POLICY REPORT STAFF WORKSHOP
 BEFORE THE
 CALIFORNIA ENERGY RESOURCES CONSERVATION
 AND DEVELOPMENT COMMISSION

In the Matter of:)

2008 Rulemaking on Appliance)
 Efficiency Regulations Rulemaking)
 Proceeding for Landscape Irrigation)
 Efficiency Standards)

) Docket No.
) 09-AAER-1A

)  ORIGINAL

STAFF TECHNICAL WORKSHOP TO DISCUSS POSSIBLE
 EFFICIENCY STANDARDS AND LABELING REQUIREMENTS FOR
 LANDSCAPE IRRIGATION EQUIPMENT

CALIFORNIA ENERGY COMMISSION
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 Barbara J. Little
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CALIFORNIA REPORTING, LLC
 52 LONGWOOD DRIVE
 SAN RAFAEL, CA 94901
 415-457-4417

STAFF PRESENT

Lorraine White

Betty Chrisman

William Staack

Peter Strait

ALSO PRESENT

Peter Mayer, Aquacraft

Rich Brown, Lawrence Berkeley National Laboratory

George Alexanian, President, Alex-Tronix

Andrew Davis, Accurate Weathersite Company

Gary Galinas

Ken Rider, California Energy Commission

Peter Carlson, HydroPoint Data Systems

Peter Biermayer

Charles Alexanian, Alex-Tronix

Dave Zoldoske, Director, California State University, Fresno

Ted Pope, Energy Solutions, PG&E

Leah Murakami

Andrew K. Smith, Irrigation Association

Lynn Flores

Bob Wade

Edwin Hornquist

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MS. WHITE: All righty, welcome, and thank you for coming to the Staff's Technical Workshop for the Landscape Irrigation Equipment Standards and Labeling Requirements, directed to the Energy Commission to establish through AB 1881.

My name is Lorraine White; I'm the Program Manager for this proceeding here at the Energy Commission.

And as part of this effort, it's not a one-person task, but actually the culmination of several people's efforts, three of whom are there at the table, and also walking around is Ken, who is assisting us to make sure we have good communications on our com link.

But there we have Betty Chrisman, who's part of our technical staff; Bill Staack, who's our lead legal counsel; and Peter Strait, who's also part of the technical staff.

And through the course of this proceeding you'll get to know these folks, they'll be the ones that help develop the analyses, compile the information that you provide us and really coalesce it into a meaningful record on which we will be able to establish any kind of regulations for standards or labeling requirements.

Just a couple of comments, logistical announcements, if you don't mind, we here at the Energy Commission are required to inform you that in the event of

1 an emergency an alarm will sound, which directs us then to
2 exit the building as quickly and orderly as possible.

3 Of course, there are two exits we can choose from.
4 Going out the back there is a set of double doors and you're
5 please directed to go through those double doors and then
6 head towards the park.

7 For those of you on this side of the building, it's
8 probably easier to go out the main door to the Energy
9 Commission and likewise head towards the park.

10 We do have some refreshments, because it's going to
11 be a wonderful, long, and productive afternoon. So in the
12 event that you would like any refreshments, we do have a
13 snack bar on the second floor, under the awning.

14 For those of you who have joined us via WebEx and
15 are viewing this on our website, there is also a call-in
16 number I direct you to, in order for you to ask questions or
17 comments as we go through the materials today.

18 And for those of you who are participating in
19 person, if this was a more formal event, we would ask you to
20 fill out blue cards, but I think we're going to be kind of
21 comfortable and straight forward today.

22 The only thing I ask, as I had mentioned before, is
23 that you please go up and use one of the microphones, either
24 at the podium or sitting at the chair to make your comments,
25 and such, so that we can actually get it recorded and people

1 who are participating remotely can hear this.

2 Throughout the course of this proceeding our
3 materials will be available on our website. I encourage you
4 to go to our website and join the list serve for this
5 proceeding.

6 I've provided the website here; it's in the
7 presentations in the front there, and the idea being, of
8 course, when new information is posted on the website you'll
9 be notified so you can take a look at it.

10 Our agenda today is fairly packed, so I'm hoping to
11 get through it pretty quickly. The idea being, of course,
12 to engage you in as much discussion about the information
13 for our proceeding, the types of requirements we have, the
14 type of information we're in need of developing or
15 gathering, and to also discuss what we've actually learned
16 to date.

17 Betty and Bill will be talking about our analytical
18 and legal requirements for our appliance efficiency
19 regulations.

20 We will also be hearing from Peter Mayer and Rich
21 Brown about performance studies that have been done to date
22 on the irrigation equipment.

23 Unfortunately, Amanda Stevens, from Energy
24 Solutions, will not be able to join us today. So Rich,
25 you're on your own.

1 We will also be discussing some key questions that
2 we've developed and just recently been able to post on our
3 website. And the purpose of these questions is to focus
4 people with the information that we need to gather or
5 generate, to solicit from parties and stakeholders as part
6 of this process, and combine or coalesce into a meaningful
7 record on which we can base any kind of a recommendation or
8 regulatory labeling or efficiency requirement.

9 And if possible, we may even be able to start
10 discussing what the regulatory language may look like.

11 Of course, we always open up, towards the end, an
12 opportunity for just general public comment on issues that
13 are related to the proceeding, but may not have necessarily
14 been brought up through the course of the discussions today.

15 And then, hopefully, we'll just have some very
16 brief closing remarks and a summary of some of our next
17 steps.

18 A lot of you have already seen this slide, it just
19 points out the key requirements for the Energy Commission,
20 as required by AB 1881. And that's to set labeling
21 requirements for irrigation controllers and sensors by
22 January 1st, 2010, and we're endeavoring to do that to the
23 best of our ability.

24 We also are looking at additional items as a result
25 of the scoping order, and those actually were identified in

1 the course of our discussions at the scoping workshop as
2 items that are really important to include in systems, to
3 ensure that the controllers and sensors work properly.

4 And then, of course, the ultimate purpose of all of
5 this is to ensure that we can reduce unnecessary, wasteful,
6 or uneconomic water use or energy use in these kinds of
7 systems.

8 Of course, Betty is going to talk about this in
9 great length here, momentarily. But essentially, when we're
10 talking about the appliance efficiency standards, in which
11 these appliances will be or devices will be regulated, we're
12 really talking about the California Code of Regulations,
13 Title 20.

14 And the main criteria imposed on us in establishing
15 these regulatory requirements is that these appliances need
16 to use, in this case, a significant amount of water or
17 energy, the standards need to be feasible, i.e., we can't
18 just be pulling things that are on the fringes out, we have
19 to make them so that they are achievable, and that they're
20 cost-effective to the consumer over the life of the product.

21 This is a formal rule making. In some regards it
22 seems a bit bureaucratic, I'm sure, but there is a method to
23 this madness, it's to ensure that governmental agencies
24 don't just willy-nilly impose things upon people, but that
25 we do it in a thoughtful, responsible manner and have a

1 transparent record on which we base any kind of requirement.

2 (Music from speakers.)

3 MS. WHITE: Operator, this is the call leader,
4 could you please stop the music? Call leader? Asking the
5 operator to please stop the background music. Thank you.

6 We've completed our first preliminary activity,
7 which is establishing our scope for the proceeding. We're
8 now simultaneously taking on three major parts of this, and
9 that's information and data gathering, our public outreach
10 and engagement, and developing our analysis on which to
11 document any proposed language or regulation.

12 Over the next several months we will be developing
13 a report, having more formal hearings with the Committee,
14 and then ultimately submitting our proposed regulations to
15 the Office of Administrative Law.

16 In particular, the scoping order, which was issued
17 on May 13th, directed us to focus, as the legislation
18 requires, on the landscape irrigation controllers and
19 sensors, but that we wanted to provide additional clarity to
20 that. And we're not just talking clock timers or Smart
21 controllers, but in order to establish some regulation that
22 has some meaning, look at all the types of things that would
23 fall under that definition of irrigation controller.

24 And then when looking at moisture sensors, they be
25 also rain and soil, not just what might be considered the

1 rain sensors.

2 To the extent that we can, we will also be looking
3 at those items that are required in the system to ensure
4 that things operate properly.

5 And in particular, we heard a lot on the 1st of
6 April about check valves, anti-drain, low-head anti-drain
7 devices, automatic shut-off devices and the like. So we
8 will be looking at that and including, as appropriate, any
9 regulations for those items, too.

10 The schedule, which was included in the notice and
11 the scoping order, essentially has us as quickly as possible
12 coming up with a staff report at the end of July, based on
13 the information we can gather between now and then, and
14 provide input to the Committee on the type of language that
15 we think we can substantiate with a record, for any
16 regulations directed at these devices.

17 And, ultimately, a Commission adoption or approval
18 of a regulation by about the 16th of December. That way we
19 meet our statutory deadline of January 1st, 2010 and can get
20 the documents to the Office of Administrative -- or the
21 final packet to the Office of Administrative Law for their
22 last check and review, with the regulations becoming law
23 within the time frame of this statute.

24 The idea here is to get your input as much as we
25 can, information, analyses, data, anything that can help us

1 develop the record.

2 In the notice for this particular technical staff
3 workshop we had identified a June 8th date for submitting
4 comments. Because we were so late in getting the key
5 questions out, we've extended that date to June 15th, in
6 hopes that it provides people a bit more time to be able to
7 respond as completely as possible.

8 We're looking for another workshop on the 30th, the
9 same time frame, 1:30 to 5:00. We have quite a few
10 workshops going on in different venues right now, so our
11 options here are limited. And unfortunately we, with the
12 budget restriction, are pretty much restricted to here in
13 Sacramento because our travel budgets are pretty tight.

14 Proceeding information is also provided. I
15 encourage folks to take a look at the sites.

16 I offer information here on the Department of Water
17 Resources' landscape ordinance website as well, because
18 they're complementary to each other, they reference what we
19 will decide and we will hopefully be able to incorporate the
20 kinds of things in our analysis that they're recommending
21 through that model.

22 So at this point, before I call Betty up to provide
23 some more detailed information on our proceedings for
24 appliance standards; are there any questions that anyone
25 might have?

1 Okay, Betty.

2 MS. CHRISMAN: Thanks, Lorraine.

3 I'm just here basically to give a non-landscape
4 irrigation specific background as to why we have -- how we
5 set up the appliance efficiency regulations, the basic
6 background behind what a rule making needs to be.

7 So this is just a real quick overview. First of
8 all, what is an appliance, because you could be saying
9 landscape irrigation appliance regulations?

10 Well, in law there is no clear definition.
11 Dictionary.com says "a device or instrument designed to
12 perform a specific function." Some of its synonyms include
13 contraption, gadget, gizmo and widget.

14 In 1976 the Energy Commission adopted the world's
15 first appliance efficiency standards. These first standards
16 covered refrigerators and air conditioners.

17 We now regulate about two dozen appliance
18 classifications and Federal standards, and standards in
19 other states, are often based on standards that are first
20 set in California.

21 Statutory authority. The Warren-Alquist Act, more
22 formerly, the Warren-Alquist State Energy Resources
23 Conservation and Development Act, which is found in
24 California's Public Resources Code, is the -- was originally
25 the 1974 legislation that created the Energy Commission.

1 As you might tell from the title of that statute,
2 California Energy Commission is actually a nickname. The
3 Commission's formal name is the Energy Resources
4 Conservation and Development Commission.

5 The Warren-Alquist Act simply tells us what to
6 consider when we set standards. They say that we are to
7 prescribe, by regulation, standards for minimum levels of
8 operating efficiency, based on a reasonable use pattern and
9 may prescribe other cost-effective measures, including
10 incentive programs, fleet averaging, energy and water
11 consumption labeling not preempted by federal law, and
12 consumer education programs to promote the use of energy and
13 water efficient appliances whose use, as determined by the
14 Energy Commission, requires a significant amount of energy
15 or water on a statewide basis.

16 The minimum levels of operating efficiency shall be
17 based on, as Lorraine said, feasible and attainable
18 efficiencies, or feasible improved efficiencies that will
19 reduce the energy or water consumption growth rates.

20 And the standards are to become effective no sooner
21 than one year after the date of adoption or revision.

22 New appliances manufactured on or after the
23 effective date of the standards may not be sold or offered
24 for sale in the State unless it is certified by the
25 manufacturer to be in compliance with those standards.

1 And Title 20 does not typically restrict anything
2 relating to installation.

3 The requirements under AB 1881 are slightly
4 different in that they prohibit sale or installation of non-
5 complying irrigation controllers or moisture sensors for
6 landscape use on or after January 1st, 2012.

7 The appliance efficiency regulations have never
8 previously addressed installation, as that has been covered
9 by Section 111 of the Building Standards, found in Title 24,
10 and that section specifies that any appliance for which
11 there is a California standard established in the appliance
12 efficiency regulations may be installed only if the
13 manufacturer has certified to the Commission that the
14 appliance complies with the applicable standard.

15 There are a few appliances for which data
16 certification is not required, mostly in the commercial
17 refrigeration area, including walk-ins, and units without
18 doors, and external power supplies.

19 And the Warren-Alquist Act also requires that the
20 standards shall be drawn so that they do not result in any
21 added total cost to the consumer over the design life of the
22 appliances concerned.

23 I apologize if this sounds rather dry, but it's how
24 the statute reads.

25 So the statute also requires, it says, "in order to

1 increase public participation and improve the efficacy of
2 the standards adopted, and prior to publishing the Notice of
3 Proposed Action," abbreviated as NOPA, "the Energy
4 Commission must involve parties who would be subject to the
5 proposed regulations in public meetings regarding the
6 proposed regulations."

7 That's one reason why you're all here today.

8 All potential affected parties shall be provided
9 advance notice of these meetings and they must be given an
10 opportunity to provide written or oral comments.

11 During these public meetings the Commission will
12 receive and take into consideration input from all parties
13 concerning the design recommendations, the cost
14 considerations, and other factors that would affect
15 consumers and California businesses of the proposed
16 standard.

17 And the Commission is to take all of that into
18 consideration prior to the start of the NOPA any input
19 provided during these meetings.

20 Cost effectiveness, sometimes people have different
21 definitions of what that means. I'm providing this here
22 also from the statute, so that the public will understand
23 why we are asking some of the questions that we are asking
24 and why we are requiring some of the input we are.

25 The statute requires that the standards adopted or

1 revised shall not result in any added total costs for
2 consumers over the design life of the appliances concerned.

3 When determining cost-effectiveness, the Commission
4 shall consider the value of the water or the energy saved,
5 the impact on product efficacy for the consumer, and the
6 lifecycle cost to the consumer of complying with this
7 standard.

8 The Commission shall also consider other relevant
9 factors, including but not limited to the impact on housing
10 costs, the total statewide costs and benefits of the
11 standard over its lifetime, the economic impact on
12 California businesses, and alternative approaches and their
13 associated costs.

14 And then outside of the statute, but how the
15 regulations are drawn up, the key components of the
16 regulations, for all regulated appliances, must include
17 terminology and definitions, consensus test methods, marking
18 and labeling requirements, the data collection parameters,
19 special -- specific efficiency or usage standards. They can
20 possibly include design standards.

21 But AB 1881 requires performance standards. And we
22 also include in the regulation rules for enforcing these
23 standards.

24 And as the final summary, just that we all keep it
25 in mind, the appliance efficiency regulations cover

1 appliances sold or offered for sale in California.
2 Typically, the building standards regulate what can be
3 installed, but AB 1881 prohibits the sale or installation of
4 non-complying irrigation controllers or moisture sensors for
5 landscape use on or after January 1st, 2012.

6 And that's the conclusion of what I had to present,
7 so if anybody has any questions.

8 MS. WHITE: Does anyone -- yes, please come to the
9 podium. And when you do come, for the court reporter, could
10 you provide us your name and affiliation. Oh, if you have a
11 business card, we'll snag that so we get your spelling
12 right.

13 MR. GALINAS: This is Gary Galinas. I have a
14 question on the energy management systems that you've
15 regulated in the past, ENS, are those defined as an
16 appliance or not?

17 MS. WHITE: Bill, do you know? Bill Staack?

18 MR. STAACK: Yeah. I'm actually thinking. This is
19 Bill Staack.

20 I know we have standards for external power
21 supplies, which would be a lot of the controllers, I
22 believe. My current one that I have in my garage has an
23 external power supply, so that would be regulated by us.

24 I'm not quite sure about the ones with the internal
25 power supplies.

1 MR. GALINAS: And you know that there will be
2 management systems, that HVAC, and it's a management system,
3 an energy management system, is the entire system defined as
4 an appliance?

5 MR. STAACK: We don't, I don't think, define it
6 that way.

7 MR. GALINAS: Okay, so how can we call an
8 irrigation control system an appliance? It's the same thing
9 as an EMS.

10 MS. WHITE: Well, actually, an irrigation
11 controller is more like a thermostat and we do regulate
12 thermostats.

13 MR. STAACK: The statute also has provided us with
14 the authority to regulate these controllers and any water
15 sensors as irrigation system, so we do have the authority to
16 do this as a system or we could do this as components. I
17 believe it would be what is more logical to us in terms of
18 how these systems would be operating.

19 MR. GALINAS: But if you have a building management
20 system that's regulating the entire HVAC system inside the
21 building, that system by itself is not defined as an
22 appliance.

23 MR. STAACK: Right.

24 MS. WHITE: Are you referring -- pardon me, this is
25 Lorraine. Are you referring to the software programs that

1 do this work?

2 MR. STAACK: Or just the management, itself.

3 MS. WHITE: Okay.

4 MR. GALINAS: Yeah, a thermostat, by itself,
5 doesn't save any energy; it has to be managed through a
6 management system of some sort, software, hardware,
7 communications, sensors, all kinds of things.

8 So as a grouping would you define that as an
9 appliance or as a management system? And if it's not an
10 appliance then what do you guys call it?

11 MR. STAACK: Well, if part of that system is
12 managing a sprinkling system, I believe we have the
13 authority underneath this new statute to regulate that part
14 of the system that's controlling the irrigation system.

15 I'm not sure, technically, if we have even had
16 those discussions on management systems and how they would
17 fit in. But I don't think a management system, underneath
18 the statute, would be allowed to be operated in water
19 efficiencies that are different than what the standard wants
20 landscape irrigation to be done. So somehow that system, I
21 would believe, would have to provide the same efficiencies
22 that we are looking for in terms of adoption, in terms of
23 water use, maybe water sensors, and so forth.

24 You can't have a management system and say, well, I
25 don't have to comply with landscape irrigation, if the

1 design of our system is that way.

2 But if we just have systems that say if you're
3 going to buy a controller, it has to be this, then the
4 management system is not part of that system.

5 MR. STRAIT: I think one way to look at it is that
6 we're going to be defining what a controller is. And if you
7 have a system that operates as a controller, that is it
8 integrates those functions, it would be similar to saying
9 integrating a clock radio in some water device, or putting
10 that general house plan with some water device, where we
11 would still be able to have regulations that concern that
12 portion of what it's doing, based on its function, to that
13 portion of the system.

14 Part of the reason we're approaching this in a kind
15 of -- looking at the separated parts, as opposed to the
16 entire system, is for this exact reason, we are trying to
17 isolate specific elements that we can look at, such as
18 emitters, such as sensors, such as the actual plug-ins,
19 control box, and approach it at that level.

20 And once we've got them to apply to those, if there
21 are larger systems that integrate those functions, then to
22 the extent that they do so, they would still be in our
23 regulations, in most cases.

24 Keep in mind we still, the scope of this is still
25 not ready; it's a work in craft so --

1 MR. STAACK: And to add to that, the statute itself
2 says that it's including, but not limited to irrigation
3 controllers. So the statute does give us the latitude to go
4 beyond just the controllers, if that's what this rule making
5 process does.

6 MR. GALINAS: Right. I understand that you're
7 quoting the statute and I understand that you're trying to
8 proceed to promulgate regulations with respect to the
9 statutes.

10 MR. STAACK: Correct.

11 MR. GALINAS: I understand that. I'm only asking
12 about precedence with respect to energy management systems,
13 whether if you have thermal sensors, if you have controllers
14 that are controlling baffles, or HVAC ventilation, are
15 those, itself, broken out into parts or are those considered
16 to be a management system, therefore, not regulated by
17 individual parts?

18 MR. STRAIT: I can answer this fairly
19 straightforwardly. When you talk about an integrated system
20 like that from -- one way that that could be looked at, what
21 you're describing is to say that because adding an actual
22 air conditioner into system that's controlled by, that's
23 integrated into this whole building management system that,
24 therefore, it's not going to be regulated as an air
25 conditioner.

1 And what we're saying is that to the extent that we
2 have regulations that apply to an air conditioner, that is a
3 unit that meets a definition that we have in our
4 regulations, those regulations must be met.

5 So these components that we are defining, such as a
6 controller, such as an irrigation system controller, if
7 they're integrated into a management system that would not
8 exempt them or hide them from regulation; does that make
9 sense?

10 MS. WHITE: Let me put it this way, Gary.

11 MR. GALITAS: Gary?

12 MS. WHITE: Yes, you.

13 MR. GALITAS: Okay.

14 MS. WHITE: The statutes define parts of a system
15 and we were, in discussions at the scoping meeting, made
16 very aware that these parts are part of a bigger system,
17 much the same way that the walls in a building are part of a
18 bigger system, but that that system is actually part of a
19 bigger HVAC system.

20 And so we're approaching it very similarly, where
21 you basically can look at the parts, acknowledging that they
22 are part of a bigger system; you don't have just an emitter,
23 you have an emitter to a pipe, to a valve, to a controller,
24 to a sensor.

25 And so when you look at these parts what we're

1 doing, as directed by the Committee, is to look at those
2 things that are probably the biggest savers, first, in the
3 eyes of those that wrote the statute and support the
4 legislation, are the controllers and the sensors, but
5 recognizing that there are other devices that too are needed
6 to make those devices to work properly, like the automatic
7 shut-off valves, and the check valves, and things like that.

8 But we are doing it not in abstract, we are looking
9 at these controllers as part of a landscaping irrigation
10 system, but we are going to set standards for the
11 controller, we're going to set standards for the sensor that
12 is attached to a controller or could be attached to a
13 controller. We're going to look at the valves that are a
14 part of a system, but we're doing it systematically, but
15 we're doing it based on the devices.

