

DOCKETED

Docket Number:	17-AAER-08
Project Title:	Sprinkler Spray Bodies
TN #:	223034
Document Title:	Transcript of 03/14/2018 Staff Workshop on Appliance Efficiency Regulations for Spray Sprinkler Bodies
Description:	N/A
Filer:	Cody Goldthrite
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	3/23/2018 1:52:02 PM
Docketed Date:	3/23/2018

CALIFORNIA ENERGY COMMISSION
EFFICIENCY DIVISION
APPLIANCES and OUTREACH and EDUCATION OFFICE

STAFF WORKSHOP

on

Appliance Efficiency Regulations for
Spray Sprinkler Bodies

held at the

California Energy Commission
First Floor, Rosenfeld Hearing Room
1516 Ninth Street
Sacramento, California 95814

Wednesday, March 14, 2018

Reported by:
Susan Palmer

APPEARANCES

Staff Present

Leah Mohney, Supervisor of the Mechanical Appliances Unit
Sean Steffensen, P.E., Mechanical Engineer
Nicholas Timothy, Associate Energy Specialist
Galina Dushenko, Associate Energy Specialist
Jessica Lopez, Associate Energy Specialist

Attendees and Commenters

Mary Anderson, Pacific Gas & Electric, California Investor
Owned Utilities
Brent Mecham, Irrigation Association
Tracy Quinn, Natural Resources Defense Council
Ed Osann, Natural Resources Defense Council
Charlotte Ely, California State Water Resources Control
Board
Ed Pike, Energy Solutions, for the Investor Owned Utilities
Codes and Standards Enhancement Team
Ed Norum, Center for Irrigation Technology
Stephanie Tanner, U.S. Environmental Protection Agency,
WaterSense Program
Sean McFarland, Water Management Group
Charles Bohlig, East Bay Municipal Utility District,
Supervisor of Water Conservation
Dave Langridge, East Bay Municipal Utility District,
Water Conservation Representative
Chris Dundon, Contra Costa County Water District

I N D E X

Proceedings	Page
Items	
1. INTRODUCTION:	4
2. Staff's Spray Sprinkler Bodies Presentation:	6
3. Stakeholder Spray Sprinkler Bodies Presentations:	20
4. Open Discussion and Public Comment:	33
5. Adjournment	82
Reporter's Certificate	83
Transcriber's Certificate	84

1 P R O C E E D I N G S

2 MARCH 14, 2018

9:59 a.m.

3 MS. MOHNEY: Good morning. We are going to go
4 ahead and get started. My name is Leah Mohney and I am the
5 Supervisor of the Mechanical Appliances Unit in the
6 Efficiency Division here at the Energy Commission. I just
7 wanted to go over a couple of housekeeping matters first.

8 In the event of an emergency, please exit the
9 doors. There is one at the right and one at the left.
10 Exit the glass doors, again, to the left and to the right.
11 And walk across the street to the park that's on the corner
12 of P and Ninth Street, and meet there. All of our staff
13 should be going out, so follow the staff.

14 There are restrooms located