16 We look at air conditioners, but they're an
17 appliance, but they're an appliance in a bigger system. And
18 if we didn't actually look at it from that stand point, we
19 wouldn't be able to achieve certain savings; if we ignored
20 the ducting for example.

21 So did I answer your question now?

22 MR. GALITAS: Sort of.

23 MS. WHITE: Okay. Do you have another question
24 because there's some questions --

25 MR. GALITAS: No, I'll wait until later, thanks.

1 MS. WHITE: Okay. John, did you have a question?
2 Operator, do we have John on the line, wanting to ask a
3 question? John, your line is open if you want to ask a
4 question.

5 MR. BOWER: Are you asking John Bower?

6 MS. WHITE: Yes, John Bower.

7 MR. BOWER: No, I don't have a question.

8 MS. WHITE: Oh, I'm sorry.

9 MR. BOWER: Okay.

10 MS. WHITE: Okay, does anybody else have questions
11 for Betty or anything we've heard so far?

12 Okay, can you please ask the operator to release
13 Peter Mayer's line?

14 And Peter, if you're listening, I'll go ahead and
15 set up your presentation. And while I'm setting up your
16 presentation, Peter, and your line is opening, Bill Staack
17 would like to say a couple things.

18 MR. STAACK: Well, I just wanted to kind of restate
19 some of the things that Betty has said in terms of our legal
20 obligations for adopting appliance standards here and that
21 is that in order to do this the statute requires us to
22 quantify with studies, reports, and/or supporting data what
23 the statewide energy and water savings will be, what the
24 efficiencies will be, and what the consumer costs will be.

25 And what that means in terms of data is that we're

1 probably looking for supporting data on the current water
2 waste and the expected water savings that will occur when we
3 have these standards in place.

4 We would also be looking for supporting data on the
5 current energy use and the expected energy savings, if we
6 choose to have an energy efficiency standard as part of
7 this.

8 We also need to know the design life, at least in
9 this first part, the design life of the irrigation
10 controllers and the moisture sensors.

11 And the reason why I'm bring up the moisture
12 sensors is in our last workshop I heard some testimony
13 concerning the life of moisture sensors maybe being a year,
14 or maybe not even knowing when these controllers are no
15 longer functioning.

16 So part of the design life for us, in calculating,
17 would be such as if the irrigation controller, let's say,
18 lasted ten years and the sensors only one year, that means
19 you're going to have to buy ten years' worth of moisture
20 sensors and that's going to be added to the incremental cost
21 to the buyer, and that incremental cost is what needs to be
22 looked at because the statute basically says that the
23 incremental added cost of the new controller and moisture
24 sensors, if it's higher than the current products that are
25 being sold on the market right now, we have to show through

1 energy and water savings that through the design life of
2 that controller, which could be ten years' worth of sensors,
3 that that customer is not spending anymore money for that
4 controller than if they would have bought a current product
5 today.

6 Anyway, I just wanted to clarify in terms of the
7 kind of numbers that we need in terms of water waste that's
8 occurring and what, exactly, are we saving, what kind of
9 numbers can we come up to -- you know, how many acre feet of
10 water is being wasted in a community or throughout
11 California, what kind of numbers can we actually generate.

12 And then determine whether these devices that we
13 are adopting regulations for, are they actually going to,
14 are they feasible to stop that water waste and how much
15 would that water waste be.

16 And all those numbers are going to be used to make
17 calculations to meet our cost-effectiveness requirements
18 under the statute.

19 MS. WHITE: Thank you, Bill.

20 Peter, you're line is open.

21 MR. MAYER: Yes, can you hear me?

22 MS. WHITE: Yes, we can hear you. Can you see your
23 presentation on the internet?

24 MR. MAYER: I sure can.

25 MS. WHITE: Great. Just I'll try and scroll along

1 with you as we go through your presentation.

2 Peter Mayer, with Aquacraft is actually providing
3 his presentation remotely, from Colorado. He was kind
4 enough to agree to provide us with some results of field
5 studies that they have done on the Smart Controllers. And
6 this project was done with funding from the Department of
7 Water Resources, and we really appreciate his ability to do
8 this for us. Peter?

9 MS. WHITE: Well, thanks so much, Lorraine. So
10 this is Peter Mayer, from Aquacraft, coming to you from my
11 desk in Boulder, Colorado.

12 I'm sorry I can't be with you in person today, but
13 I hope through the miracle of modern technology that you can
14 hear my voice and can see the slides, and I can talk to you
15 about the project that we just completed for the Department
16 of Water Resources, looking at Smart Controller programs in
17 Northern and Southern California.

18 So let's go on the next slide. So, yeah, this is a
19 real long and intense project, I would say. It started --
20 the work started, I believe it was in 2004/2005, and it
21 included providers in Southern California and six providers
22 in Northern California. Our research was at Aquacraft
23 National Research Center and Dr. Peter Bickel from
24 California Berkeley, our statistician.

25 The project management was led by the California

1 Water Consolidation Council, and by Marsha Prillwitz and
2 Chris Brown. And we had funding and supervision from the
3 California Department of Water Resources and Bekele
4 Temesgen.

5 All right, enough of that. The next slide is just
6 briefly about what are Smart controllers. I'm presuming
7 most of the people understanding what it is when we say
8 smart controllers, or weather-based irrigation controllers.
9 Just briefly, they utilize prevailing weather conditions,
10 current and historic evapotranspiration, soil moisture
11 levels, or other relevant factors to adapt water
12 applications to meet the estimated needs of plants.

13 In this study we looked primarily at weather-based
14 controllers. We had only one site that was equipped with a
15 soil moisture sensor, so that we reported on the results on
16 only one site.

17 All right, let's move on. All right, this chart,
18 which I hope is legible, just presents the number of sites
19 that we looked at in this study. There was a total of 2,294
20 different sites, of which 411 were in Northern California
21 and 1,883 were in Southern California.

22 So just to be clear what a site is, a site will be
23 like a single-family residence where a Smart controller was
24 installed, or it could be a homeowners association, a campus
25 where five or even ten, or more Smart controllers were

1 installed, and that would still be considered one site.

2 The reason we consider that -- those large sites,
3 all of those as one site, the way the water meters are set
4 up in order to look at water use we had to combine the usage
5 from all the meters survey a particular site. You know,
6 it's not known exactly which irrigation systems are served
7 by each meter. So large campuses were all combined in a
8 single site and the analysis was done, similarly to what was
9 done for a single-family residence or a more discreet site.

10 This table also breaks out just the percentages of
11 a single-family versus multi-family, commercial and other
12 non-residential sites, and irrigation only.

13 Over 86 percent of the sites in the family were
14 single-family, we had nearly 13 percent that were either
15 multi-family, commercial, or other non-residential and only
16 about half a percent were dedicated irrigation sites.

17 In terms of the installation methods for the Smart
18 control, about nearly 60 percent of the controllers in this
19 study were self-installed. That is that they were obtained
20 by the home owner or the property manager and installed by
21 those people, they were responsible for the installation.

22 Now, they could have hired a professional to do the
23 job, but we weren't privy to that information.

24 The professional or "slash" utility installed sites
25 were sites where we know that the controller was installed

1 or programmed by either irrigation professional or someone
2 from a water agency, who came out to the site, inspected it,
3 and adjusted or actually did the physical programming on a
4 Smart controller.

5 Just in terms of the climate zones, we really
6 covered a lot of different terrain in this study, although
7 largely it was called the intermediate climate zone in the
8 system, so that about 53 percent really had intermediate
9 zone and we had about 28, almost 29 percent in the coastal
10 zone, and about eight and a half percent of the sites were
11 inland climate zones.

12 Can everyone hear? Lorraine, is it coming through
13 okay?

14 MS. WHITE: Yeah, you're coming through fine.

15 MR. MAYER: Okay, great. So next --

16 MS. WHITE: So we're on your next slide.

17 MR. MAYER: Yes. So I want to completely skipper
18 the methodology that we used for this study, and I encourage
19 you, if you're interested or even if you're not really that
20 interested, to go ahead and download the final report. It's
21 available at the California Urban Water Conservation Council
22 website, see UCC's water genie, it's right there.

23 The report, itself, goes into great detail about
24 exactly how we did the analysis for this study. And with
25 the limited amount of time that I have today, I thought it

1 would be more important to focus on the actual results. So
2 I encourage people to do that. Also feel free, if you have
3 questions, you can send me an e-mail or give me a call.

4 But this graph that we're looking at right now
5 shows the percent of the theoretical irrigation requirements
6 that would apply before and after the installation of Smart
7 controllers. So the theoretical irrigation requirement is
8 essentially a version of evapotranspiration, and you can
9 read about how we actually generated that.

10 But just imagine that that is our estimate of what
11 the water requirement of that site was based on the
12 landscape size and the evapotranspiration from data and a
13 few other things.

14 So we have the pre and the post there. I drew the
15 red line, the vertical, to separate sites -- to separate the
16 hundred percent lines. So everything to the left of that
17 red line were sites that apply less than a hundred percent
18 of the theoretical requirement before or after -- and after
19 the installation of those Smart controllers.

20 And the dark blue is the pre and then there's a
21 lighter color that's the post.

22 Everything to the right of that red line are sites
23 that applied in excess of that theoretical irrigation
24 requirement before and after.

25 So before the Smart controllers were installed, a

1 little over 50 percent of the sites were applying in excess
2 of the theoretical requirement. And about almost 13 percent
3 of the sites were applying in excess of three times the
4 theoretical requirement. That's the group that would be
5 over 300 percent or higher.

6 After the Smart controller was installed, those
7 numbers improved, albeit only a little bit. But when you
8 see -- when I get into the analysis it actually looks a
9 little better when we bring in some of the other factors.

10 But anyway, after the Smart controllers were
11 installed, 47.8 percent of the sites were applying in excess
12 of their theoretical requirement, and only 11.4 percent were
13 applying in excess of three times the theoretical irrigation
14 requirement.

15 Now, one thing I thought was kind of interesting
16 was that we found out by looking at the extreme outliers on
17 this curve and actually we ended up eliminating from the
18 pre-group, they were on the slide more than I believe it was
19 300 inches of water on their site.

20 And so if you find more than 300 inches of water on
21 their site in the pre period, we determined, we had a
22 feeling that there might be some error in the data, either
23 in the landscaping or the water use data, and so we
24 eliminated those groups.

25 No one was eliminated based on their performance

1 after the installation of their controller; it was only
2 based on pre-data that anyone would be screened out.

3 But we did look at some of these outliers. And the
4 group that's up at the very high level in the pre period was
5 not necessarily the same group that was in that same
6 grouping after the post period. So there was a shifting
7 within that group.

8 So of the people who applied a tremendous amount of
9 water in the pre period actually decreased their water use
10 and we found out, to some extent, were replaced by people
11 who increased their water use after the installation of the
12 Smart controller.

13 All right, let's go to the next slide. This is the
14 one I want to spend the most time on today. This shows the
15 changes in application rates, so it's essentially taking
16 that pre-Smart controller distribution that we saw and
17 tracking the post-Smart controller distribution, and we can
18 end up with something that looks much more normally
19 distributed.

20 And again, I've drawn a red line right down, right
21 at zero percent. So all of the sites who had a decrease in
22 their water use due to the installation of a Smart
23 controller are on the left-hand side, and those that
24 increased their water use after the installation of the
25 Smart controller are on the right-hand side.

1 Overall, if you just take an average, based on this
2 distribution, there's a reduction of 14 and a half percent
3 in application rates and water use based on the installation
4 of the Smart controller. That would be average. The median
5 was a reduction of 6.4 percent.

6 So if we look now at the sites that decreased water
7 use, we can see that overall 56.7 percent of the sites in
8 this study had a statistically significant decrease in
9 weather normalized irrigation application.

10 So over half of the sites, nearly 60 percent of the
11 sites is getting some sort of decrease in water use that was
12 statistically significant.

13 If we just look at those sites that had a
14 statistically significant decrease in water use and we
15 ignore all the people that increased their water use, we
16 just looked at the ones that decreased water use; those
17 sites reduce water use by about 35 percent. So that's
18 really good, but just if you're looking at those sites that
19 decreased water use.

20 Unfortunately, there was -- if you look at the
21 other side of this graph, there were a 41.8 percent of the
22 sites that had a statistically significant increase in
23 weather-normalized irrigation application after the
24 installation of the Smart controller.

25 And if you just looked at those sites that

1 increased their water use, about 8.9 percent of them -- I
2 mean, I'm sorry, their average increase was about 8.9
3 percent.

4 So percent of increase among those that increased
5 was not as large as the average decrease, but there still
6 were a lot of people who had increased water use as a result
7 of installing this Smart controller.

8 Overall though there was a savings, so I don't want
9 to oversell the fact that people did increase water use
10 because, really, the net impact was a savings, but it can't
11 be ignored that this technology will increase water use for
12 some people.

13 Okay, let's go on to the next slide. So one of the
14 things that we did was to run some statistical models to
15 determine what -- what were the factors that influenced
16 water savings. So what were the -- we only had a limited
17 set of factors that were available to us to model, so we
18 wanted to try and determine what -- to what extent we could,
19 the factors that influence the data.

20 The single most important factor in determining
21 whether there were going to be water savings or not at a
22 site was the level of over- or under-irrigation that was
23 occurring before a Smart controller was installed.

24 And this may seem like sort of, well, of course,
25 you know, a gee-whiz type of a thing, but it's really a very

1 important point to understand.

2 The savings from these Smart controllers can be
3 tremendously enhanced if they can be targeted at people or
4 sites with a history of over-irrigation and that the amount
5 and level of over-irrigation, in many cases, is going to
6 determine the level of savings that can be achieved from the
7 Smart controller.

8 The other three factors -- or the other two factors
9 that we saw as statistically significant in influencing
10 water savings was the installation method. And in this case
11 we saw there was a small improvement -- not improvement --
12 there was a small correlation with greater savings
13 associated with self-installed controllers versus
14 professionally installed controllers.

15 And we looked at this pretty closely because it was
16 somewhat of a surprise, but it was definitely something, it
17 was not just an artifact, it was really in the data.

18 And, you know, in the popular -- and people
19 familiar with the technology, it was suggested that one of
20 the reasons for this may be that the people who did the
21 self-installs were more likely to make adjustments to the
22 controller after it had been installed.

23 And there was a lot of agreement that the
24 technology, so the modern technology can be installed and
25 then set up to initial default settings, and then left to

1 run and then do you achieve all the savings.

2 Rather, it needs to be installed with the default
3 setting and then it needs to operate for some time, and then
4 adjustments need to be made because there really are
5 differences on each landscape, in terms of shoot-in and
6 flow. And even controllers that attempt to take these
7 factors into consideration are going to need some adjustment
8 over time.

9 And so we speculated that people who did the self-
10 installation may have been better equipped to make those
11 adjustments and perhaps adapt their controllers.

12 It should also be pointed out that the people who
13 were self-installers had a greater potential for water
14 savings, they had -- they had over-applied more in that pre-
15 installation period than the professionals.

16 But the modeling effort, in doing the modeling
17 effort we did our best to try and correct for those factors
18 to try to level the playing field.

19 So to the extent that we were able to level the
20 playing field, the self-installers did a little better than
21 the professional installers.

22 In terms of the participating agency that was doing
23 the program was also occasionally significant. So not every
24 agency had a statistically significant difference, but some
25 of the agencies did. So that would have to do with how an

1 agency selected participants for the study, and how they
2 actually then trained people or had the controllers
3 installed, so there was some different methodologies that
4 were engaged by agencies for the program.

5 So those were the three factors that we found to be
6 influential in water savings in this study at statistically
7 significant levels.

8 Next slide, please. So a list of the factors that
9 did not influence water savings at a statistically
10 significant level, and the first was site classification.
11 So we did not see a difference in water savings between
12 residential and non-residential customers.

13 So the savings rates that were found are generally
14 applicable across different -- both of these classes of
15 customers.

16 We didn't -- although there were changes and
17 considerable differences between Northern and Southern
18 California, they weren't big enough to be statistically
19 significant.

20 We did not also see differences in savings based on
21 the climate zone. So it appeared that where the controller
22 is installed really is less important than you expect with
23 irrigation prior to the installation.

24 And finally, we did not find any real statistically
25 significant different between different control

1 methodologies. There were about nine different brands of
2 controllers that were included by the agencies in the study,
3 including historical ET controllers, a controller that had
4 on-site readings, some that had remote, received remote
5 signals, and also there's one soil moisture sensor site.

6 We weren't able to try to model based on these
7 different techniques, we weren't able to say one does appear
8 to be able to achieve more savings; they all contributed to
9 the savings.

10 Okay, let's go to the next slide. So just some
11 general conclusions from the research, Smart controllers we
12 believe can reduce water use at sites that have historically
13 over-irrigated. We also feel that based on these results
14 Smart controllers are likely to increase water use at sites
15 that have historically under-irrigated. Weather-normalized
16 change in usage were averaged, a reduction of 14.5 percent
17 across all 2,294 sites.

18 Next slide. We believe that water savings can be
19 maximized by two particular things. One, improved
20 programming, so that means that an improvement over whatever
21 the default programming is.

22 So it may be possible on sites that historically
23 under-irrigated, if that information is known at the time of
24 installation or adjustments are made to that clock such that
25 it will not increase water use, so improved programming may

1 be a way of reducing an amount of increase that we see,
2 particularly in sites that have under-irrigated.

3 The other thing is for utilities to focus on
4 targeting their customers that are -- they're currently
5 over-irrigating, and trying to get their Smart controller
6 technology into the hands of people who actually have the
7 potential to achieve the most savings.

8 That can be done, really, with two fundamental
9 pieces of information. One is the water use at the site,
10 which the utilities have through their billing records. The
11 other is some measurement of the landscaped area at the
12 site. And that measurement could be made from a GIS, an
13 aerial photography, or on site.

14 And our feeling is that it doesn't have to be, you
15 know, super precise area, I mean the more precise the better
16 but, you know, if you're a utility and you're trying to
17 target the customers in your service area who are over-
18 irrigating and all you have, let's say, is a pack of records
19 of loss, go ahead and use those and try and estimate
20 application rates based on those, and then target the people
21 who are over-applying.

22 I think with those two factors or changes, I think
23 we can see easily, can even imagine a savings averaging a
24 reduction of 20 percent or more through this technology. I
25 don't think we're very far away, actually, from getting

1 there.

2 We did do some cost-effectiveness analysis as part
3 of this study. We found that the Smart controllers are
4 cost-effective for water provided and calculated in many
5 cases, but they're not going to be cost-effective for all
6 utilities or all customers.

7 And then there's a way that we did in the analysis,
8 in the report, you can sort of match your own personal or
9 utility cost of water, or your own personal water savings,
10 and the water that you pay and determine whether or not you
11 get X amount of savings, whether it makes sense or not.

12 On average, we found that all of the controller
13 brands and technologies reduced demand, but not all of those
14 reductions were statistically significant.

15 We did a -- there was tremendous variation in terms
16 of the number of sites that were involved. And if you're at
17 a -- and there's quite a bit of variability, you get a high,
18 a very broad error bar, a five percent error bar. So it's
19 not particularly surprising there.

20 So we weren't able to say, hey, this one brand is
21 somewhat better than the other brand. Really, they all save
22 water on average. So you can look at the data and judge for
23 yourself about which ones were the most effective but,
24 really, they all achieved water savings on average.

25 And that includes, actually, there were some

1 controllers in this -- programmed controllers that do not
2 have or have not published their slot test for. So most of
3 the controllers in this study have gone through slot testing
4 and have their slot test scores. At least one controller
5 did not have published slot test scores, and that controller
6 performed very comparatively to the ones that did have slot
7 test scores, which we thought was also interesting.

8 The next slide is the last slide. So there's a
9 website where the report can be downloaded for free, it's
10 the California Urban Water Conservation Council. It's
11 about, I don't know, a five megabyte feed up so, hopefully,
12 your internet connection will download that for you quickly.

13 The agencies who are participating in this project
14 have agreed to continue to monitor performance for five
15 years. The results that I've presented you today are only
16 based on one year of post-installation data, which is
17 really, probably not official to draw any long-term
18 conclusions.

19 In the report there's also an analysis of about 600
20 sites where they've had three years of ongoing data, and
21 that results showed that savings increased a little bit of
22 time, so the savings got better for those 600 sites over
23 time.

24 So I look forward to the next five years' data from
25 these agencies and I'm optimistic that we make an

1 improvement based on just the analysis that we were able to
2 do on 600 sites with three years' of data.

3 Again, please contact me if you have any questions.
4 There's my e-mail and telephone number, and I hope I
5 finished up in enough time.

6 MS. WHITE: You did great, Peter. Please hang on
7 the line, and are there any questions from anyone?

8 George. For people's knowledge, Chris Brown, from
9 CUWCC is here, as well, if there are any questions that
10 folks may want to answer.

11 We do have a couple of questions on the phone, as
12 well, but I'd like to have George ask his questions first.

13 MR. GEORGE ALEXANIAN: Okay, thanks Lorraine.

14 MS. WHITE: Let George ask his first. Okay.

15 MR. GEORGE ALEXANIAN: Thank you, Lorraine. This
16 is George Alexanian from Alex-Tronix Controls. You know,
17 I've been in the irrigation business since 1972, in the
18 design and manufacturing of irrigation controllers.

19 And my mission statement for the company is design
20 and manufacturing controllers that are only involved with
21 saving water, saving energy in the simplest way possible.

22 And in view of that, I'm very dedicated and I'm
23 pro-water conservation, but I'm also trying to be a realist
24 here.

25 Just for information, my company did receive

1 recommendation from the U.S. Department of Energy for
2 developing energy efficient irrigation control systems and
3 we're now, of course, into the water conservation end of it,
4 both with drip irrigation and landscape irrigation
5 controllers.

6 Now, getting to a couple of my questions, Peter,
7 were rain switches used prior to this study and after, or
8 you added as a part of the study, if they did not have rain
9 switches installed; that's the first question?

10 MR. MAYER: Well, we don't know if they had a rain
11 sensor beforehand. And the only thing -- we only got
12 limited information about whether a rain sensor was included
13 after.

14 In general, I would think these sites did not have
15 a rain sensor unless that sensor was specifically part of
16 the controller, such as I think Weathermatic controller has
17 a rain sensor that's part of that package. There may be
18 some others, also. But in general my answer would be no,
19 there were not rain sensors.

20 MR. GEORGE ALEXANIAN: So in other words your study
21 was based on only changing out a controller and not adding a
22 rain sensor or any other device, so basically it was
23 strictly refined or limited to just changing controller,
24 regardless of whether it had any other -- a rain sensor or
25 not, if I understand you correctly.

1 MR. MAYER: That's correct.

2 MR. GEORGE ALEXANIAN: Okay. Now, the
3 percentage -- I do appreciate all of the study that has been
4 done and all the work that has been done. The study that
5 was done, frankly, I'm a little disappointed in the
6 percentage of the water savings.

7 But I may offer, from my perspective as a designer
8 and manufacturer of irrigation controllers, is that
9 simplicity is a very important factor that I believe in, it
10 is one of our mission statements.

11 And I believe, and this is my opinion, that most
12 ET-based controllers are not that simple to program. We
13 were talking earlier about self-installed, and you didn't
14 know whether they were installed, did the homeowner use
15 someone professional to install and program it or not. But
16 I believe that if these systems were to be simpler, my best
17 guess is that you would find that you may increase the
18 savings significantly, and I think that's one of the
19 shortcomings.

20 The second shortcoming, as I see it, is that some
21 of the controllers, and correct me if I'm wrong, because you
22 did not say which models were used, some of them required
23 monthly service fees; is that correct, Peter?

24 MR. MAYER: Yes, there were controllers that
25 require a monthly service fee, but the utility had retained

1 for those service fees for the period of the study. So we
2 know that everyone, during the time when the thing was going
3 on, have an active service fee.

4 There is a -- we did survey people, though, about
5 their willingness to continue paying for this fee after it
6 runs out and I can just tell you that we got a fairly small
7 sample responded, only six people, 20 percent said, yes,
8 they would continue to pay the service fee. Almost 47, 48
9 percent said no. And 32.6 percent said they weren't sure.

10 MR. GEORGE ALEXANIAN: Yes, and that was actually
11 my next question because I believe that most systems that
12 are monthly based, monthly service fee based are going to be
13 discontinued if the person, especially in this economy, has
14 to pay a -- even if it's \$5 to \$10 a month, they'd rather
15 not do that. So that is a concern that I would like to
16 express as a possible reason why in the future, if the
17 service fees are suspended, in other words the homeowner has
18 to pay it, that there would be less conservation, let's say,
19 because basically they would left with what I would call a
20 conventional controller. So that would be something you may
21 want to take a look at.

22 What was the average cost, would you say, of the
23 Smart controllers that you investigated; and I'm talking
24 about to the end-user, to the homeowner, unless they were
25 just given to them?

1 MR. MAYER: Well, in many cases they were just
2 given to them. And there really isn't average cost
3 information because these were all through the utility
4 incentive programs, so they were either rebates, or they
5 were just provided to them, or there were a variety of
6 mechanisms.

7 MR. GEORGE ALEXANIAN: Well, don't you think --
8 this is not a criticism, just a question. Don't you think
9 that in order to do a water cost benefit analysis we would
10 need to know the average cost of a Smart controller for the
11 purpose of this meeting here, or future meetings, that would
12 be, I believe, some important information to have.

13 Especially again, once again, in this particular
14 economic environment, if the average cost of a controller is
15 \$500, let's say, to get it -- not only the controller, but
16 to get it installed and programmed, whether they use
17 professional assistant or so forth, that would be a
18 significant expense.

19 If it were given for free some of the data -- or
20 not the data, but some of the conclusions, let's say, may or
21 may not be valid, in my opinion, unless that is taken into
22 consideration.

23 In other words, if something is given for free the
24 people are going to use it and probably report. But if you
25 say, go buy a controller, install it, program it, and then

1 report to us, you may find some resistance to that.

2 So if you can or have some of that information,
3 which we can get if you provide us with the different models
4 that were used, that may be some value to us.

5 Maybe I'm just talking out of my head here

6 But --

7 MS. WHITE: No, George, it would be valuable to
8 know.

9 MR. MAYER: And actually the report, in the
10 appendix of the report there's detailed information about
11 each of the brands included and as part of that we tried to
12 obtain retail price information, so that you can look and
13 see how much one of these controllers would cost if you were
14 buying it off the shelf.

15 In terms of how that falls into the cost-
16 effectiveness analysis, we -- what you could do, one
17 thing -- so we did look and we say, oh, the controller
18 you're interested was, you know, \$500, you can look and I
19 can say 10,000 gallons and my water rate is \$5 per thousand
20 gallons, then there's the analysis of justifying
21 expenditure, that's in the report. So that's the way we
22 handled the situation of not actually having, on a site-by-
23 site level, the cost numbers.

24 MR. GEORGE ALEXANIAN: Yeah. But I think this
25 Committee here is going to need more specific information

1 related to that in order to be able to make that
2 determination.

3 Now, finally, my last question and I'm sorry to
4 take up all of your time, or the people's time here, and I'm
5 really for the person holding the line, but I feel these are
6 important issues that we need to address.

7 You were talking about these charts, which are very
8 detailed, and that showed the water savings before and
9 after, and so on; have you done an analysis -- yes, that's
10 the one. Have you done an analysis as to that 14 and a half
11 percent savings, how much of that that is in real terms, in
12 terms of the overall water usage in the State of California
13 or is that strictly -- if I understood it correctly, that's
14 strictly the water savings of using or not using the Smart
15 controller?

16 MR. MAYER: No, that is strictly from these 2,294
17 sites. There was no extrapolation made to the State of
18 California whatsoever.

19 MR. STRAIT: I think he was asking does that
20 represent the percentage of the water they were using for
21 irrigation and the before water use?

22 MR. MAYER: Yes, that's 14 and a half percent of
23 outdoor water use.

24 MS. WHITE: Thank you. Thank you for that
25 clarification.

1 MR. GEORGE ALEXANIAN: Okay, I'm going to stop here
2 for now because I'm sure there's other questions, but I'm
3 going to reserve the right to come back later on, if I
4 could, and go into my analysis of water conservation
5 throughout the State of California, which I think is very
6 important for the Committee and everyone concerned here to
7 be aware of where I think we are, because we're all
8 concerned with getting the best bang for the buck.

9 As I said, my thing is to do it as simply, to save
10 water as simply, and energy, as possible.

11 So thank you very much, Peter, for your answers.

12 MR. MAYER: Yes, thank you, George.

13 MS. WHITE: Peter, Andrew Davis is on the phone and
14 would like to ask you a question. Andrew.

15 MR. DAVIS: Hi, Peter. On this, in the report you
16 report on the Hunter Controller System, and they have two
17 kinds of add-on devices, one's called an ET system, that has
18 a retail price of \$450, and another one is the solar system
19 that costs \$129.

20 Do you have in your report any analysis of which of
21 the add-on devices was used in the 44 or so controllers that
22 Hunter used?

23 MR. MAYER: That is a very good question and I will
24 look it up for you. I believe it was -- I don't believe it
25 was the solar system. I think it was the other one, but let

1 me just double check.

2 MR. DAVIS: Okay. Well, are you going to be doing
3 additional report from this?

4 MR. MAYER: Well, not at this point.

5 MR. DAVIS: Okay. Well, I hope you do because this
6 is an ongoing thing. Particularly when we get to like where
7 you're dealing with the issue of the homeowners may not opt
8 to pick up the signal feed.

9 Right now, all these timers that are based on the
10 signal feed are saving water. Well, when the homeowner, it
11 seems likely, is going to shop, change the signal fee, then
12 that Smart timer becomes a dumb timer and starts wasting
13 water like everything else in the field, so I hope you do
14 continue going on with your field testing here.

15 MR. MAYER: Well, the system that was reported to
16 us in terms of Hunter was the ET, the ET system.

17 MR. DAVIS: Okay, that's the expensive one. And in
18 two places in your report you state that our company has no
19 slot report posted. I wanted to say, as President of the
20 Accurate Weathersite Company, that that statement is true.
21 We're not having bad test results, we've simply not
22 submitted our timer for testing because I could not justify
23 spending \$3,500 for a 30-day report on slot testing that I
24 viewed as essentially meaningless in measuring water
25 conservation.

1 Slot testing is not able to measure the relative
2 effectiveness of timers that it tests, for the Proposition
3 13 field studies that you have presented to us is third-
4 party field tests of the relative effectiveness of the ET
5 controllers in the hands of contractors and homeowners. And
6 so that's why we have not posted any results to the slot
7 testing.

8 As you know, the slot testing allows manufacturers
9 to suppress that finding, you know, if the results don't
10 show a lot of savings or show a lot of waste, the
11 manufacturer says don't publish these yet, come up and
12 preprogram it and get it right. And so that's why the slot
13 testing, most of the results of the slot testing show that
14 everybody gets a hundred percent on most of the testing.
15 That's all I have to say.

16 MS. WHITE: Thank you, Andrew.

17 I do have another person here who has a question,
18 Gary.

19 MR. GALINAS: Thank you, I'll be short.

20 MS. WHITE: Thanks.

21 MR. GALINAS: Hi, Peter, this is Gary Galinas,
22 Watersafe.

23 You said one percent of the population had
24 dedicated irrigation meters; is that correct?

25 MR. MAYER: Yeah, half a percent of the sites in

1 this study were placed on a dedicated irrigation meter.

2 MR. GALINAS: Okay, so we all know how difficult it
3 is to derive outdoor irrigation from a meter, and it's going
4 to vary from meter to meter, to meter, to meter.

5 MR. MAYER: Yeah, and I can explain how we did that
6 in this study, which was through using minimum methodology,
7 so that, you know, like in a single-family residence, that
8 the minimum month resident indoor use only, and then we
9 annualized that and deducted it from the total.

10 MR. GALINAS: We've done the same thing before and
11 we had to cross-reference per capita use and end of the
12 month, and sometimes there's a discrepancy of like a hundred
13 percent difference when you use those two methodologies.

14 And so unless you have dedicated irrigation meters,
15 it seems like you can't really get this fine in terms of
16 your results and your statistics, because you're going off,
17 really, an inability to strictly define how much was the
18 irrigation versus, you know, a mixed-use consumption mix.

19 MR. MAYER: Well, you know, I think that's a fair
20 criticism of the study methodology. I think other people
21 would disagree and say that, you know, this method is
22 adequate.

23 We also did analysis on total water use, just to
24 make sure that we weren't saying that was not a fact in the
25 methodology, and we got, you know, comparable, essentially

1 savings. But that's not surprising.

2 So I, you know, I accept your point. And I've done
3 studies where you've utilized alternative methods.

4 But when you do a large study like this, you know,
5 the 2,000 sites, it's sort of more unrealistic to try and go
6 longer, or even install separate dedicated irrigation meters
7 for these customers.

8 So we do look at the usual water use and, you know,
9 it was quite similar to what has been found, particularly
10 when we looked at it for the residential sector, you know,
11 what we were coming up with was right in line with what's
12 been found through other studies.

13 So I think it's unlikely that that methodology
14 greatly influenced the findings.

15 MR. GALINAS: I appreciate that, Peter. This is
16 for the Commission, we are doing a study with San Diego Gas
17 and Electric, where we have about 80 to 90 meters, and
18 they're all dedicated. And although the study's not
19 completed yet, it's been implemented and I think the
20 Commission would be well-served to receive some of this
21 data. But we have to check with the utility to find out
22 whether they would release this or not.

23 MS. WHITE: If you can get it to us, we would
24 definitely appreciate the favor.

25 MR. GALINAS: Thank you.

1 MS. WHITE: Thank you.

2 MR. GALINAS: Thanks.

3 MS. WHITE: Now, Peter, I actually have a question
4 for you. What types of controllers were you replacing? Did
5 you, in this study, have any uncontrolled systems,
6 essentially the hose systems?

7 MR. MAYER: No, no. All of the controllers that
8 were replaced were, you know, the standard clock timers.
9 But we don't have the information about the make and model.
10 There's a nice storeroom in Southern California where
11 there's a whole stack of old controllers that they had
12 dropped off at one of their distribution events and you can
13 see, you know, kind of every controller under the sun in
14 that program.

15 MS. WHITE: Did you -- so you did not have
16 information on the type of equipment that was being replaced
17 to see if there were statistically different results between
18 a particular type of dumb timer that was replaced with a
19 Smart timer, or another?

20 MR. MAYER: No. No, that's not something that we
21 looked at.

22 MS. WHITE: Okay.

23 MR. STAACK: This is Bill Staack; I have a couple
24 questions, myself. Is this batter that you have is it
25 possible that we could group the data in terms of types of

1 controllers with the associated water savings?

2 MR. MAYER: Yeah, that's actually been done in the
3 report. We looked at the water savings by controller.

4 MR. STAACK: And then also break that down in terms
5 of which ones have a monthly fee and which didn't have a
6 monthly fee?

7 MR. MAYER: Yeah, you can certainly do that if you
8 wanted to, yes.

9 MR. STAACK: Okay, and then also the actual volume
10 of water savings?

11 MR. MAYER: Yes, and that's reported in the report,
12 in the report document. You know, I can tell you, if you're
13 interested, but the overall savings in one year was actually
14 970 acre feet.

15 MR. STAACK: Okay. Because one of the issues that
16 we may have in terms of enforcement is I'm not sure we have
17 legal authority to enforce a homeowner to continue having
18 monthly service fees. I don't see that as part of our
19 authority underneath the appliance.

20 So the problem might be that we may not be able to
21 -- if we can't guarantee that monthly service is going to be
22 part of this appliance, with the -- we can't guarantee any
23 kind of savings on those and we may have to remove that data
24 from your report and only be able to use the information
25 that we know that we could accomplish with the regulation in

1 our regulations.

2 MR. MAYER: Uh-hum, I understand.

3 MR. STAACK: Okay, because that's what we're stuck
4 with is our authority to adopt and to enforce.

5 MR. MAYER: Right.

6 MR. STAACK: Unless, you know, there's mechanism,
7 just off the top of my head, that the controllers were sold
8 with monthly services, which is kind of a bizarre thing to
9 do, that would at least guarantee that there's a service
10 associated with that.

11 MR. MAYER: I understand.

12 MR. STRAIT: I'd actually offer two pieces of
13 information. One, a few of the companies -- we've got
14 company representatives that may use controllers that
15 require a service contract, and some of them will retain the
16 settings that are downloaded when they are purchased, so
17 they will -- it will make initial contact and get that
18 general profile. They won't react to weather events or
19 anything. But in terms of getting an aspiration profile for
20 the areas they're serving, sometimes those things are
21 maintained, you'll go to the radars and say they have to be
22 maintained.

23 I think we have a situation, somewhat what you were
24 talking about with water sensors, where there's a real cost-
25 effectiveness, the question is raised so --

1 MS. WHITE: Any additional questions for Peter?
2 Ken?

3 MR. RIDER: Hi, my name's Ken, I'm with the
4 California Energy Commission.

5 MS. WHITE: Ken, please give your last name, too.

6 MR. RIDER: Rider.

7 MS. WHITE: Thank you.

8 MR. RIDER: The first question for you, Peter, is
9 when you say under-irrigated, are you referring in respects
10 to the controllers, what they would expect, or just in
11 general what people -- are these like brown grass or what do
12 you mean by under-irrigated?

13 MR. MAYER: What I meant -- I don't mean brown
14 grass by any means, and it doesn't relate to the controller
15 either.

16 What that means is that when you were to go --
17 let's say we were to look at the water use on site and then
18 we look at the area, too, and compare what the theoretical
19 requirement is for that site versus what they actually used.

20 So when I said under-irrigated, applied less than a
21 hundred percent of what we determined to the base
22 theoretical requirements for that site. So those are --
23 they look actually fine using 50 percent of the theoretical
24 irrigation requirements, or even 30 percent. There are some
25 landscapes that can do just fine with under a hundred

1 percent of the theoretical irrigation requirement.

2 MR. RIDER: So if you --

3 MR. MAYER: But we're not trying to decide any kind
4 of a value judgment about the quality of the landscape at
5 all.

6 MS. WHITE: So you want to actually -- when you say
7 you're looking at the site, you're doing an evaluation of
8 plant need as well, not just the --

9 MR. MAYER: Yes, that's --

10 MS. WHITE: Okay.

11 MR. MAYER: You know, there's a variety of
12 assumptions that you have to make with a study like this, so
13 we're essentially looking at the requirements of turf grass
14 across the state, or a little bit less than full requirement
15 for turf grass, but pretty close to that.

16 So, you know, sites that were slow in maintenance,
17 or a partial, probably had lower requirements, it would have
18 been less than a hundred percent.

19 MR. STRAIT: So you're talking about a generalized
20 profile, not one that's actually computed for each
21 residence, individually?

22 MR. MAYER: Well, it was computed for each. We
23 computed it, absolutely, for each site in the study.

24 MR. STRAIT: Well, was that then based on the
25 plants that were being found to be planted at that

1 residence?

2 MR. MAYER: No, we did not have any information
3 about the plants at that site.

4 MR. STRAIT: But you're using, for at least --

5 MR. MAYER: We're just assuming that it's turf
6 grass.

7 MR. STRAIT: Okay, thank you.

8 MR. RIDER: Yeah, thanks for the clarification.

9 MR. MAYER: Sure. But, you know, I might say as it
10 stands though that we're showing the fact of water savings,
11 though. Because, you know, the sites that, you know,
12 applied with a 70 percent of the theoretical irrigation
13 requirement before the controller, and 60 percent after the
14 controller, that's still a ten percent reduction at that
15 site. That doesn't impact the fact that there's actual
16 savings that occurred there.

17 MR. RIDER: Yeah, that makes sense. Another
18 question is so I'm looking at these factors that you have
19 here for what has caused water savings versus not to cause
20 water savings, and the water savings factor seemed to be
21 mostly human-related factors. You've got their habits
22 beforehand, the installation method, and the agency that's
23 participating, all human touches.

24 And then you have what did not influence, which was
25 climate zone and the style of irrigation control. So I'm

1 wondering, I mean, the whole point of the Smart controller
2 is that it recognized the location of the site and adjusts.
3 And you show that the climate zone did not impact the amount
4 of water savings. It makes -- it confuses me on where the
5 controllers actually caused the savings.

6 And did you do any kind of controller where you
7 just replaced a timer with a timer to see if it was
8 confounded, any of these variables were confounded just by
9 the fact that you were testing these sites for water?

10 MR. MAYER: Well, we had a neutral group so that --
11 yeah, so that's the way, we had a control group.

12 It's an interesting point; you're kind of looking
13 at it in a way that I haven't even thought about. You know,
14 I look at the fact that did it impact savings, and the
15 controllers were successful in all of those different
16 climate zones.

17 MR. RIDER: Oh, okay.

18 MR. MAYER: That it didn't make a difference which
19 climate zone they were in, they were able to achieve
20 comparable results in each climate zone.

21 MR. RIDER: Okay, that makes a lot more sense,
22 thank you.

23 MR. MAYER: So that kind -- you know, it's the same
24 thing with technology, you know, it didn't really matter
25 whether it was a controller, or a signal-based controller,

1 they achieved relatively comparable results, you know.

2 MR. RIDER: Yeah, thanks for the clarification.

3 MR. MAYER: Sure, okay, I hope that helps.

4 MS. WHITE: I have one last follow up and it's
5 related to a question that Ken was asking. If what you were
6 programming the Smart controllers for was essentially turf,
7 and you were using real data based on clock timers that had
8 been set more specifically to a site --

9 MR. MAYER: Well, Lorraine, can I interrupt you for
10 one second?

11 MS. WHITE: Sure.

12 MR. MAYER: When you said programming for turf,
13 that's not -- we don't know how they were programmed.
14 Hopefully, they were programmed for the actual plant
15 material on the site.

16 The turf was only our calculation of the
17 theoretical requirement for the site, so that would only
18 figure as to whether we found that hundred percent line
19 insightful.

20 MR. STRAIT: Well, I think that's the point that's
21 being raised, though, that if there were adjustments raised
22 to the specific plant life that was there, either by a
23 professional installer or by the person that was a self-
24 installer, and the -- what was present at that site was not
25 turf grass, it was in fact something that might have been

1 more water intensive or less water intensive, that would
2 confound the results and obscure what savings or what
3 additional water use was the responsibility of the
4 controller.

5 MR. MAYER: No, I disagree. Because what we're
6 looking at is how they were doing before they got the Smart
7 controller, and we're assuming the landscaping didn't
8 change. We had some survey on whether people had made
9 changes to their landscape on a limited set and whether it
10 would show if there was any -- if that appeared to have any
11 real difference.

12 But let's just assume it's the same landscape
13 before and after, okay. So again, so the customer has a
14 conventional controller beforehand and let's say we got a
15 mixture of turf and, you know, natives and once they were
16 there, they applied 80 percent of their theoretical
17 irrigation quality before the Smart controller; right?

18 MR. STRAIT: I know that we're not going to be able
19 to observe a relative reduction in water usage.

20 MR. MAYER: Okay.

21 MR. STRAIT: Absolute change in water use. You
22 found that out. I'm saying it might -- the -- this estimate
23 need might be a little bit misleading as it's being
24 presented.

25 MR. MAYER: Oh, okay. Yeah, you could argue with

1 that, that -- you know, that would be a way to improve this
2 project, absolutely, would be to get more detailed
3 information about plant material at each study, then you
4 could customize the theoretical irrigation of plants at
5 these sites.

6 I still think, though, that your savings would come
7 out pretty much the same based on the methodology we used,
8 because the ten percent reduction, you know, from 80 to 70
9 is still a ten percent, just like a ten percent change from
10 130 to 120.

11 MR. STRAIT: Okay.

12 MS. WHITE: Okay, and I'd like, actually, to finish
13 my question.

14 MR. MAYER: I'm sorry.

15 MS. WHITE: Don't worry. Actually, I want to go to
16 this slide. If you're calculating a theoretical need, and
17 you're not tracking how the previous clock timer was
18 installed or what the previous clock timer was, and that
19 your main factors that influence the water savings include
20 participation by agencies, such as follow-up visits, you may
21 have actually had this follow-up visits be part of the
22 reason why you got some savings in some areas and some
23 increases in other areas.

24 Because if, for example, you had someone who knew
25 how to run a clock timer and they now have a professionally

1 installed Smart time that is programmed for, you know, based
2 on your theoretical, for the ET at the site, and people come
3 back and say, well, you know, you need to adjust it this
4 way, you may have actually influenced the ability of that
5 homeowner to control what their watering schedule and
6 application actually is.

7 And I'm concerned that where you saw the best
8 influences of participating agencies, that same influence
9 may have resulted in savings with a dumb timer, you know,
10 just knowing that you don't need to use your dumb timer
11 three times a day for 20 minutes, and that could be simply
12 an educational thing.

13 So did you address any of those possibilities as a
14 result of these significant factors that influence and
15 whether or not that same influence could have occurred with
16 a dumb timer; did you address that moving point?

17 MR. MAYER: Well, not specific. Specifically, no,
18 it was not addressed. The significance of the agencies, I
19 need to go back and look at that, and review. But I'm not
20 sure that those agencies that did follow up, that appeared
21 to be significant. I need to take a look; I'm just looking
22 at it right now, here.

23 So the agencies that came out as significant, they
24 were only a few --

25 MS. WHITE: Okay.

1 MR. MAYER: -- and I feel in Northern and Southern
2 California, where they do do follow up, and one -- one in
3 Northern California where they did.

4 So it's a mixed batch. I don't think you can say I
5 did -- enable you, or they had sites that save water versus
6 those that don't save water in those agencies.

7 MS. WHITE: No, I think this study is a great one,
8 I'm really glad that you're continuing the work. We just
9 need to make sure that we understand the methodologies, the
10 actual analysis and the results of the study so that we know
11 best how to use them.

12 And of course, we will be contacting you quite a
13 bit over the next couple of months to make sure that we
14 don't misuse the data.

15 We have one more question.

16 MR. STAACK: And I have one more question after
17 that.

18 MS. WHITE: Okay, and Bill has a question. And
19 after these two questions, we'll move on.

20 MR. CARLSON: Hi, I'm Peter Carlson with Hydropoint
21 Data Systems.

22 I just want to make a few notes about some of the
23 things that have been talked about. First, we have over
24 1,600 controllers, Smart controllers that are currently
25 installed and being used. Of those we have a very high

1 subscription renewal rate.

2 As I think Peter noted, his sample size of the
3 people who weren't were being asked about the question of
4 payment was 46.

5 MR. MAYER: Yeah, very small.

6 MR. CARLSON: So when you ask somebody are you
7 willing to pay for something, typically, they kind of vary.
8 When they actually see the results, specifically in our
9 controllers, we see that they actually do pay those
10 subscription rates again and again. So that's one thing
11 that I wanted to express.

12 The other thing as far as the actual savings
13 percentage on average across the different controller
14 brands, regardless, it doesn't match many of the other
15 actual studies that have been done so far, even the big
16 studies. For example, in the LEDWP study we saved 95
17 percent of the savings potential and we were at 95 percent
18 of the actual savings potential.

19 So when you go and look at the actual weather
20 normalized requirements, these irrigation controllers can
21 save significant -- can have significant savings.

22 And the other thing, to your point, there has been
23 many -- before water usage jumped into Smart controllers, or
24 the Smart controller technology was even developed, many
25 agencies had tried to do user-based knowledge mechanisms,

1 and those have been shown to be very ineffective in terms of
2 either asking somebody to do something, sending them a
3 postcard, and you can go through different agencies, IRWD or
4 others who have tried that in the past, and those have been
5 shown to be ineffective in terms of actual water savings or
6 sustained water savings.

7 MS. WHITE: Peter, as a follow up, can I ask that
8 you help me get connected to those other studies, just so we
9 can bring them into the record as all.

10 MR. CARLSON: Great.

11 MR. STAACK: I do have a follow up on a statement
12 you made, in terms of --

13 MS. WHITE: Okay.

14 MR. STAACK: You used the word "saving potential."

15 MR. MAYER: Uh-huh?

16 MR. STAACK: How did you calculate that and is that
17 the type of information that --

18 MR. MAYER: It's part of the study that's available
19 on our website and I can provide that to you, so that would
20 be in detail.

21 MR. STAACK: Because that's one of the issues that
22 we have is trying to figure out savings potential, so we
23 need numbers and how that was calculated, and we haven't
24 quite figured that out.

25 MR. MAYER: And that was done by a very detailed

1 study, going through that, to go and look, and then we also
2 have other studies. As I said, we have 22 other independent
3 studies that show, and some also correlate them to energy
4 and water savings associated with that.

5 MR. STAACK: Okay. And my question to Peter is for
6 the study that you are describing today, what percent of the
7 data came as a result of monthly fees?

8 MR. MAYER: What percent of the data? Well --

9 MR. STAACK: Like half, or a quarter, or a third
10 or --

11 MR. MAYER: No, no, that's -- I believe, I'm not
12 sure, I know that the Hydropoint and their controllers were
13 on 642 sites, so those definitely had a fee.

14 MR. STAACK: Uh-hum.

15 MR. MAYER: And then I'm not sure which -- I'd have
16 to refresh my memory about which of the other brands that
17 have a fee, but it's around 50 percent.

18 MR. STAACK: Okay, I just wanted to get a rough
19 number, I'm just curious. Thank you.

20 MS. WHITE: Okay, we're going to need to be at the
21 end of this presentation because we also want to talk about
22 studies done to evaluate energy savings.

23 Gary?

24 MR. GALINAS: A fast question.

25 MS. WHITE: Okay, very fast, you promise?

1 MR. GALINAS: I promise. Okay, I just wanted to
2 iterate about this Hydropoint comment. LADWP, in case
3 studies, refer to when they came up with the six-month
4 report about half or more, and I can provide you with this
5 documentation as well, about the Hydropoint use, it actually
6 used more water.

7 We were also in that study, with water saved. And
8 by the way, we have a management program, it's not a user's
9 fee, it's a usage fee, it's an actual full on, two-way
10 remote management.

11 In the 95 percent, what he's talking about is the
12 ability to water according to what the ET requirements are.
13 We fell below that. And if you fell below that, that means
14 you can actually save more.

15 Their controller saved about 16 percent, or 16.7,
16 or whatever it was, and we were saving about 27 percent with
17 a management program.

18 LADWP had a study, when we were talking about
19 sending people out to the sites to -- you know, the water
20 utilities actually went on out to the properties. With
21 these kinds of systems that you have to program, additional,
22 which is kind of like the Hydropoint system --

23 MS. WHITE: Gary? Actually, this is a much more
24 appropriate discussion for when we start talking about our
25 questions.

1 MR. GALINAS: Okay.

2 MS. WHITE: Because we're getting at some of the
3 point we have to evaluate. How do we define waste?

4 MR. GALINAS: Right.

5 MS. WHITE: How do we measure savings? So if you
6 could just hold those comments --

7 MR. GALINAS: Will do.

8 MS. WHITE: -- and please avoid any kind of sales
9 job.

10 MR. GALINAS: Right.

11 MS. WHITE: Uh-huh. So Rich Brown, please, from
12 Lawrence Berkeley National Lab, has done some evaluations on
13 the energy side. And this is just to remind you that as
14 part of AB 1881 we are also to look at potential energy
15 savings.

16 And before you go, Peter, I just want to thank you
17 very much for doing such a great remote presentation and
18 tolerating our many, many questions. So thank you, Peter.

19 MR. MAYER: Thank you very much for the
20 opportunity, appreciate it.

21 MS. WHITE: You bet.

22 Okay, so Rich.

23 MR. BROWN: Okay, thank you. As Ms. White has
24 said, my name is Rich Brown and I'm from Lawrence Berkeley
25 Laboratory.

1 This is a little bit narrow, something completely
2 different, most of the focus here is on water and I'm going
3 to be talking about energy. So which is a little unusual
4 for the Energy Commission, usually its energy is the primary
5 focus.

6 So Peter's presentation, he was just talking about
7 a large field study and I'm going to be talking about a
8 small field study, so it's a little bit of a change of
9 direction there, also.

10 So we have an ongoing PIER-funded project. PIER is
11 an R&D program that the Energy Commission runs, with some
12 funding from the buildings program under PIER, to look at
13 what we call build/installed miscellaneous equipment.
14 They're the things like security systems, garage door
15 openers, things that are in houses when people buy a new
16 home.

17 And so we went out and investigated and metered the
18 energy use of several different types of equipment. And so
19 it turns out that irrigation controllers were one of the
20 types of equipment that we looked at. And Lorraine found
21 out about the study and invited us to come and present our
22 findings.

23 So these are -- I just need to be clear that the
24 purpose of this was not to inform this proceeding, you might
25 consider it more of a pilot study, or an investigative

1 study, rather than a large-scale study, but I think there's
2 some relevant information.

3 And the point of this was to develop information
4 that home builders could use in selecting products.

5 And I wanted to point out my colleague here, Peter
6 Biermayer, was the one who collected the field data in the
7 study and he can probably answer questions you have about
8 the details of the study.

9 So what we did is did essentially a sample of
10 convenience, trying to get a cross-section of the controller
11 products that are out there on the market and meter their
12 electricity consumption.

13 We went to a couple of water districts and also
14 found a few devices actually out in the field. And we
15 metered about 20 different units, representing 12
16 manufacturers; most of these were residential controllers.
17 And they weren't all new units, some of them were a few
18 years old, so there's a little bit of a cross-section there.

19 But what we tried to do was, you know, through a
20 sample of convenience try and get a broad cross-section of
21 the market to better understand the direct electricity use
22 of these devices.

23 The power measurements we did are using this plug-
24 in power meter here that you see in the slide. It's a very
25 accurate meter at low power, especially designed for stand-

1 by power studies, so it has an accuracy of about a tenth of
2 a watt. And we were just doing spot power measurements, we
3 weren't doing data logging or getting usage patterns, it was
4 just instantaneous power use of these devices.

5 And we looked at two different modes, what we're
6 calling standby mode, which is essentially when the timer is
7 just in -- you know, waiting to activate the irrigation
8 system. And active mode, we consider active mode to be when
9 it's actually activating the cellanoids and, you know,
10 activating the irrigation system.

11 And because these were demonstration units, by and
12 large, that we metered, most of them we couldn't actually
13 meter the active mode because they weren't connected to
14 functioning irrigation systems.

15 So mostly we just have -- all of them we got
16 standby readings and a few of them we got active readings.

17 And based on what we think are typical usage
18 patterns, how much of the year these things are actually on
19 active mode, based on -- you know, our best estimate is
20 about 90 percent of the annual energy use of a timer, either
21 a conventional or a Smart controller. About 90 percent is
22 in the standby mode, just sitting there waiting for the
23 irrigation sequence to happen.

24 Okay. So the Y axis here, that's a file conversion
25 issue. The Y axis is watts in standby mode.

1 So what we found, looking at that sample of about a
2 dozen conventional controllers and about eight Smart
3 controllers, was that the Smart controllers have higher
4 standby use by a couple of watts. And you see there's a
5 pretty good spread there.

6 Again, the Y axis is watts. Just for comparison,
7 one watt, if it's a standby type of consumption, it's 8,760
8 hours for year, that's about a kilowatt hour. Or, excuse
9 me, about a dollar a year in electricity consumption in
10 California.

11 So a two-watt difference is, you know, in energy
12 terms for a retail customer is about two dollars a year
13 difference in energy, which doesn't sound like a lot, but
14 when you multiply these by ten million or so houses, or
15 whatever the stock is out there, it adds up.

16 Like I said, there's a pretty big spread there.
17 You see at least one of the units we measured was under one
18 watt. One watt is considered kind of a good criterion level
19 for standby power consumption, so it does seem to be
20 possible to produce devices that use lower standby power.

21 Another question was what type of power transformer
22 was used, because some of these have a plug-in transformer
23 that produce 24 volt AC, and others are hardwired to 120
24 volt AC and have an internal transformer.

25 So one of the questions we had was, well, does it

1 really matter whether it's an internal or an external
2 transformer?

3 And, you know, based on what we found it doesn't
4 seem like there's that much of a difference. Again, it's a
5 small dataset so it's hard to draw conclusions. But just
6 based on the scatter in the data, it doesn't seem like the
7 type of transformer makes much of a difference.

8 There is an issue here that, I think as somebody
9 mentioned earlier, that power supplies, external power
10 supplies are regulated by the Energy Commission, and because
11 of the vintage of the devices that we metered, it's very
12 possible that most, if not all of these, were manufactured
13 before those standards went into effect.

14 And some may not, the standards may not apply to,
15 so that's something that the Commission should probably
16 consider in their analysis of this is how the external power
17 supply standards interact with any standard that's applied
18 to this product.

19 Another question or another factor that we looked
20 at was whether the number of stations that are provided by
21 these devices affects the standby power. Again, the Y axis
22 is standby power to draw.

23 And similarly for the conventional controllers, the
24 simple clock timers, it doesn't seem like there's much of a
25 correlation there between the number of irrigation stations

1 that are provided by the device and the standby power.

2 The Smart controllers seemed to have more
3 correlation there. From my admittedly naïve perspective, I
4 don't know a lot about the design of, you know, what's
5 inside the box here. It doesn't seem like the number of
6 stations that could be activated should affect the standby
7 power consumption of these things but, you know, there may
8 be reasons why that should be the case. And we think that's
9 a question that the Commission staff should consider in
10 evaluating options here.

11 Okay, so we're going to take a little bit of
12 explanation here, this slide. So there's this question,
13 okay, these devices are ultimately designed to save water
14 and I think most of us know that embedded in the water
15 consumed or the water we save is some amount of energy that
16 was used to transport the water and distribute that, and
17 we're conveying that savings off against potentially an
18 increase in electricity consumption in moving to Smart
19 controllers, you know, if these data are truly at this
20 higher power consumption for the Smart controllers.

21 So that raised the question in our minds about
22 what's the trade-off there? You know, you can save embedded
23 electricity in the water versus higher consumption at the
24 device, itself.

25 So we built this trade-off curve. And again I'm

1 sorry; the Y axis doesn't show up here. But that's the
2 percent savings of the baseline irrigation water
3 consumption. So this is analogous to that 14 and a half
4 percent savings that Peter showed in his slides, the kind of
5 summary of their study.

6 And that's compared to the baseline irrigation use.
7 And then the two different curves are showing Northern
8 California and Southern California because there are
9 differing levels of embedded energy in water. Basically, it
10 takes more energy to transport water to Southern California.

11 So what this is saying, essentially, is that the
12 less water you consumer or less water, let's say, a house
13 consumes in its baseline condition with the standard timer,
14 we have to save a higher percentage of that water in order
15 to justify, in order to pay back the additional energy use
16 of the Smart controller. That's essentially all this is
17 saying.

18 And these curves give you a sense of where that
19 break even happens. So essentially these are threshold, so
20 anything above the curve you have a positive payback, energy
21 payback from switching to a Smart controller. If you're
22 below the curve, you have a negative payback from switching
23 to the energy curve -- or excuse me, the Smart controller.

24 So for instance, in Southern California, if you're
25 getting, let's say, the 15 percent savings that Peter's

1 study showed, roughly 15 percent, you don't have to use much
2 irrigation water in the base case to have a positive energy
3 impact from a -- that's from a societal stand point.

4 Now, there are issues here, distributional issues
5 that the homeowner or the site operator is paying the energy
6 for the controller; whereas the water utility is paying the
7 energy for transporting the water, there's differing water
8 rates.

9 MS. WHITE: Rich, hold just a moment.

10 MR. BROWN: Yeah, is there an audio problem?

11 MS. WHITE: Go ahead, thank you. We just lost the
12 transcript person in --

13 MR. BROWN: Okay. So this is just to show this,
14 try and start to illustrate this tradeoff and give a sense
15 of what the thresholds are there.

16 So just kind of summarizing, some quick conclusions
17 from what we've found, it does appear that the Smart
18 controllers use slightly more standby power.

19 For all the controllers, based on what we think are
20 typical usage patterns, the vast majority is used in this
21 standby mode and so, from an energy stand point, that's
22 probably where you want to focus your effort.

23 It doesn't seem that the transformer type and the
24 number of stations strongly affects the standby power. But
25 let me be clear, this is a small sample and so that's the

1 best tentative conclusion.

2 And based on these tradeoff curves, it does seem
3 like the saved energy embedded in the water, the saved
4 water, can offset that higher power use on site but it,
5 again, depends on the site-specific conditions, where it's
6 located and how energy intensive the water is that they're
7 using or saving.

8 A couple other observations that I think the
9 Commission should consider, and this has come up a few times
10 now, and this is the analogy to programmable thermostats.
11 The basic idea is that these don't save water unless they're
12 programmed properly and I think that has been mentioned a
13 few times here.

14 And something in the programmable thermostat world,
15 something that's really very strongly being looked at and
16 considered now is the idea of user-interface and usability
17 standards.

18 And when I say standards here, I don't necessarily
19 mean a government regulatory standard, but more of an
20 industry type of voluntary standard that looks at how do
21 people actually use these things, what's the knowledge level
22 that one can expect, how do people interact with these, and
23 try and come up with best practices or essentially standards
24 on how we can present information and have the users
25 interact with these so they get the best performance, the

1 best water performance possible. So that's one thing to
2 point out.

3 And the other is that as these Smart controllers
4 become smarter and higher tech, you know, eventually I would
5 expect these, and they're probably already controlled on the
6 market, to have full two-way network connections, either
7 through Wi-Fi or internet, or Ethernet.

8 And one of the issues with network connections is
9 they tend to drive up the energy use of the device that's
10 connected to the network. So just the act of getting
11 connected to the network and maintaining network presence
12 tends to drive up energy use.

13 And so as another part of this project that funded
14 this work, we're working actually on standards to be able to
15 allow devices to remain on the network, but be in a low-
16 power mode. And so I think that would be another factor for
17 the Commission to consider for setting standards for these
18 devices is how do the information services that they consume
19 and rely on affect their energy use, and possibly their
20 water use as well. And I think that came up with the
21 subscriptions, for instance.

22 Okay, that concludes my summary of our work. And I
23 just want to mention, again, that this was funded by the
24 PIER Buildings Program here, at the Energy Commission.

25 So if anyone has any questions -- sure.

1 MS. WHITE: Does anybody? George. Actually, I
2 think he addressed your simplicity comment in his last
3 presentations; didn't he?

4 MR. GEORGE ALEXANIAN: This is George Alexanian
5 again, from Alex-Tronix.

6 The question that I would have is let's assume that
7 the 14 and a half percent for water savings, it could be 15
8 percent, 18 percent, 20 percent, whatever it is, that
9 translates, hopefully, to pumping energy savings, which may
10 be more important to communities, especially in view of the
11 infrastructure. So that if you have more people that occupy
12 an area, they have to provide more services and part of that
13 is water, which means not only availability of water, but
14 the energy required in pumping the water.

15 So has any study been done or are you aware of
16 anything that somehow correlates water savings to pumping
17 energy savings, and delivery savings, or anything like that?

18 MR. STRAIT: I can jump in and say we do tend to
19 refer to that as the embedded energy cost in water and we
20 recognize there is a significant embedded energy cost in
21 extracting, purifying, treating and pumping water, and
22 delivering, all of those steps. In terms of explicit --

23 MR. BROWN: Well, implicit in this chart, this is
24 the tradeoff curve here, implicit in those two curves or
25 each of the two curves is a different value for Northern

1 California and Southern California. And we took that from
2 Energy Solutions, we think their from an Energy Commission
3 report.

4 MS. WHITE: They're from a study that we made --

5 MR. BROWN: Yeah, so they're Lorraine's numbers.

6 MR. BROWN: Well, let's say 20 percent water,
7 everybody in their community after 2012, sooner or later,
8 sometime after 2012 everybody will have a Smart controller,
9 and where everybody is saving 20 percent water, just to pick
10 a number, how does that translate or is there a rule of
11 thumb if you're pumping energy and processing --

12 MS. WHITE: Me, without my calculator, George,
13 you're putting me on the spot.

14 Actually, when we did the study and we were able to
15 break out the differences between Northern and Southern
16 California, the water savings, especially communities in
17 which you have imported water requirements, the embedded
18 energy savings, of course, are going to be a lot higher.

19 There are some regions in Northern California that
20 rely a lot on pumping, deep well ground water, and you're
21 going to see significant embedded energy savings there.

22 MR. GEORGE ALEXANIAN: Well, it seems to me we'll
23 have to know those figures.

24 MS. WHITE: Yes.

25 MR. GEORGE ALEXANIAN: And us, manufacturers and so

1 forth --

2 MS. WHITE: Yeah.

3 MR. GEORGE ALEXANIAN: -- one thing that we'll know
4 is saving -- as you need, I need the water and energy
5 conservation, so I would like to know personally, and I
6 don't know to this point --

7 MS. WHITE: I will make sure those studies get to
8 you.

9 MR. GEORGE ALEXANIAN: I mean, hundreds of
10 thousands of dollars of designing and manufacturing of a
11 Smart controller, hey, I'm also saving some energy. Because
12 then I'm not accomplishing my second issue statement, which
13 is saving energy. So that's a personal thing --

14 MS. WHITE: Oh, yeah.

15 MR. GEORGE ALEXANIAN: -- and providing, of course,
16 every --

17 MS. WHITE: And in fact -- and in fact you'll also
18 be helping to reduce greenhouse gases associated with the --

19 MR. GEORGE ALEXANIAN: Well, there's a lot of
20 benefits, sure.

21 MS. WHITE: And the requests are listed on our
22 website and I can make sure that there is an appropriate
23 link to that through the irrigation controller website, so
24 that anybody who's interested can find those easily.

25 We did two reports. One we did in 2005, as part of

1 the Integrated Energy Policy Report proceeding, in which we
2 produced numbers that have been quoted a lot. It represents
3 about a 19 percent of -- the whole water use cycle
4 represents about 19 percent of the statewide electricity
5 use, and about 33 percent of the non-generation natural gas
6 consumption.

7 MR. GEORGE ALEXANIAN: Wait, wait, wait, 19 percent
8 savings on all the energy use in the State?

9 MS. WHITE: No. Water -- the water use cycle, that
10 means capturing the water, delivering it to a treatment
11 facility, treating it, delivering it to the end-user, taking
12 it from the end-user, putting it through a waste water
13 treatment process or disposing of it, that whole process
14 represents, statewide, about 19 percent of the overall
15 electricity use.

16 MR. GEORGE ALEXANIAN: Okay. Now, how much of that
17 can we save? I know you don't have the answer to that off
18 the top of your head, but how much of that can we save
19 because of the Smart technology and less water use; that's
20 my question?

21 MS. WHITE: And this is what -- this is what Rich
22 is getting to. There are regional differences because of
23 the energy requirement for that.

24 MR. GEORGE ALEXANIAN: Oh, I understand the
25 transportation and all of that, yes.

1 MS. WHITE: But we will be able to rely on these
2 numbers. We actually refined the 2005 numbers with a PIER
3 study in 2006 and it showed that essentially about, you
4 know, more than 70 percent of the energy, the electricity in
5 particular, associated with the water use cycle is at the
6 end use, and almost all of the natural gas. But that
7 natural gas use is mostly indoors.

8 MR. GEORGE ALEXANIAN: Uh-hum.

9 MS. WHITE: But for many -- for the embedded
10 energy, you're talking about 28 percent of that 19 percent,
11 to six to eight, depending upon where you live.

12 MR. GEORGE ALEXANIAN: That's the number, yeah.

13 MS. WHITE: Yeah. And so when you're looking at,
14 through water conservation, saving a significant amount of
15 water at the end use, and the Governor's mandate right now
16 is that we get at least 20 percent per capita reduction in
17 the State, if we can get at 20 percent, 30 percent just in
18 irrigated, outdoor watering, then that will contribute to
19 that per capita reduction.

20 We, as part of this analysis, will take that into
21 consideration. You can crunch the numbers yourself, if you
22 want to do it sooner, because the reports are there on the
23 web for you to use.

24 And we did want to differentiate for people what
25 we're talking about in terms of indoor water use, outdoor

1 water use, in Northern California and Southern California.

2 So it's there. And Rich, you can go around that --

3 MR. BROWN: That's where this is drawn from, yeah.

4 MS. WHITE: Yeah.

5 MR. BROWN: And the numbers used in this analysis
6 are the outdoor water use.

7 MS. WHITE: Right.

8 MR. BROWN: So we don't include the waste water
9 treatment.

10 MR. GEORGE ALEXANIAN: All right, thanks, Lorraine.

11 MS. WHITE: You bet.

12 MR. BROWN: One other thing I'll add is that the
13 Public Utilities Commission has a study underway to update
14 this and I think provide more detailed embedded energy
15 numbers.

16 MS. WHITE: Yeah, they want -- we're working with
17 the PUC to try and get more granular regional numbers and to
18 also be able to identify specific energy savings for a given
19 BMP, best management practice. So we're working on trying
20 to do better, but I doubt any of that data will be available
21 by the time we have to come up with the decision.

22 He's first and then Dave.

23 MR. CHARLES ALEXANIAN: Thank you. My name is
24 Charles Alexanian.

25 In response to your findings on standard wide power

1 consumption on the various controllers, that probably has
2 more to do with the current state of manufacturing with
3 the transformers used in these type of controllers.

4 They're used in the lower performing styles;
5 they're smaller, associated with smaller, less expensive
6 controllers.

7 More Smart controllers on the market nowadays, our
8 more expensive models are based on the more expensive models
9 of the various manufacturers, especially ones with hardwire
10 transformers are generally seen in larger transformers that
11 will have a larger waste component technology. Which I
12 would wager more power is wasted through heat and loss in
13 the transformer, itself, than in the actual controller.

14 Any irrigation controller sensor only draws a few,
15 it costs more operating to keep the lights on. But as much
16 as several watts of power may be lost just simply through
17 any currents of that, plus all of the manufactured imported
18 transformers.

19 MR. BROWN: Well, I think there was an issue, we
20 had kind of a discussion about this, about the same
21 transformers used for the power to actuate the cellanoid
22 balance, and that's a pretty high power drive relative to
23 the standby power. And so you're essentially designing one
24 transformer to do two very different purposes. One is to
25 provide this low voltage DC, you know, DC to electronics,

1 very low current draw versus this larger, but infrequent
2 active load power.

3 And so there may be some design solutions where you
4 have some --

5 MR. CHARLES ALEXANIAN: Yeah.

6 MR. BROWN: It's on the --

7 MR. CHARLES ALEXANIAN: Well, it can be
8 manufactured, but they're a higher cost to the end-user and
9 may not be palatable.

10 And additionally, since cellanoids, in industry we
11 have a standard 24 volt AC; you're not going to see a
12 switching power supply giving us an effective cost for quite
13 some time.

14 MR. BROWN: Right. And so this sort of question
15 always comes down to the manufacturing cost. And I think
16 this shows from, I guess you'd call it from the homeowners,
17 or the purchaser's perspective, what's the impact on their
18 energy bill, essentially, or their energy consumption.

19 MR. CHARLES ALEXANIAN: Yes. And then just I'm
20 sure that you know, but on average most of the landscape
21 types cellanoids draw on average about six watts, a quarter
22 amp in use is the number most of us use.

23 MR. BROWN: Uh-hum.

24 MS. WHITE: What was it your study showed in active
25 use?

1 MR. BROWN: It was -- Peter, what was the --

2 MR. BIERMAYER: Inactive use of cellanoids?

3 MS. WHITE: Peter, could you come and mention it
4 into the microphone so people on the phone can hear?

5 MR. BROWN: So one of the issues is how many
6 cellanoids are being activated at any one time.

7 MS. WHITE: Okay.

8 MR. BROWN: And I believe the measurements we took
9 were only activating one cellanoid at a time, which is
10 common.

11 MR. BIERMAYER: And in this study we were focusing
12 on standby power, not active power, but I just remember one
13 was nine watts and there was --

14 MR. BROWN: The average is -- the standard controls
15 that we measured were an average of about five or six watts,
16 and active, and we only got active on one Smart controller
17 and I think it was around nine watts.

18 MS. WHITE: Okay.

19 MR. BROWN: So that's the only one showing the
20 active power because it's really not --

21 MR. BIERMAYER: And also in the standby power, as
22 you can see form this chart --

23 MS. WHITE: Yeah.

24 MR. BIERMAYER: -- some were one watt and some were
25 six watts, and there's some overlap.

1 MS. WHITE: Okay, great.

2 MR. CHARLES ALEXANIAN: Thank you very much.

3 MS. WHITE: Thanks, Charles.

4 MR. ZOLDASKE: Dave Zoldaske, Fresno State.

5 Just a couple of thoughts, really, and could we go
6 back to your curve that you guys did, the two costs of water
7 in Northern and Southern California?

8 I know we're looking at the energy and I know the
9 government, I think 15 percent energy reduction and 20
10 percent water reduction; is that right, by 2020? Is that
11 what that is per capita?

12 MS. WHITE: Certainly the 20 percent per capita by
13 2020.

14 MR. ZOLDASKE: For water?

15 MS. WHITE: Yeah.

16 MR. ZOLDASKE: Isn't there a similar one for
17 energy?

18 MS. WHITE: There are efficiency goals set by the
19 PUC for all of the investor-owned utilities and we set them
20 for the public utilities through our various planning
21 proceedings.

22 And essentially, the only goal I know of for the
23 Governor's Executive Orders has to do with renewable power
24 generation. Do you guys --

25 MR. BROWN: Well, there's also greenhouse gas

1 goals, AB 32.

2 MS. WHITE: There is, I'm sorry.

3 MR. BROWN: Which is one percent by --

4 MR. ZOLDASKE: Well, what I wanted to point out
5 here is my information on the energy savings, but the
6 likelihood of being short water in this State, you know, we
7 got to reduce our -- and the average in that, I thinking,
8 for PTO is a thousand gallons for water. So we live on 25
9 gallons for two watts or something, I mean, if you want to
10 put it in those terms.

11 And I think that the price that the consumer's
12 paying for the utility also includes, I would think,
13 opportunity costs by having additional water sort of coming,
14 so the potential of having to buy very expensive water.

15 So I guess what I'm saying is we got to look at
16 this stuff and do an analysis, and I think it's important
17 that you look in the opportunity costs of having to bring in
18 additional water, and those costs are going to be extremely
19 high going forward.

20 So it's more than just the energy equivalents here
21 we're looking at, and so I just -- I want to make sure we
22 don't lose sight of that because we're going to have a very
23 difficult time in the next 10 or 11 years trying to meet our
24 water demands around here. And I want to make sure we're
25 just not trading energy --

1 MS. WHITE: Right.

2 MR. ZOLDASKE: -- and really look at if those extra
3 25 gallons, where would those come from, you know, is that
4 from the deeper holes, is that from --

5 MS. WHITE: And it's going to be regionally
6 different.

7 MR. ZOLDASKE: That's true, that's true, there's no
8 question about that.

9 MS. WHITE: Right.

10 MR. ZOLDASKE: But I just want to make sure that it
11 just doesn't -- the energy side, I know, is what you guys
12 are about and it's pretty easy to make those distinctions.
13 But I think the total sum of things, in lieu of what the
14 State's trying to do, it seems to me that we really have to
15 look beyond at it and what's the additional cost of that
16 water going to be if we don't achieve these savings, it's
17 not just the energy savings, the additional costs here.

18 MS. WHITE: And this is where we're really hoping
19 that some of the water agencies can help provide us with
20 data. Because is it going to be an issue of the next
21 incremental cost of water, the marginal cost of that next
22 increment, or are we talking about in some systems an
23 average of the water cost, and that's what we should be
24 looking at?

25 So I'm -- we're all trying to figure out how to do

1 this cost-benefit analysis, and one of the reasons why you
2 have so many of those kinds of questions on --

3 MR. ZOLDASKE: Right.

4 MS. WHITE: -- those key questions list that we
5 have.

6 MR. ZOLDASKE: So, you know, so I'm just hoping
7 when you get into the value of saving water that we take in
8 all of those externalities, because I think those are very
9 real if we're going to try to meet this 20 percent by 2020.

10 MS. WHITE: Thank you.

11 MR. ZOLDASKE: And make sure we account for that.

12 MR. BROWN: And another issue here is that the
13 embedded energy numbers here I believe are average numbers.

14 MS. WHITE: They're average, yes.

15 MR. BROWN: And those -- those marginal water
16 supplies are probably going to be higher energy per watt.

17 MS. WHITE: Significantly.

18 MR. BROWN: The other point you make, you really
19 did point out the tradeoff. I posed this as a tradeoff, but
20 I don't think it has to be a tradeoff. Yeah, I don't see
21 any reason why a Smart controller, in standby mode, should
22 use more than a conventional controller.

23 MR. ZOLDASKE: Well, if this is -- they're going to
24 be referencing weather --

25 MS. WHITE: Dave, you need to be --

1 MR. ZOLDASKE: I'm sorry.

2 MS. WHITE: I want to catch everything and,
3 unfortunately, we don't have everybody in the room, and this
4 is very --

5 MR. ZOLDASKE: I would just mention that some of
6 these do reference a station or zone, so they're
7 periodically irrigating stuff --I would just mention that
8 some of these do reference a station or zone, so they're
9 periodically irrigating stuff --

10 MR. BROWN: Right.

11 MR. ZOLDASKE: -- so they're not in standby mode as
12 often.

13 MR. BROWN: Yes, sure, and there are analogies for
14 regulating those type of -- for instance TD's download and
15 program guides periodically, and the standards have been
16 crafted in a way that allow them to do that, but the vast
17 majority of the time they're in this low-power, you know,
18 energy-saving mode.

19 And so it's possible, I think, to craft it in a way
20 that allows you to have the functionality, but get the
21 energy and the water savings, hopefully.

22 MR. STRAIT: Yeah, let me add onto there, that you
23 can have -- there's differing kinds when you're pulling like
24 every two minutes, every ten minutes, or some of them pull
25 like every two hours.

1 MR. ZOLDASKE: Well, that's -- or some may be 24
2 hours.

3 MR. BROWN: Yeah, exactly.

4 MR. ZOLDASKE: At that point they're pretty level
5 altogether, because I think some of those different
6 platforms will perform better or worse, if you believe some
7 of the philosophy built into those.

8 MR. STRAIT: Yeah. Well, from a standards
9 perspective what we can do, what we've done in previous --
10 maybe similar devices, of similar circumstances, is that if
11 there's an overall cap on the amount of power that they're
12 running in a standby mode, or in some sort of average over a
13 24-hour period that they're -- obviously, whatever method
14 will get them below that. But it's very interesting that
15 some of it is updating every five minutes probably will not,
16 or will have significantly more trouble meeting that
17 threshold as some that is only updating every, you know, 24
18 hours.

19 MR. ZOLDASKE: I'll just give one example. Those
20 that have tipping rain buckets will claim that they can then
21 stop and adjust irrigations immediately, as opposed to other
22 devices that might, on 24 hours, measure rainfall and not
23 account for initial rainfall, and then edge that to a saved
24 water applied in water, so a higher level of
25 instrumentation.

1 And whether that's of value, I'm not here to say,
2 I'm just saying that there are those different platforms out
3 there. And so I just would expect that it's in detail that
4 you need to look at those different platforms and --

5 MR. STRAIT: Sure.

6 MS. WHITE: Well, I think we're actually moving
7 into the discussions now on our questions.

8 And Charles, I know you have a question for Rich or
9 do you have a comment?

10 MR. CHARLES ALEXANIAN: I have a comment.

11 MS. WHITE: Okay, we're going to be going through,
12 as part of the next section of this workshop, the key
13 questions that we're posing. And if there are no more
14 specific questions for Rich -- yes, sir?

15 MR. POPE: Ted Pope, with Energy Solutions at PG&E.

16 MS. WHITE: Hello, Ted.

17 MR. POPE: I apologize, I may have missed it, Rich,
18 did you hypothesize what the load of the moisture sensor is
19 and so forth would be in those who are connected to the test
20 data? Maybe the gentleman over here had said, I may have
21 missed the number.

22 MR. BROWN: Yeah, that was something we didn't look
23 at. All of the Smart controllers that we looked at were not
24 connected to sensors.

25 MR. POPE: Okay, so --

1 MR. BROWN: I think one was. And so I think that
2 gets to if, in any kind of standard, there needs to be a
3 test procedure to actually, I don't know, on an objective,
4 comparable basis to compare energy consumption.

5 And so there's a lot of issues there about for
6 these more sophisticated controllers, they may have sensors,
7 and different modes, how do you actually create a test
8 procedure that fully compares against different products.

9 MS. WHITE: So I'm just confirming, based on what I
10 think is true, that there is no standard test procedure
11 currently for energy land of controllers or sensors; is that
12 correct?

13 David is shaking his head. The gentleman there is
14 also shaking his head, okay.

15 MR. BROWN: There is a standard test procedure for
16 standby power, generically.

17 MS. WHITE: Yes.

18 MR. BROWN: Which is defined as the lowest
19 consumption level while still connected to the mains.

20 MS. WHITE: Okay.

21 MR. BROWN: So that will go and measure that very
22 lowest level that any device has, it wouldn't account for
23 these data acquisition modes, or other --

24 MS. WHITE: And those are more external, right, in
25 terms of --

1 MR. BROWN: No, that's for any device.

2 MS. WHITE: Any device, okay.

3 MR. BROWN: Yeah, there's an IUC test procedure for
4 standby power.

5 MR. POPE: So at the risk of standing out, I guess
6 I just want to state for the record that, you know, if we
7 are going to move forward with a standard that essentially
8 encourages the Smart controllers, PG&E just wants to make
9 sure we do it in a way that doesn't generate increase in the
10 average energy use.

11 MS. WHITE: Thank you. Any other questions for
12 Rich?

13 MR. RIDER: Hi, this is Ken Rider. This is mostly
14 due to my poor vision, but on the few things asked here, do
15 you know, based on the Aquacraft results, where the Smart
16 controllers would land on that curve?

17 MR. BROWN: Well, the summary results that Peter
18 showed were about 15 percent, so that would be 15 percent
19 savings on the Y access, and Y access is water savings, a
20 percent of baseline.

21 And so then where you fall on this chart would
22 depend on what your baseline consumption is. So if you're a
23 very low consumer and you save 15 percent -- a low consumer
24 to begin with and save 15 percent, it may be -- and in
25 Northern California it may not -- the energy tradeoff may

1 not work in your favor or society's favor.

2 MS. WHITE: And you're saying based on that chart?

3 MR. BROWN: Based on this chart it would probably
4 fall below --

5 MS. WHITE: A hundred gallons.

6 MR. BROWN: Right, to get the threshold, in
7 Northern California it's about a hundred gallons a day of
8 baseline outdoor water use.

9 And Southern California is probably 25 gallons a
10 day, something on that order.

11 MR. RIDER: And this doesn't include active mode;
12 right?

13 MR. BROWN: This does not include active mode. So
14 this assumes that it's in that standby level, the average
15 standby level, 87/60 hours per yard.

16 MR. RIDER: And does your study have any kind of
17 estimate of the number of hours of active mode use
18 consumption?

19 MR. BROWN: No, we didn't do long-term field
20 studies, so we don't know.

21 MR. RIDER: All right, thanks.

22 MS. WHITE: Thanks, Rich.

23 MR. BROWN: Sure.

24 MS. WHITE: Everybody's been sitting here,
25 wonderfully participating in this workshop, and I think we

1 all could use a five-minute break to stretch our legs, and
2 before we get into the discussion on the questions.

3 So if folks can be back here at about ten minutes
4 to 4:00 or so, we'll get into the questions.

5 (Off the record.)

6 MS. WHITE: Thank you. All right, there are many
7 questions that we explore as part of our regulatory
8 proceedings, and in particular for this Appliance
9 proceeding, for the irrigation equipment, we have defined
10 probably the short list. It may appear to people to be a
11 long list of very detailed questions, but they are all very
12 important questions that we have to explore and we feel we
13 need to be able to get answers for in order to do adequate
14 analyses to justify any kind of regulatory requirement.

15 And in particular you'll notice that these types of
16 questions get to those three criteria and our ability to
17 meet the three criteria, essentially to identify a method or
18 device standard that allows for significant energy or water
19 savings, that can be feasibly achieved, and that results in
20 true cost savings to the consumer.

21 And, you know, some of these things may seem kind
22 of basic to you on the surface, but it really gets to be a
23 bit more complicated than that.

24 For example, the very first question, which is how
25 are we currently defining water's waste in landscape

1 irrigation that these components or these devices would
2 address and actually be able to reduce?

3 And what studies have been done that document and
4 substantiate this understanding of the water waste?

5 We are also getting at the devices, themselves,
6 what is it about these devices, mechanically or
7 electronically, that allows them to be a device that can
8 achieve these kinds of savings, whether it's the controller,
9 or the sensor, an add-on advice, allow for something like
10 that, what is it that is actually being able to achieve
11 that?

12 So when we compare devices we can define what kind
13 of metric or performance requirement we need to define in
14 order to achieve those savings.

15 So we're really differentiating well into
16 performance of different kinds of devices.

17 We're looking at costs. What's the cost of the
18 device at the retail store, to a consumer; what is the cost
19 of the water; what is the cost of the energy; how are we
20 going to be able to evaluate over the life of the product
21 any kind of savings, or any kind of tradeoff, or any kind of
22 additional expense, so on and so forth?

23 So what I would like to do at this point and Peter
24 has agreed to help facilitate some of this discussion, is go
25 through and highlight some of these questions. And I would

1 like to do this -- and I know you haven't seen these before,
2 so we also want to explain the question and what we're
3 trying to get at, so that you can provide us good input over
4 the next two weeks, so that we can take that input,
5 incorporate it into our analysis, and react to it
6 appropriately and develop, as part of this proceeding, the
7 report we keep referencing, by the end of July.

8 And extract from this information the kind of
9 language, the actual language that will be in the regulation
10 that is the standard. And it will be that language that we
11 submit to the Office of Administrative Law for them to do
12 their second phase of the proceeding.

13 And what I'm referring to is in this diagram, this
14 green circle or portion of a circle there, where we're
15 talking about publishing the actual language that starts the
16 regulatory proceeding clock that is a rulemaking.

17 And once that's published, after we create it in
18 this preliminary process, we have 45 days for a public
19 review. And this public review will also include a public
20 hearing, where people can make verbal comments, as well as
21 written comments, where we try to make sure that that
22 language is in fact what it needs to be, and that we have a
23 strong record on which to substantiate that language.

24 We'll be looking at all of the material people have
25 submitted, and the comments that we've gotten to date and,

1 if necessary, refining that language.

2 And if we have to refine it there will be an
3 additional period for comments, just on the refinement.

4 If it's fine and everybody's in agreement, it
5 actually goes into a final statement and will be finalized
6 at that point.

7 Hopefully, we'll have done such a great job in the
8 next couple of months that we come up with really good
9 language that needs little or no tweaking by the time that
10 we get to this process.

11 So getting the answers to these key questions is of
12 imminent importance to us. And the more complete the
13 answers, the more refined and strong the language can be to
14 actually get the savings we're looking for.

15 So I have three slides here, because we have 17
16 questions that we've published. And you can respond to all
17 of them, you can respond to some of them, you can just focus
18 on the ones you know best; you can direct us to reports that
19 hopefully will answer some of these questions for us.

20 But Peter and I will walk these through. I'll take
21 the odd ones and he can take the even ones. And we welcome
22 people to ask questions about them, we welcome people to
23 provide us things that we have to consider.

24 Like, Dave, you were talking about some things that
25 we need to consider about the next increment of the water

1 cost and things like that. So as we go forward, we'd like
2 to have you provide that input.

3 So as I was saying, our first question gets to a
4 real fundamental one, how do we define the waste of water
5 that's currently occurring that these standards will
6 hopefully address and reduce?

7 What are the different categories of those that
8 we're really trying to deal with and are there other
9 strategies we need to be considering to help mitigate them?

10 And the reason why we need to know this gets to the
11 topic that was brought up earlier, what is the opportunity
12 for water savings that these devices are trying to actually
13 get us closer to?

14 And can we, based on what we know about what is
15 currently being wasted, define what could possibly through
16 these standards be saved and, therefore, defining a
17 potential savings that we want to try and achieve.

18 So does anyone want to have any question on that
19 question? It sounds kind of silly but it's true. Or will
20 we be able to hear some good responses?

21 Gary? And then George.

22 MR. GALINAS: I'll try and be quick. With the new
23 draft water restrictions that are being imposed in Southern
24 California, most of them are requiring that you can only
25 water for two to three days per week.

1 If this gets enforced and implemented, I don't
2 think the opportunity for savings is going to be as
3 significant, because then people will have probably deficit
4 irrigating that's much lower than what the ET requirements
5 would be.

6 So my concern is that if this is implemented
7 statewide and lawmakers are passing, you know, local
8 ordinances basically requiring this, then some of this
9 becomes a rather difficult exercise in trying to identify
10 savings. So that would be my comment.

11 MS. WHITE: Thank you. George.

12 MR. GEORGE ALEXANIAN: I want to echo what Gary
13 just said, is the Smart controllers will generate water when
14 they calculate the watering is needed for the specific
15 landscape.

16 Whereas if watering schedules are implemented in
17 various water districts, to me there appears to be a certain
18 amount of incompatibility with water rationing, let's say,
19 versus Smart water technology. Because if you can only
20 water on the days that it's calculated to water, it's a non-
21 watering day now, you have to put it off and that can put
22 your plants under stress at the wrong time of year, so
23 that's an issue that I think should be addressed.

24 As far as answering your question with respect to
25 the water waste, it appears to me system inefficiency or

1 efficiency, as you might call it, is one area of water waste
2 and that probably accounts for close to 50 percent of all
3 the water used in landscaping.

4 Runoff would be another water waste. And this can
5 be controlled by a Smart controller.

6 Once again, a system inefficiency cannot be
7 addressed by a Smart controller, so that's probably the
8 majority of the waste, along with the runoff. So that's how
9 I would define water waste.

10 The only water you can save is the part that the
11 controller or the Smart controller can control; basically,
12 it's about 50 percent of the water used in landscapes.

13 MS. WHITE: George, just a clarification. Could
14 you address the drought restrictions in programming for most
15 of the Smart controllers on the market today or would they
16 have to be redesigned to do that?

17 The Southern Nevada Water Authority looked at that
18 question a couple of years ago and they asked Toro if they
19 would design their watering restrictions in with their Smart
20 controllers, and as far as I know they have not done that,
21 did not do it at the time.

22 There may be a time when this needs to be addressed
23 by the industry in being able to provide non-watering days,
24 depending on the region that the people live in, because
25 it's going to be different.

1 So in Nevada, for example, they have six different
2 watering groups, depending on the time of the year, and the
3 time of the day, and the watering group that they're
4 assigned to.

5 In Fresno there's an even/odd. I don't know what
6 they're going to do exactly in Southern California, maybe
7 Gary knows that better than I do.

8 But there's going to be all different types of
9 watering restrictions imposed, whether that's compatible
10 with Smart controllers is an issue, at least in my mind it
11 is. Maybe someone else can address that concern, that
12 issue, but that's something that needs to be addressed.

13 MS. WHITE: Yes, sir?

14 MR. CARLSON: Peter Carlson, HydroPoint. I
15 strongly agree with Gary regarding the water restriction
16 issues. Depending upon the different controllers they
17 handle the water restrictions differently.

18 Our controller handles most of the different
19 combinations, if not all of them.

20 But either way it doesn't really lend toward plant
21 health, which we think is a critical component for
22 successful Smart irrigation.

23 And the other component is that if somebody is
24 geared toward only watering two days a week, or odd/even,
25 then he might be more likely, because more Smart controllers

1 have a user option for gardens, or other scenarios, it would
2 be more likely for the user to convert it out of the Smart
3 mode and then over-irrigate on those days.

4 So as far as wastes go, I think taking the control
5 out of the Smart controller's option is probably one
6 negative associated with that.

7 The other side of it is I think a lot of, also,
8 landscape contractors, if they're tweaking it, which is
9 interesting on this self-install versus professional, are
10 getting used to Smart controllers and are getting trained as
11 it's kind of come of age in the last couple of years.

12 MS. WHITE: Uh-hum.

13 MR. CARLSON: And sometimes they'll crank up on the
14 percentage to handle system inefficiency issues, especially
15 have the controller water more, than let the controller do
16 what it does best and fix the system, when it's used
17 appropriately.

18 MS. WHITE: Peter, when you say "plant health,"
19 could some of the water demand associated with particular
20 plant types, if you were to switch them out so that they
21 could tolerate lower water demand, would that address it, or
22 is this a comment overall.

23 MR. CARLSON: I think this is a comment overall.
24 Different plants have different crop coefficient factors.
25 Cold season turf is different from warm season turf, is

1 different from shrubs, and so there's a whole study done,
2 you know the Woocall Study, showing the different watered
3 plants. Different controllers handle that differently, with
4 a cap for the cost-efficient, and that's what our controller
5 does, it caps for the cost-efficient for the plants, to be
6 able to handle the slot protocol, itself.

7 Most of that question would be able to make sure
8 that the different controllers would manage these different
9 plant types and the different plant requirements. And so as
10 far as the wastes go, I think that converting it out of an
11 automated, or weather-based, or Smart controller methodology
12 essentially -- and restricting it for certain days tends
13 toward over-irrigation.

14 And I think there have actually -- I'd have to go
15 look, but I think there have actually been studies on that,
16 based on different people who have done that in the past,
17 different water agencies, where setting up watering
18 restrictions actually increases water usage versus lowering
19 it.

20 MS. WHITE: What about water budgets?

21 MR. CARLSON: Water budgets, if you think about it
22 from the perspective of how does a water agency management
23 that; one way that many water agencies are doing it are
24 through tier rate structures. So not necessarily going and
25 saying here's your water budget and we'll cut you off in

1 water, right, because you can't do that, but by going and
2 having water budgets based on a tiered water structure,
3 we're definitely very supportive of that idea and being able
4 to have weather-based or ET-based water tiers to be able to
5 do that.

6 We definitely work with a lot of different water
7 agencies to help them learn about how conservation and how
8 the tier-based structures can help make that happen.

9 MS. WHITE: Thank you, Peter.

10 Yes?

11 MR. MURAKAMI: Hi, I'm Leah Murakami, with
12 WaterSave. And I just want to address what I think the last
13 two people have been saying.

14 I work in Los Angeles and L.A. can just -- as of
15 today they have new water restrictions, properties can only
16 water on Mondays and Thursdays for ten minutes.

17 So my customers, who have been saving a lot of
18 water year after year is now saying, well, why should we
19 have a Smart timer, or a Smart controller, or watering
20 metering system when we're only limited to Monday and
21 Tuesday, we're just going to maximize our watering on those
22 two specific days? If there's a head, they're going to take
23 out the one that's less efficient and they're going to put
24 in the one that would put in as much water as possible,
25 because they just want to make sure that their plants

1 survive.

2 And so even -- so now, of course, now all of the
3 weather-based controllers and water management systems are
4 not going to be used the way they should be used, and they
5 will either cancel their service or they will revert to a
6 conventional controller.

7 And I heard that a lot of the other agencies are
8 looking at L.A. and they're going to follow that.

9 MS. WHITE: Uh-hum.

10 MS. MURAKAMI: And so it's interesting just
11 because, you know, for years they've been pushing water-
12 based controllers and saving water, and all of the sudden
13 it's kind of gone off of that.

14 So here we are, talking about AB1881, and yet
15 there's these regulations that are actually going against
16 what our goals are.

17 MS. WHITE: Thank you.

18 MR. STRAIT: If that's all the questions, I guess,
19 for question one, we'll move onto --

20 MR. SMITH: Yes, actually, I have one. Are we on
21 question one because I'd like to address a question about
22 that.

23 MS. WHITE: Oh, yeah, we're --

24 MR. STRAIT: Yeah.

25 MS. WHITE: Well, these kind of questions build on

1 other questions, build on comments but --

2 MR. STRAIT: This is going to be semi-informal that
3 if you want to jump around a little bit that's fine; we're
4 going to just walk through these.

5 MS. WHITE: And in fact, the idea is to try to
6 introduce you to the types of things we're grappling with
7 and try to get your input on how to address this stuff.

8 We may not get through all of the questions and I
9 doubt today we'll get to try and get that language, but
10 these are the things that we want by the 15th to get answers
11 to, which we've got, and clarification.

12 MR. SMITH: Andy Smith, Irrigation Association.
13 Nice to meet you.

14 MS. WHITE: Yes, face to face, nice to meet you,
15 Andrew.

16 MR. SMITH: Real quick, fundamentally, when I think
17 about how you characterize this water waste, I see water
18 waste as either being direct or indirect/cultural. And when
19 I try to characterize these things I look at the waste being
20 runoff which was, you know, basically, some of the
21 restrictions actually are current or not, which I understand
22 where they're headed with that.

23 MS. WHITE: Right.

24 MR. SMITH: But also deep percolation losses that
25 take place whenever we're applying water both beyond the

1 root zone, where the plants can't get at it; there's
2 overspray, where we're delivering water to a non-targeting
3 area or across turf surface; and then the distribution
4 uniformity element that's in there, or system efficiency, or
5 however you want to characterize that.

6 Consumers want green grass and healthy plants. And
7 so, consequently, if there's a weakness in the system they
8 do everything they can to compensate to that, and the first
9 thing they do is go to that controller and turn them out.

10 So DU is something that's going to be critical as
11 you start to address some of the other components to draw
12 through, you know, the demand for some of these other
13 devices that improve the distribution uniformity.

14 MS. WHITE: And DU is?

15 MR. SMITH: Distribution uniformity.

16 MS. WHITE: Okay.

17 MR. SMITH: As far as strategies for mitigating
18 them, I mean when I think about that, I mean we can have
19 something just as simple as a broken pipe. I mean, it's in
20 the teens how much water is actually lost just in our water
21 distribution systems in the country, it's a significant
22 amount of water that's just lost through leaky pipes,
23 getting water from point A to point B.

24 MS. WHITE: Uh-hum.

25 MR. SMITH: So we have leaks in irrigation systems

1 as well, so and if we don't have a way to contain and
2 measure that, it's going to be kind of hard for us to
3 determine whether or not we just have a leak out there in
4 the system.

5 Going forward, I mean I envision this industry
6 adapting to something where the clock and the calendar is
7 used only to define water window, and we are making all of
8 our scheduling decisions based on climatic data or sensory
9 feedback; what's the plant feel, what's the weather like, et
10 cetera, et cetera.

11 So I think that's, you know, where the rubber meets
12 the road in this conversation. I think that demand-based
13 controlled technology is definitely the place where we need
14 to go because, as it stands right now, we drive up the
15 driveway as contractors, that looks brown, I'm turning the
16 controller up. We turn the controller up on a timed cycle
17 and the chances of that ever being turned back down later on
18 in the season, or as the demand goes down, or an ET drops is
19 pretty slim.

20 If we automate that process, we've made a huge
21 stride forward.

22 So technology can help us compensate for that.

23 The other thing that's going on with distribution
24 uniformity and even drift off the target is over- and under-
25 pressure. If we under-pressurize, sprinklers don't perform

1 the way they would normally like to perform, so people
2 compensate for that by turning the controller up.

3 If we over-pressurize, we get atomization and wind
4 drift and the water doesn't make it to the target.

5 Once again, everything that we do through this
6 process, I'd like to think that we're trying to make the
7 technology compensate for our over-abundance of human
8 weakness in the field.

9 So with that I'll -- I've got a whole bunch of
10 them, but I'll just leave them for questions. I'd just as
11 soon do them one by one, if that's okay.

12 MS. WHITE: Sure, sure.

13 MR. STRAIT: And if there is some additional
14 material that may not make it into the discussion, we are
15 certainly willing to accept written comments and materials.
16 And, of course, from people that may not hang around.

17 MS. WHITE: We're actually actively encouraging
18 written materials.

19 MR. STRAIT: Yeah.

20 MS. FLORES: Lynn Flores, with Sonoma County Water
21 Agency. And I'd like to suggest, from a water agency
22 perspective, that we look at the water waste reduction
23 ordinances that are in place, agencies have been
24 articulating what is water waste and how to communicate it
25 to the public for years and years.

1 They're, for the most part, pretty standard and
2 they focus on landscape water waste, reducing breaks or
3 water loss from breaks, leaks, over-spray.

4 So first off, getting the water back to the
5 landscape, and then there's another level of water waste and
6 that would be achieved through irrigating control water
7 budget. So irrigating to what the plant needs.

8 And I wanted to let you know that, of course, the
9 State Water Resources Control Board, whether their main
10 focus is water waste, water reduction, and reducing water
11 loss, we have -- we've been given an order to reduce water
12 use. One of the -- you know, there's a lot of terms within
13 that order.

14 One of the terms that we've learned is "no
15 irrigating commercial turf grass." And then it was revised
16 last week to say "only irrigating actively used turf grass,"
17 so passive commercial turf grass can't be irrigated in
18 Sonoma County.

19 There was a coalition of landscapers and businesses
20 that got together and they, you know, went to the hearing
21 and talked about the restrictions in the order and they
22 said, wouldn't you be willing to accept an alternative to
23 the water irrigating the turf grass because we view that the
24 businesses, you know, aren't going to be suffering, and you
25 promised that already, how about if we agree to irrigate a

1 reduced amount per ET, would you consider that?

2 And we got the order and it is in the revised
3 order. So we know the State Board is looking at that as
4 being a way to reduce water use.

5 MS. WHITE: So it's a certain percentage of ET, so
6 it's --

7 MS. FLORES: Twenty-five percent of ET. So it's
8 the same percentage of ET, but remember that a lot of sites
9 are down even more than ET.

10 MS. WHITE: So this they consider conservation
11 water, or under-watering so the -- because if I understand
12 the Smart controller, and I also understand the SWAB
13 (phonetic), it's geared toward the adequate watering of a
14 particular plant type based on ET.

15 MS. FLORES: Plant types with an s.

16 MS. WHITE: An s.

17 MS. FLORES: Correct. That's different.

18 MS. WHITE: Yeah. So they're actually saying you
19 can do that, but it has to be 25 percent of the ET --

20 MS. FLORES: Exactly.

21 MS. WHITE: -- for those plant types.

22 MS. FLORES: It has to be less than they actually
23 need. Well, a lot of plants can't survive on less than a
24 hundred percent of ET.

25 MS. WHITE: Okay.

1 MS. FLORES: At least it's not turn the water off,
2 and that was the goal of the landscapers.

3 MS. WHITE: Okay, great.

4 MR. CARLSON: Is it 25 percent of the plant's ET or
5 25 percent of the referenced ET?

6 MS. FLORES: There's a formula in the order, so
7 it's a percentage of ET. Actually, I can just show you what
8 it is.

9 MR. CARLSON: Okay.

10 MS. WHITE: Lynn, could you actually send it to us,
11 that information, and then we can look at it?

12 MS. FLORES: I'd be happy to.

13 MS. WHITE: Great, thank you.

14 Gary.

15 MR. GALINAS: I just wanted to address the most
16 difficult challenge I think you guys have, the cost benefit
17 analysis, numbers, numbers, numbers. I can see you're
18 smiling, so you know.

19 MS. WHITE: We're not only a customer, but we have
20 talked about the cost benefit a lot.

21 MR. GALINAS: Yeah, but I just wanted to make a
22 point that there's a valid water restriction in California,
23 and they all have different water rates, and they all have
24 different tiered rates, and they have all different
25 requirements. And for you to come up with a generalized

1 number, you know, of what -- in general, what government's
2 do, they all come up with a generalized number, it's not
3 going to have much reality to specific sites, unfortunately,
4 because of the sheer number of different water districts and
5 the sheer number of different water rates.

6 So I know it's regarding the statute but, again,
7 trying to calculate the water solution resolve is hell-a-
8 crazy. But good luck.

9 MS. WHITE: Thank you.

10 Okay, Charles, did you have a --

11 MR. GEORGE ALEXANIAN: Yeah.

12 MS. WHITE: The whole idea of the workshop is just
13 to discuss it.

14 MR. GEORGE ALEXANIAN: This is the idea, Charles
15 was going to say this, but this is George again, in case of
16 those that are listening.

17 Twenty-five percent of ET isn't going to save land,
18 the grass. I mean, 80 percent is generally considered a
19 minimum amount of water you need, of ET, to have something
20 effectually done.

21 So it seems to me, unless I'm misunderstanding
22 something here, that 25 percent is like throwing good money
23 out for bad money, in fact. You know, am I all wrong on
24 this, am I all wet?

25 MS. WHITE: Well, at this point we're not going to

1 make a value judgment on that. What I was asking them to do
2 was --

3 MR. GEORGE ALEXANIAN: I'm just saying, it isn't
4 making sense to us. It's a waste.

5 MS. WHITE: Well, at this point what we're trying
6 to do is figure out the information we need to consider as
7 part of our evaluation. Because the local agencies do have
8 the authority to institute different programs, and if these
9 controllers can't function properly because those programs
10 override what the controller's supposed to do, that adds a
11 level of complexity.

12 MR. GEORGE ALEXANIAN: Yeah, as I said, is it going
13 to be compatible, as I said before, it's incompatible with
14 of a Smart controller. I won't say ET, because we shouldn't
15 be limited to ET.

16 MS. WHITE: Right.

17 MR. GEORGE ALEXANIAN: Is incompatible with a Smart
18 controller, with the watering right restrictions, where
19 someone has to go and actually make a change that may tend
20 to over water, rather than save water, just to save their
21 landscaping, which they have thousands of dollars invested
22 in.

23 So something is out of balance here and we need to
24 go one way or the other, but it appears to me there's going
25 to be some issues with doing both.

1 MS. WHITE: And you --

2 MR. GEORGE ALEXANIAN: I guess I don't understand
3 it. And then if we have time, if we go on, I actually have
4 made an analysis of water conservation, itself, using Smart
5 controllers in the State and I'd like to present that. Not
6 right now, if we have time later on, or I'll just send it
7 in, in an e-mail.

8 MS. WHITE: Okay.

9 MR. GEORGE ALEXANIAN: But right now we're
10 addressing the issue of the water restriction versus Smart
11 controllers and basically my comment, in my opinion it's
12 that it's a waste of time, and money, and water, and energy.

13 MR. STRAIT: Yeah, I think I can understand the
14 point that maybe if there's kind of a basic amount to
15 sustain a plant that putting less water than that to it, the
16 plant's going to die anyway, it might not be a useful use of
17 water, I think, is the overall point. I mean -- okay.

18 MS. WHITE: And we now have actually crossed over
19 into the realm of the model landscape ordinance.

20 MR. STRAIT: Yes, that's true.

21 MS. WHITE: We have to come back to what the
22 controllers, what characteristics we have to be cognizant of
23 for controllers and other sensors, and the devices,
24 themselves, we don't have the authority to regulate what
25 local agencies do or do not do in terms of their water

1 restriction programs.

2 But we do need to be cognizant that they have the
3 authority to institute these programs and we wouldn't want
4 to establish a regulation that is totally non-functional
5 because it didn't take into consideration what the local
6 agencies can do. And so we need to -- and I appreciate the
7 dialogue because it is very important for us to recognize
8 that and to factor those things into our evaluation of the
9 potential any regulation can have for actually achieving
10 savings.

11 We go through droughts all the time, local agencies
12 have the authority under a variety of statutes to define
13 what is necessary to protect public health and safety, to
14 provide adequate water. And if it's a choice between people
15 and plants, plants are going to lose. And that is their
16 authority, not ours, so I want to clarify that.

17 MR. STRAIT: Yeah, I would like to second the point
18 that regulations don't exist in a vacuum, that they are a
19 work in process, that there are other agencies that have
20 differing jurisdictions, and different topics they're
21 considering and as such it really makes any particular
22 portion very complicated because it's tied into all of this,
23 all of the other sensor options, all of the other conditions
24 and concerns that crop up when we're dealing with something
25 as important and universal as water. So I've just seconded

1 Lorraine there.

2 MS. WHITE: Peter, I think we've done a lot of
3 discussions so far about number two, I think people can
4 provide us with a lot of reports along those lines. Can
5 you -- let's go onto three.

6 MR. STRAIT: Okay, you want me to?

7 MS. WHITE: Yes.

8 MR. STRAIT: Okay. I'll read this aloud for those
9 who might be listening in.

10 Definitions of specific terms and equipment are
11 required for any standards or labeling requirements. What
12 are the applicable definitions for irrigation equipment,
13 performance metrics, and functions to be regulated? Are all
14 of the definitions used for the terms for this equipment
15 agreed-to within the industry? And if so, what is that
16 terminology and what are the related definitions?

17 And what we're really asking is in order for us to
18 craft regulations and related language, we have to actually
19 define in the regulations, themselves, how we're using each
20 of the terms that we end up using, and we'd like to match
21 those as closely as possible with what's currently being
22 used by people that are actually the experts and
23 professionals in the field.

24 But at the same time, craft it in a way that it can
25 be as definite and precise as the law requires.

1 So our question is what kinds of -- what terms of
2 industry should we be using, that we may not be using?

3 I was just talking with someone outside, that
4 mentioned this, rather than using emitter, since that's a
5 far more specific device, we might want to say emission
6 device and just put out, broaden the scope to include things
7 other than what would specifically be an emitter to the
8 industry. So issues like that.

9 MS. WHITE: One of the suggestions that has been
10 raised is to use the glossary of the Irrigation Association,
11 and so we'd like to have people comment on whether that's
12 appropriate or if there's other kinds of definitions we
13 should use. Keeping in mind terms and definitions, when it
14 comes to regulations, can be very important.

15 So keep that in mind as we go forward. We do want
16 to all be speaking the same language, and when I say
17 irrigation controller, I want everybody to know what I'm
18 talking about, versus an ET controller, versus a Smart
19 controller, versus a, you know, moisture sensor, versus a
20 raining sensor, and so on and so forth. So it really
21 becomes particular.

22 MR. STAACK: And I wanted to add to that, the terms
23 of legal definitions, like for moisture sensor, we're going
24 to have to define what that is legally, so we know that this
25 is a moisture sensor and this isn't.

1 MS. WHITE: Yeah.

2 MR. STAACK: You know, does there have to be some
3 type of parameters, what it measures, how it measures, how
4 it functions. I mean, all that is going to have to be in
5 our regulations as to, you know, what is going to be
6 considered a moisture sensor.

7 So if we do an enforcement action and somebody, a
8 manufacturer's selling something that doesn't hit the
9 parameters, you know, we can take action against them
10 because this is not what a moisture sensor is. So we need
11 to tie that down in actual language, almost like an
12 engineering specification.

13 MS. WHITE: George?

14 MR. GEORGE ALEXANIAN: Okay, a couple of quick
15 definitions. A Smart controller should not be limited to an
16 ET controller. And an add-on device should be defined as an
17 item that allows an existing, conventional controller to
18 adjust itself to the weather conditions; in other words make
19 the conventional controller act like a Smart controller.
20 That would be my definition of an add-on device.

21 MS. WHITE: Thank you.

22 MR. GEORGE ALEXANIAN: And again, Smart controller
23 not being limited to ET controllers.

24 MS. WHITE: Thanks, George.

25 MR. STAACK: We have had kind of a limited internal

1 definition for a Smart controller and we're talking about,
2 in the broadest possible sense, things that are able to
3 perceive and react to the environment.

4 MR. GEORGE ALEXANIAN: Right.

5 MS. WHITE: Okay. All right, moving on --

6 MR. SMITH: Maybe I should --

7 MS. WHITE: Yes.

8 MR. SMITH: I keep straggling on.

9 MS. WHITE: You know, actually, why don't you just
10 sit up there.

11 MR. SMITH: Very good.

12 MS. WHITE: And I should have George and Gary sit
13 up there, took they keep popping up all the time.

14 MR. SMITH: Just semantic in nature, but we
15 probably need to stop using the term dumb controller. I
16 mean, basically, these are controllers -- I guess a better
17 term is conventional moving forward, even in the -- even in
18 the discussions we have. It's not necessarily a very
19 flattering term to the industry, so I would ask with all due
20 respect that we maybe start to go down that path.

21 And there are a couple of things in here,
22 controllers and Smart controller, they can be broken into
23 several different categories as we stand right now, but
24 climate based or sensor based.

25 And then along those lines on the sensors, we need

1 to make sure that we capture -- it's not -- and I just
2 stumbled across this in our ANSI specification development
3 process, moisture sensors, they were trying to lump them in
4 one broad term and there's a huge difference between a
5 sensor that senses precipitation, a rain sensor, i.e., or a
6 soil moisture sensor, so we probably need to characterize
7 those.

8 And I don't know that our glossary captures that
9 specifically. We're going to have to probably add some
10 definitions and maybe -- and maybe have the Irrigation
11 Association, have you link off to us as far as for other
12 terminology.

13 But some specific things that, you know, as we go
14 through those definitions, we need to cover those.

15 MS. WHITE: Right. In terms of the conventional
16 controllers?

17 MR. SMITH: Yes?

18 MS. WHITE: Those are exclusively just the timers?

19 MR. SMITH: Well, there again, timer is, you know,
20 one piece of the controller.

21 MS. WHITE: A clock timer, I mean.

22 MR. SMITH: Yeah, I mean a conventional controller.
23 I guess the only thing I'm just trying to point out is that
24 traditionally -- okay, maybe they are dumb relative to the
25 process, but it's probably not a good thing for us to move

1 forward using that terminology.

2 MS. WHITE: And all I'm asking is that when we
3 define these things to differentiate which ones we're
4 talking about, if you can help us figure out what falls
5 within a conventional time -- a conventional controller.

6 MR. SMITH: A conventional controller uses a clock
7 and the calendar.

8 MS. WHITE: Okay.

9 MR. SMITH: We put in a time cycle based on what
10 our best guesstimate of what the needs are. Now, let's face
11 it, the majority of the industry right now, we're driving in
12 our driveways and making a decision based on what things
13 look like, so it's kind of the drive-by control sequence.

14 So I guess if we start to move into what's the
15 difference, one is a time cycle, a time and a calendar
16 cycle, the other is demand-based.

17 MS. WHITE: Okay, got you, thank you.

18 MR. STAACK: You know, in terms of moisture
19 sensors, you know, the standard might actually be saying
20 that it has to meet ANSI specifications.

21 MR. SMITH: Yeah. Well, this is a definition from
22 another woman, is that right, she said that you use the X
23 rate specification.

24 MS. WHITE: Uh-hum, yeah.

25 MR. STAACK: Or actually, yeah, we might actually

1 be adopting those test methods or a reference standard that
2 means that these sensors have to meet these specifications
3 and that might be how the regulation will be written.

4 MR. SMITH: Well, in one of those things, and what
5 I'll caution you, is that what we're dealing with is
6 definitions within the ANSI standard development process;
7 they are not characterizing those to the degree that you
8 will have to define them for California State law.

9 MS. WHITE: Okay, thank you.

10 MR. STAACK: I think I should remind people, in
11 case they're wondering why some of us aren't taking notes,
12 everything is being transcribed. So anything that is
13 proposed here, your text is being quite literally saved.

14 MS. WHITE: This gives us a chance to actually
15 engage a lot more, without worrying about notes.

16 Moving on, this was an issue that has been brought
17 up most notably with some of the presentations that were
18 made today; how can we, through our standards, minimize
19 water use increases and maximize water use savings through
20 these standards for the irrigation devices? And what types
21 of metrics do we need to include in such a standard? Are we
22 to look at flow or application rate? Should we be looking
23 at regulating pressure? Should we be looking at regulating
24 the volume of water applied, the duration of that water
25 application, and so forth?

1 And if there are any questions on what we're trying
2 to achieve there -- yes, Charles?

3 MR. CHARLES ALEXANIAN: I have an immediate concern
4 because there's such a wide variety of application methods
5 and also we -- how it's applied and its specific deficiency,
6 and how it's applied, for example spray versus drift.

7 MS. WHITE: Yes.

8 MR. CHARLES ALEXANIAN: It's going to be very
9 difficult to determine one standard for the measuring of all
10 systems.

11 MS. WHITE: And this is why we're asking the
12 questions because if we can define what standards or metrics
13 are appropriate for a particular device within that system,
14 to ensure that overall the system is efficient, that's where
15 we need guidance, that's where we need input.

16 MR. CHARLES ALEXANIAN: It may have to be some form
17 of index switching, with multiple factors. For example, one
18 supplier, at one pressure, is more efficient than at another
19 pressure. And needing through other -- that they,
20 themselves, are adjustable and have a very curved
21 efficiency.

22 MS. WHITE: Okay.

23 MR. CHARLES ALEXANIAN: Maybe even something, an
24 efficiency like a refrigeration SEARs standard, or something
25 like that, which is an index that would take multiple things

1 into consideration.

2 MS. WHITE: And comments to that effect and any
3 suggestions of what those factors would be is greatly
4 appreciated.

5 MR. CHARLES ALEXANIAN: I don't know if the people
6 who could comment on that are here. They're probably
7 sitting right now working on the small problems that we're
8 addressing right now, and we're completely unaware of what
9 the solutions are.

10 MS. WHITE: Well, hopefully, if they're not here,
11 you can help us bring them in.

12 MR. CHARLES ALEXANIAN: A few do come to mind.

13 MS. WHITE: Cool, thank you.

14 MR. CHARLES ALEXANIAN: Thank you.

15 MR. STRAIT: Does anyone else have any comments
16 related to question four?

17 MR. SMITH: Dare I? One of the things we'd like to
18 get our hands around is distribution uniformity --

19 MS. WHITE: Oh, okay.

20 MR. SMITH: -- and how uniform the system applies
21 water. Because, actually, Mr. Wade here, I may ask you to
22 address this as well. Bob Wade has done a lot of the
23 original pioneering group in installing Smart controllers on
24 different systems, and what it does is it flushes out some
25 serious weakness, it would be safe to say.

1 So I don't know, Bob, if you want to add to that?

2 But to me, part of the reason that you might see
3 this up tick in use is people compensating or changing
4 inputs to compensate for poor coverage out there in the
5 field.

6 MS. WHITE: Uh-hum.

7 MR. DASSO: So there has to be a method to this
8 madness. If the system doesn't meet some sort of
9 distribution uniformity criteria before you apply this
10 technology, then perhaps we're going to see this up tick in
11 use.

12 MS. WHITE: Okay, thank you.

13 Bob, did you have anything you want to add?

14 MR. WADE: I'm Bob Wade, I'm a landscape
15 contractor, and I'm here representing the CLC, California
16 Landscape Contractors Association, and the Irrigation
17 Association.

18 What Andrew referred to, uniformity, is for these
19 purposes a pretty complex question, because each emitting
20 device has a certain method to get those things to work
21 correctly, getting it uniformly as high as you can.

22 Certain devices are much better at seeming to do
23 it, others need more work in even getting there. Keeping
24 them is very difficult. The management is one thing that
25 never seems to be addressed.

1 And once we get these things to a certain point and
2 we get 70 percent uniformity or 71 percent is what AB 1881
3 wants us to get to, keeping it there is fairly difficult.

4 MS. WHITE: Uh-hum.

5 MR. WADE: But designing it on a broad-by-broad
6 basis, head-by-head basis sort of becomes very difficult,
7 and I would almost suggest that you have to be manning the
8 emission device to get any sort of definition on uniformity
9 just because it's attached to it.

10 MS. WHITE: Yes, and this may be an issue that we
11 can delve into, certainly with more depth in the next round.
12 Because with the resources that we have to try and get
13 through the first set of standards, we did not -- the
14 Commission did not feel that we could take on all of the
15 emitters. But it is an issue that becomes problematic when
16 you look at a controller, for example, and what ostensibly
17 that controller can do by itself, without addressing other
18 components in the system.

19 MR. WADE: Also, on Sonny's (phonetic) little slide
20 earlier, my company probably installed half of those
21 controllers in Southern California. And I will say there
22 was one site that I saw that could need work. Every other
23 site we saw over --

24 MS. WHITE: Uh-huh, and you were still able to
25 achieve savings?

1 MR. WADE: We did get savings, but if the actual
2 systems in the ground have been -- because I was not part of
3 the free program, that was their responsibility, almost all
4 of these weren't good.

5 MS. WHITE: Uh-hum.

6 MR. WADE: And that happened with results that have
7 been dramatically affected.

8 MS. WHITE: Okay.

9 MR. WADE: Those we did work on, they're use was
10 quite good.

11 MS. WHITE: Okay, great. Thank you.

12 MR. STAACK: Are you suggesting that in that study
13 the systems even got a savings, even though the emitters
14 were way out of whack, way out of balance --

15 MR. WADE: Yes, they --

16 MR. STAACK: -- and many of those were fixed by
17 anybody, or the homeowners weren't made aware of that and
18 then they fixed their own systems, or it just was left as
19 you saw it?

20 MR. WADE: It was part of our process and the
21 education was discussed, the education had -- of the
22 consumer.

23 And also, there was sort of a comment made earlier
24 about jamming. We believe and do this, one follow-up and
25 educate the consumer, where they can change their

1 controller. And yes, we can, but it's only good for that
2 day.

3 The conventional controllers don't have the ability
4 to reprogram themselves.

5 MS. WHITE: Yeah.

6 MR. WADE: Not as the Smart controllers do. But
7 the vast majority of homeowners didn't want to incur the
8 expense to go through or get the uniformity correct.

9 We had to install the controllers and tell them
10 what their problems were, and essentially walk away knowing,
11 assuming no matter what we do, we have to water to the
12 greatest need, and that's the weak point in the lawn. So
13 that's on the lawn, we're getting a little water to keep
14 that one spot green.

15 MR. GEORGE ALEXANIAN: That's the 50 percent
16 efficiency I was talking about.

17 MS. WHITE: Thank you. Move on.

18 MR. STRAIT: Certainly, moving on. I think for
19 questions -- I'm going to lump questions five and six
20 together because what we're really after with this is what
21 other appliances we regulate are? We talk about if they're
22 not reporting direct energies, are they reporting an energy
23 factor, are they reporting a SEAR or an EER.

24 And the question is what should we have for
25 irrigation equipment that would be -- that would serve in a

1 role of being some of these comparable, and expresses the
2 savings that can be expected or the water use that's going
3 to be expected, in some metric, in some indexed sense, why
4 is there someone that might be looking to install one of
5 these superior devices?

6 So is there -- I mean, it really is two questions,
7 but when we talk about water savings, because we're reducing
8 waste, is that comparable between all the elements of the
9 system or are different elements doing drastically different
10 things that have the results somewhere down the line in
11 insufficiency or water, less water -- reduced water waste?

12 MR. SMITH: Again, I sound like a broken record,
13 I'm sorry.

14 MS. WHITE: No, that's all right. If we actually
15 had a round table, we wouldn't have to people keep popping
16 up, but this table wouldn't lend itself for that today.

17 MR. CHARLES ALEXANIAN: No, you speak better than
18 the rest of us, go ahead.

19 MR. SMITH: What is the two characteristics that
20 the spot protocol measures?

21 MS. WHITE: Okay.

22 MR. SMITH: And effective irrigation and excess
23 application, is that -- Dave, am I characterizing that
24 surplus, irrigation surplus?

25 I mean, these are two things that on the effective

1 side, I don't know you even want to look at that, but I have
2 to say that the Commission has to look at that for the
3 reasons we outlined in the previous question. If for some
4 reason or another we are not applying enough water,
5 consumers will find a way to bypass the system.

6 So having effective irrigation is as important as
7 making sure that we don't over-water. So those are two very
8 effective means of making that case. Unless we're measuring
9 that water, and in Peter's -- I made a note from Peter's
10 presentation, he said "one half of one percent of the sites
11 had dedicated irrigation meters."

12 And I know the amount ordinance addresses some of
13 that going forward, but without dedicated meters it's really
14 difficult for us to make these determinations.

15 MS. WHITE: Thank you, Andy.

16 MR. STRAIT: Understood. I'd just like to
17 understand these terms better. We have a term of surplus
18 irrigation, or it's irrigation above what's necessary to
19 maintain plant health. We have used deficit irrigation when
20 we're not giving, we're not reaching that threshold.

21 And then I'm assuming that that middle area between
22 those two is what's considered effective irrigation, so
23 that's where it's supposed to and does what it's supposed
24 to?

25 MR. SMITH: For consistency's sake, I would

1 collaborate with the Department of Water Resources because
2 there are some actually agreed-upon definitions that have
3 been vetted. And going and trying to reinvent the wheel, I
4 guess I would cross paths with DWR first, and let's -- and
5 I'd be happy to help you do that.

6 MS. WHITE: Well, actually, we had Kent and Gwen
7 here earlier.

8 MR. SMITH: Did they sneak in here?

9 MS. WHITE: They sneaked in and they snucked out.

10 MR. SMITH: Sneaky old people.

11 MS. WHITE: Yeah.

12 MR. SMITH: But I think that we could actually pull
13 a lot of those things because they actually do a good job of
14 defining some of the terminology that could cross over to
15 this process.

16 MS. WHITE: Okay, great.

17 MR. STRAIT: Any other comments on those two
18 questions?

19 MS. WHITE: This particular question seven --

20 MR. STRAIT: I think we can skip questions seven
21 and eight, we talked about that.

22 MS. WHITE: Yeah.

23 MR. STRAIT: And I agree we could -- we are
24 definitely interested in hearing what alternate terminology
25 is, so we might be saying an automatic versus a manual

1 controlling, just to avoid using Smart versus dumb.

2 MS. WHITE: Yes. One of the things that we'll need
3 to be cognizant of, and I'm just going to comment on it and
4 you folks can just provide comments to this. But in this
5 stepping order, as a result of the discussions that we had
6 on April 1st, we were given the latitude as staff to look at
7 other components in the system that maybe are required to
8 actually have any regulation for a controller device or a
9 sensor device really work.

10 For example, a check valve, or a certain pressure,
11 a pressure-regulating valve, or something like that.

12 So this particular question gets to when we set a
13 standard, what other types of equipment need to be included
14 in that for a given device?

15 And the reference is an element of the irrigation
16 system, keeping in mind that we have the authority to
17 regulate devices, not necessarily educating behavior. I
18 want to distinguish between an education program and some of
19 these other devices.

20 MR. STRAIT: Yeah, and when we talk about elements,
21 we're talking about physical, built-in elements, not like
22 the element of education.

23 MS. WHITE: Yeah. Yes?

24 MR. SMITH: One thing I would -- I would caution
25 you is that we have a multitude of ways to accomplish

1 efficient irrigation. For example, how you refresh your
2 regulation. We can do that as a sprinkler, we can do that
3 in a valve, we can do that in a source, and depending on how
4 well the system is designed we can achieve the exact same
5 result. So we just have to use some very specific cautions.

6 So at some point, while we'd like to look at
7 components and label this widget and label that gadget, at
8 the end of the day we're probably going to have to look at a
9 systems integration process.

10 MS. WHITE: Yes. And I think we can do that in
11 part through the model ordinance and our collaboration with
12 DWR.

13 MR. STRAIT: Yeah.

14 MS. WHITE: But I do want it being all one process,
15 but the Legislature had divvied up some part of this. But
16 the system integration is --

17 MR. SMITH: I mean, once again I would refer to the
18 model ordinance just to see what's covered in there. I
19 can't remember; maybe something else is there, I can't
20 remember. Check values were in at one time, for example.

21 MS. WHITE: Okay.

22 MR. SMITH: And pressure regulation was in at one
23 time, and I can't remember what all is still there. Can
24 anyone remember what all is still there? Because I would
25 just cross paths and let's make sure we don't reinvent the

1 wheel and create a duality here.

2 MS. WHITE: Right. And the issue for us is the
3 specific requirement for the pressure, for the check valve,
4 for the controller from a mechanical or electronic
5 definition. It will operate at this pressure to do XY&Z or,
6 you know, the water will flow no more than 2.5 gallons at 80
7 PSI, or whatever our regulation is. Those kinds of things,
8 we have to be able to define that with the standards so
9 people will know what they're being held to.

10 MR. SMITH: Right. Well, and so some basic terms
11 with sprinklers, for example, when you start dealing with
12 that, pressure, regulation and flow.

13 MS. WHITE: Thank you, okay.

14 MR. SMITH: Where, you know, design -- what's the
15 design pressure, what's the -- what should be the operating
16 radius and what's the flow rate of that sprinkler at that
17 point.

18 MS. WHITE: Perfect, thank you.

19 One of the issues that we're trying to grapple with
20 is the nature of the statute, which prohibits the sale or
21 installation of non-compliant equipment past a certain date.

22 So unlike the model ordinance, which predominantly
23 affects new landscape, this will actually affect existing
24 and new.

25 So we need to understand how we would be able to

1 set a standard such that devices, whether it's new or old,
2 would still be able to achieve the savings. And that's one
3 of the reasons why we pose the questions in nine that we do.

4 MR. STRAIT: We have a question over here.

5 MS. WHITE: Yes, Charles?

6 MR. CHARLES ALEXANIAN: Once again, Charles
7 Alexanian.

8 I am concerned, when you have a scenario down the
9 road where otherwise efficient sprinklers or other devices
10 may become inefficient due to their either improper
11 application or, conversely, you can take what might be
12 considered to be an inefficient emitter and it can be
13 reconditioned.

14 There are things on the market right now if used
15 properly, installed properly will go in and operate in an
16 efficient manner, but now you fall into customer education,
17 they have to know how to apply it properly.

18 And unfortunately, just driving around any family
19 in the city, you'll see some people have lawns where one
20 side's green and one side's brown. You'll see that a number
21 of times, those sorts of scenarios. It's going to be very
22 difficult to come up with one definitive standard to say
23 this works and that doesn't. It may work in one situation
24 and not another, and conversely, what did work before may
25 now work.

1 MS. WHITE: Okay, you can back off.

2 MR. CHARLES ALEXANIAN: Sorry about that. But you
3 can see how this may be -- this may be a concern where each
4 system is different. Generally speaking, most systems can
5 be made to function properly, if there's a proper level of
6 education and maintenance.

7 MS. WHITE: Thank you.

8 Any other comments?

9 MR. GEORGE ALEXANIAN: No, premature.

10 MS. WHITE: Okay.

11 MR. STRAIT: Do we want to do --

12 MS. WHITE: I think some of our case studies may
13 assist us in answering number ten, where we're talking the
14 difference between overall net statewide savings and some of
15 the tradeoffs between areas. But the goal here is whatever
16 standards we're setting will help reduce overall water
17 demand and energy demand associated with these systems.

18 And to some degree, where we can take into account
19 the specific issues associated with sites, but it's a
20 statewide standard and we want to be able to have net
21 statewide savings, recognizing that there may be some
22 internal tradeoffs.

23 And so respond to this question from that stand
24 point. George?

25 MR. GEORGE ALEXANIAN: Concerning question nine,

1 are new controllers or add-on devices compatible with
2 existing controller systems?

3 Yes, generally they are because existing controller
4 systems do not all operate on 120 V AC. And a Smart
5 controller can usually go on there and operate, because
6 you're only talking about waiting how long to turn the
7 valves on and off so it is not affected by the Smart
8 controller.

9 And an add-on device that is hooked up with an
10 existing controller or that will interrupt the common, let's
11 say, to let it operate properly based on ET, or whatever
12 other method, should be also compatible. So I don't see any
13 real issues there, as far as number nine, with
14 compatibility.

15 MS. WHITE: Just a question for you, what about
16 those battery operated clock duration timers?

17 MR. GEORGE ALEXANIAN: Well --

18 MS. WHITE: Which are --

19 MR. GEORGE ALEXANIAN: -- that are still using --

20 MS. WHITE: No, the ones that are sold at --

21 MR. CHARLES ALEXANIAN: The super cheapie ones.

22 MS. WHITE: Yeah, the ones that are sold ad nauseum
23 at Home Depot or Lowes.

24 MR. GEORGE ALEXANIAN: Well, those are -- and what
25 I would do there is provide a wireless weather station, if

1 you want to call it that, whatever that entails. Some might
2 entail solar radiation, wind, and temperature, and rain and
3 a number of parameters. Some may be as simple as -- ours is
4 used mainly as a weather temperature sensor. You wirelessly
5 send the data down to the controller that may be sitting in
6 the valve box. Of course, these would have to be mounted
7 way up high so that they could see, electrically see the
8 controllers. It can be done.

9 But I think battery operated controllers are
10 basically ten percent of all of the control sales in the
11 U.S., currently. And they're probably, not this year, but
12 let's say a couple of years ago they were probably in the
13 order of about one and a half million controllers sold in
14 the U.S. total of which, as I said, about ten percent were
15 battery powered controllers.

16 So it can be done but those would have to be
17 modified, but there's very few people that are right now
18 addressing battery powered controllers in terms of Smart
19 technology.

20 We do it in our controllers, but they're commercial
21 controllers, not valve box controllers.

22 I understand Dave is working on some kind of a
23 Smart technology, but they're not AC type controller system.
24 But most people, when we're talking about Smart technology,
25 they're thinking AC power controllers because they are 90

1 percent of all of the controllers sold in the U.S.

2 currently.

3 MS. WHITE: Okay, thank you.

4 MR. GEORGE ALEXANIAN: Any other questions?

5 MR. STRAIT: Well, we have quite a list, but we're
6 going through them as quickly as we can.

7 I think, looking at question ten --

8 MS. WHITE: Actually, we've already done ten. Now,
9 we're into label content.

10 MR. STRAIT: Well, I think that kind of relates
11 back into questions five and six, and once we have a strong
12 determination of how we're going to describe this type of --
13 these types of efficiencies, then we'll have something to
14 discuss in terms of labeling.

15 But I think one of our things for now is what would
16 belong on the product box versus what would belong on the
17 product, itself. Most of these that are being installed,
18 which need labels, they would not be pressed onto the device
19 or able to stand the weather. And I don't know how much
20 benefit it would be once it's installed, because I don't
21 know how often that aspect would be looked at. On the other
22 hand, we could have a situation when an inspector might want
23 to know something in particular about a system, or they're
24 doing their own inspection, or if you have a law against it,
25 they want to verify that someone's claiming that they have

1 an automatic controller that they, in fact, do. So --

2 MS. WHITE: Actually, this is a really important
3 issue for us because we will be asking the manufacturers to
4 include additional information that they may currently not
5 include in their labels or their packaging.

6 And so in order to get people to understand the
7 abilities to save, whether water or energy, we need to know
8 what kind of label content should we be asking?

9 And Andrew, you had a comment there?

10 MR. SMITH: I'd like to ask a question, first,
11 because I picked up on something earlier that I can't
12 remember, Bill or Peter, one of you guys said, how are we
13 going to quantify that performance?

14 And I'm wondering, do you see this as being like an
15 Energy Star type label, where we have an estimated cost of
16 annual usage type label?

17 MR. STRAIT: Likely not. What we're probably going
18 to do -- in most cases we're talking about performance, what
19 we have for general devices currently, which is the date of
20 manufacture, the manufacturer name, and so it can be
21 identified.

22 In this case, given the need of certain
23 regulatory -- certain regulatory agencies and how a site
24 will be commissioned and people, other than the purchaser,
25 need to know certain aspects about the device, both when

1 it's purchased and when it's installed.

2 But what is really appropriate to put on a label if
3 it was held at a certain -- if it was an objective
4 statement, similar to a SEER rating; wouldn't that be
5 important to put on the device or on the box, if there's
6 something, like we want a checklist of features? So that
7 they can say this is a Smart controller because it does
8 XY&Z.

9 Or if a city says all controllers in the city do X,
10 are those things that we need to take into consideration
11 now, so that the markets will put it on those products and
12 those source decisions can then be made.

13 MR. SMITH: Well, a SEER rating would be quite a
14 bit different than a pass/fail.

15 MR. STRAIT: Well, that's really the question.

16 MR. SMITH: So I think we're going down the path of
17 a pass/fail -- I mean, I was under the impression we were
18 going down the path of a pass/fail with this statement.

19 MR. STRAIT: Possibly. Part of the -- going back a
20 little bit, as a general rule State agencies are instructed
21 to pursue performance standards over --

22 MR. SMITH: Uh-hum.

23 MR. STRAIT: And now, a performance standard is
24 usually based on some level like that, so that we have some
25 quantification of energy savings, or some performance

1 quantification.

2 MR. SMITH: I see.

3 MR. STRAIT: We have been instructed to rely on
4 that in preference to a simple pass/fail and do you have
5 this feature or not.

6 MR. STAACK: And part of the requirement, like for
7 quantification that's going to meet certain levels, a
8 manufacturer, in order to sell this product in California
9 will have to certify to us that it has met these criteria.
10 That data will be sent to us with a certification name that,
11 you know, under penalty of perjury, this product meets these
12 specifications, and that goes into our database.

13 And that product, if it's not in our database,
14 cannot be sold in California, and that's how this process
15 works.

16 So whatever we decide in terms of data, which is in
17 Section 1606 of our regulations, you can see all the other
18 different appliances list what kind of information is
19 required of that person.

20 Those are things that we also are going to need,
21 it's like what information are we going to require to be
22 given to us to certify, to meet whatever standard we're
23 picking, so we need to have that kind of information, is
24 what information are we going to ask for.

25 MR. SMITH: And in the precedent that you have now

1 can a manufacturer self-certify their product and submit an
2 affidavit to the Commission?

3 MR. STAACK: Effectively, that's what manufacturers
4 do, but --

5 MS. CHRISMAN: At the present time manufacturers
6 are required to certify to us. After they've tested the
7 product to the specified test method, they are required to
8 give us certain specific data that is output from that test.

9 There's a table, there's a long, 15-page table in
10 Section 1603 --

11 MR. SMITH: You're smiling.

12 MS. CHRISMAN: I helped create it. But it does not
13 specify -- it specifies by appliance what specific
14 information we require. That is based on the consensus test
15 method that is referenced in Section 1604 of our
16 regulations. So the manufacturers are required to give us
17 the -- they're required to test the basic model and then
18 give us the information on all of the specific model, so
19 that if they have, you know, five models that each have
20 slightly different parameters that they've been tested to,
21 they have to give us the different parameters per model
22 number for each one of those.

23 To get back to the labeling requirement, one of the
24 reasons that we specified that certain information be on a
25 label is that they're required to provide us by either the

1 manufacturer name, or brand name, or trade name the model
2 number and the date of manufacture.

3 So that one of the ways that we can do that is so
4 that we can tell when it was manufactured, so we know if it
5 has to meet the standard, or if it was manufactured before
6 the date of the standard, it doesn't have to meet the
7 standard.

8 But we also request that the manufacturer name,
9 brand name, trade name, and the model number so that if
10 someone is out in the field someplace and they need to know
11 if this model is certified to us, and they need to know what
12 the specific information is that is certified, they can go
13 online, look it up in our database and say, okay, this is
14 the information that is specific to that model.

15 MR. SMITH: Okay.

16 The one other thing I wanted to add to this for
17 clarification, related to labeling, this is based on some
18 information that I got from an appliance manufacturer,
19 probably about 12 years ago, they were reluctant to have us
20 update our requirements for marking or labeling because they
21 already had certain specific requirements from other their
22 trade association, or some other government agency that was
23 getting down into what type of material the label had to be
24 made out of, what size it could be, what font the label had
25 to be written in, in addition to getting down into what

1 specific information was on it. And they basically told us
2 you're getting into an area you don't really want to go
3 into.

4 So another piece of what we need to know is, is
5 there already in the industry required information that has
6 to be on that label, that can somehow fit into what we might
7 be needing or, if there isn't, then are we basically -- do
8 we have more leeway or is there some pattern we already have
9 to fit into.

10 MR. SMITH: Today is your lucky day because it's
11 the Wild West out there.

12 MS. WHITE: Well --

13 MR. SMITH: I mean, any labeling requirement is
14 going to be fresh and brand-new here.

15 And I guess that brings back the other question I
16 have, in the precedence you have with the appliance
17 manufacturers now, do they have their own labs, or they do
18 their own testing, or can they farm that out, or is there a
19 combination of both? What are you experiencing or what do
20 you expect happening with this process?

21 MS. CHRISMAN: Section 1603 of our regulations
22 requires that the labs be approved by the Energy Commission.
23 We do not specify that they have to be a third-party lab; we
24 do not specify that they have to be a manufacturer lab.
25 Each of them has to provide an application once a year. The

1 young man, who's been sitting there patiently waiting on
2 phones, is the young man approves most of these applications
3 that I need to sign.

4 And it's basically they have specified that they
5 have done certain things, including having the equipment
6 properly calibrated, allowing us to visit the lab once a
7 year, for each basic model, if that comes up for any reason,
8 providing us with copies of test reports, certain other
9 criteria. And they have to specify which test method they
10 test to, including if there are different iterations of that
11 test method which -- you know, if it was published in 1997
12 and it was reissued in 2008, whatever version we reference
13 in our regulations is the edition laid out to specify that
14 they're testing to.

15 They have to apply every year and there are -- and
16 we publish a list of the approved labs, and anyone that
17 certifies to us is required to have that product tested at a
18 lab that we have approved.

19 And that is the general overall requirement for how
20 the regulations cover that.

21 MR. SMITH: And then how do you deal with like
22 continuous quality improvement? Let's just an upgrade
23 happens to a dishwasher, to they need to recertify then
24 after something like that happens, or they -- something
25 happens where they make a quick change, is there a degree of

1 change within the product that requires recertification?

2 MR. STRAIT: We have in our regulations a
3 definition of what constitutes a basic model.

4 MR. SMITH: Uh-hum.

5 MR. STRAIT: And essentially a basic model is a
6 model that does not differ in any physical or functional
7 characteristics that would affect energy or, in this case,
8 water consumption.

9 So did an update that did not actually affect how
10 the unit performs, necessarily, for example, solar energy is
11 the same kilowatts per watt cycle, it just might be
12 distributed slightly differently, it's in -- how do I say
13 this? Okay, it's on a case-by-case basis.

14 MS. WHITE: Beautiful, Peter.

15 MR. STRAIT: But having said that, in most cases,
16 most of those sorts of changes are not significant, that
17 it's not really that different than saying the red model
18 performs better than the green model, and we believe the
19 paint color isn't really affecting it that much.

20 So there might be a product line where minor tweaks
21 are being made to kind of tertiary characteristics, that
22 those don't require recertification, that either drastically
23 raises or drastically lowers.

24 And to give you an example, energy consumption,
25 then they might be required to recertify. However that's

1 done with one county. Manufacturers are allowed to,
2 essentially, under-report the performance of their units.

3 If an air conditioner -- for example, I know my air
4 conditioner meets a 13 SEER, in fact I know it's a 13.75,
5 but I'm just going to round it off and report that it meets
6 a 13, and it's actually better than that then that's fine.
7 Then that means they've made a later improvement and
8 improved to 13.95. The current listing is still an accurate
9 listing, as far as we're concerned, and that would require a
10 recertification.

11 MR. SMITH: Do you have an occasion to audit this
12 process?

13 MR. STRAIT: Yes, we do.

14 MR. SMITH: The other question, as far as what's
15 the precedent -- I mean, in the labeling, I guess in my
16 mind, tells me that if I have a product that meets the
17 criteria, I'm probably going to put the sticker every place
18 I can or at least create some sort of visibility for that.
19 And I don't know that you guys have to mandate, you know,
20 the visibility of that.

21 MR. STRAIT: What we're asking, if there's -- we're
22 not going to restrict manufacturers from -- if there is a
23 metric that is developed, a metric in the promotional
24 materials, that we would caution that you are not able to
25 use the California seal or imply any sort of an approval or

1 endorsement by the California Energy Commission, merely
2 because you are meeting our standards.

3 But in terms of what we're really asking is what
4 does industry feel, what are they comfortable with or would
5 want to be required information, as opposed to information
6 they're allowed to use, but not specifically required to
7 use.

8 MR. SMITH: In my mind, I mean, I see the label
9 appearing on packaging and the product, itself, where
10 practical. I mean, there are some products that it just
11 probably isn't practical to work it into the -- like an
12 inline drift meter or something like that.

13 MR. STRAIT: And that's kind of what we're getting
14 at is we wouldn't know, necessarily, which of those would be
15 feasible or infeasible.

16 MR. SMITH: So my suggestion is as we move to
17 these, on a product-by-product basis would be to determine
18 what the labeling requirements would be for that individual
19 product because some products just aren't going to be
20 practical.

21 MS. CHRISMAN: There is an exception in the
22 labeling requirement, in the marketing requirements in our
23 regulations, for example, for pulling things. Where the
24 information that's required won't necessarily fit on the
25 thing and so we say it has to appear on the packaging.

1 So, there's different -- you know, there's
2 differences, but there's also a requirement, that isn't just
3 a California requirement, or even just a state requirement,
4 but it's an international protocol for the marking of the
5 external power supplies, and that's based on a Roman
6 numeral. And if you say this is Roman numeral V, the
7 international protocol says you meet at least this standard,
8 but you don't meet what that protocol says is number VI.

9 MR. SMITH: Uh-hum.

10 MS. CHRISMAN: And they chose Roman numerals
11 because it's something that can translate every place in the
12 world, you know.

13 MR. SMITH: Sure.

14 MS. CHRISMAN: So there's different ways of doing
15 this and sometimes it's industry-driven, sometimes it's
16 government-driven, sometimes it's user-driven, it just
17 depends.

18 MS. WHITE: Actually, at this point, because we are
19 running over a little bit, I need to interject. And the
20 point that we're trying to get at here is one of informing
21 us or educating us on what currently is in the content of
22 most labels, why is it there?

23 And for purposes of demonstrating that the product
24 is efficient and it can save water, can save energy, what
25 other types of information content should be in that label?

1 And are we talking about on the product, on the packaging,
2 stuff like that.

3 MR. SMITH: As I said, I think you're starting with
4 a clean slate.

5 MS. WHITE: Great, I'm for that.

6 In the interest of time what I'm going to do is
7 just summarize the last few questions, we've covered a lot
8 of ground, and then just kind of open it up to general
9 comments.

10 And for those of you who have stuck it out, I'm so
11 impressed. But we'll probably go about another ten minutes
12 or so, if that's okay?

13 But the question 12 gets at building a record, and
14 what kind of evidence or resources can be relied on by the
15 Commission, effectively, to substantiate a standard?

16 When we look at the question 13, this gets into a
17 lot of what we've already discussed about the cost benefits,
18 what kinds of costs can we be looking at, should we be using
19 statewide averages, or specific product costs, so retail
20 costs, how do we get that information, and so on and so
21 forth.

22 Question 14 is the operational life question, one
23 that is really important for us to know. Because this is
24 where we either meet the criteria specified in the statute
25 or we don't. If we don't know how long products are

1 expected to last, we can't determine what the costs over the
2 life of that product to the consumer are.

3 We're talking about, in question 15, the partners
4 that we can work with to address the enforcement of this
5 because, unlike a lot of types of dual access from the
6 appliance stuff that we deal with, this is also asking us to
7 prohibit the installation of non-compliant devices. And
8 we're looking at how best we should be doing these kinds of
9 enforcements.

10 What other kinds of considerations should we be
11 making for these devices in particular?

12 This was a question that was posed to us by
13 Department of Public Health. They want to make sure that we
14 address the use of recycled water in these devices and make
15 sure if there are leveling requirements or operational
16 requirements that our standards don't actually run afoul of
17 those requirements.

18 We are working with DPH to address some of this,
19 but I'm also asking everybody else's input as well, some of
20 the local agencies and manufacturers.

21 And then lastly, this is going to be a, you know,
22 in perpetuity situation. We want to be able to develop an
23 appropriate data collection process, we want to know what
24 data people think we should be asking on a regular basis to
25 ensure compliance for the industry, to ensure fairness, and

1 to ensure adequate enforcement of these kinds of
2 regulations. So what kind of ongoing data collection should
3 we be engaged in?

4 So at this point those are our questions. Again, I
5 had mentioned that we're looking for answers to any and all
6 of them by individuals, by June 15th. And we very much are
7 interested in receiving written comments, additional studies
8 that you can direct our way.

9 When you do direct studies our way, if they are in
10 response to a particular question, could you help highlight
11 in that report we should be looking?

12 I've gotten a couple of really big documents sent
13 my way and they were for a particular question or issue, but
14 wading through them has been a challenge.

15 So be kind to us, we are on a very tight schedule,
16 so any help you can offer is much appreciated.

17 So at this point, I mean, it's open mike now.
18 We'll just have folks, if you have comments or questions
19 about this last batch, just let me know.

20 MR. HORNQUIST: Hi, Edwin Hornquist, Southern
21 California Edison.

22 MS. WHITE: Hello, Edwin.

23 MR. HORNQUIST: It struck me when we were listening
24 to Rich's presentation, and looking at some of these graphs
25 on power consumption on standby mode, that there's a wide

1 variation in -- a wide range among the Smart controllers, as
2 well as the conventional controllers.

3 It would seem to me that the -- it would behoove
4 you to better understand what creates that disparity in
5 power consumption and determine what's effective and what's
6 not effective as far as is there a correlation, as somebody
7 was talking earlier, somebody else, regarding the basic
8 implicit value of this increased standby power in
9 correlation to any potential increased savings associated
10 with the core performance of the system in producing water
11 savings.

12 And so to the extent that we can find information
13 or studies that -- or get into data that's already been
14 presented, perhaps there's some data out there that we can
15 obtain that can give us some more insight onto what makes a
16 three watt, you know, Smart controller, you know, a Smart
17 controller first of all, and why is it three watt versus,
18 you know, whatever, six watts? And is the six-watt
19 controller, you know, better than the three-watt and that
20 explains the reason?

21 And also how this controller could be misused or
22 the -- or the data or information that it receives are not
23 being processed because of the owner not making use of that
24 service that they need to pay for, potentially, that that
25 information not be -- what would happen with that, that that

1 device is not used to the full extent and that, therefore,
2 would go back to being a standard controller. What is
3 the -- what are the implications of that? And if it is
4 simply a standard controller at that point then, you know,
5 the standby power becomes very important or even more
6 important.

7 So I would say maybe in the context of -- I was
8 trying to make a point in the context of the label, whether
9 perhaps looking at setting a minimum standby power
10 requirement be something that would be perhaps something
11 that we should consider stronger.

12 MS. WHITE: Okay, thank you.

13 Any other questions or comments? Andy?

14 MR. SMITH: You knew it was coming, sorry about
15 that.

16 MS. WHITE: I know, and I'm expecting George and
17 Charles to pop up, too.

18 MR. SMITH: You know, the rest of the staff in
19 Virginia calls me "Chatty."

20 One of the things I'd like to direct you to in the
21 1881 of 2006 bill text, it says, "landscapes are essential
22 to the quality of life in California by providing areas for
23 active and passive recreation and as an enhancement to the
24 environment by cleaning air and water, preventing erosion,
25 offering fire protection, and replacing ecosystems lost in

1 development."

2 And I think it's important to keep that framework
3 in the back of your mind as you move forward.

4 One of the things that we're struggling with as an
5 industry is just justifying this water use to begin with.
6 And the truth of the matter is green and healthy plants do
7 so much to offset the impacts of human activity, and we
8 haven't done a very good job of quantifying that yet. How
9 much carbon capture potential is there, and by getting to a
10 certain break point in water use reductions might we at some
11 point aggravate that situation or get to a point of
12 diminishing return in the long haul, in the overall
13 equation.

14 So one of the things, I think plants are pretty
15 darn amazing in that it's not like putting a catalytic
16 converter on your car and reducing emissions, because all of
17 you've done is reduce the emissions at that point. If we
18 reduce the emissions by irrigating efficiently, we're still
19 keeping plants alive and keeping an active process that not
20 only is reducing the emission up front, but it is also
21 sequestering carbon in the plants, themselves, and providing
22 all these other ecosystem service metrics.

23 So we would just ask the Commission to make sure to
24 pay very close attention to that, because there are
25 developing metrics out there.

1 MS. WHITE: Excellent. Thank you.

2 George?

3 MR. GEORGE ALEXANIAN: I want to --

4 MS. WHITE: I know, I'm not -- I looked at your
5 face and I can see it.

6 MR. STRAIT: You don't have to.

7 MR. CHARLES ALEXANIAN: Don't say that or we'll be
8 here all night.

9 MR. GEORGE ALEXANIAN: I'm a realist. Of the 79
10 and a half million acre feet of water that California used
11 in 2005, usage was third behind environmental and
12 agricultural and we used about 8.8 million acre feet, which
13 is about 11 percent of that total. And when you get down to
14 the bottom line, you get down to urban use, of the urban use
15 you've got your residential use, indoor use, outdoor use, 15
16 percent inefficiency, 14 and a half percent, or 20 percent,
17 or 25 percent of the water that we save, I came up with less
18 than a half percent of water can be saved with Smart
19 controllers.

20 That's assuming the six million Californians change
21 their controllers to Smart controllers. That would cost us
22 \$3 billion. And us meaning the State, the water districts,
23 the cities, or the individuals, somebody has to pay for all
24 this.

25 And it appears to me, I mean on both the side --

1 and the landscape side, it would be better to do water
2 conservation in the simplest way possible or the money spent
3 could be much better spent giving 3 million acres of
4 agricultural land to some kind of low-volume irrigation
5 system, and we could pay that a hundred percent with that
6 money.

7 Now, adding to this the incompatibility of the
8 water restriction dates to the Smart controllers, to me this
9 is a tough sell. And I'm dedicated to water conservation
10 and energy conservation. I see a lot more energy being
11 saved in the issue of water in agriculture.

12 I know you said this was a different study, a
13 different committee meeting and all that, but I'm sitting
14 here and I feel that my mission, my company mission, and my
15 dedication is not being served here.

16 I'm not saying anyone here. I think the landscape
17 industry should do everything we can to help with the
18 situation, but the reality is that it's not a lot of water
19 savings when you come to water savings on the controller
20 decision for the State of California is pretty small.

21 In 2012, if ten percent of the people convert,
22 we're only going to save five hundredths of one percent of
23 water saved in California, or less if you're going to be
24 looking at a hundred percent of baseline calculations based
25 on 25 percent.

1 MS. WHITE: Okay.

2 MR. GEORGE ALEXANIAN: And if the DPA, or
3 Department of Water Resources, or anyone to expect miracles
4 here, like Charles said, and I think -- I wasn't going to
5 say anything but you asked me.

6 MS. WHITE: Okay, so --

7 MR. CHARLES ALEXANIAN: Unrealistic expectations.

8 MR. GEORGE ALEXANIAN: So what we're doing, what
9 we're trying to do in landscape is save water, but that's
10 the reality of it as I see it.

11 MS. WHITE: Okay, so let's just view this from the
12 little piece of the pie that we get to affect. And, you
13 know, I recognize this is not the irrigation efficiency
14 effort, and it was never intended to be.

15 Nonetheless, it is the statutory mandate that we're
16 faced with and our goal is to do the best job we can. And
17 so with this input, with information that you provide we
18 will, hopefully, be able to achieve that.

19 MR. GEORGE ALEXANIAN: Yeah.

20 MS. WHITE: So thank you very much. And if there
21 isn't anymore comment, I can say good night to you all.
22 Thank you.

23 And this is the Energy Commission ending the
24 Workshop on Irrigation System Controller Standards and
25 Labeling Requirements, good night.

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(Whereupon, at 5:20 p.m., the Staff
Technical Workshop was adjourned.)

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REPORTER'S CERTIFICATE

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

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

IN WITNESS WHEREOF,

I have hereunto set my hand this 23rd day of June, 2009.

A handwritten signature in cursive script that reads "Barbara Little". The signature is written in black ink and is positioned above a solid horizontal line.

Barbara Little CER**D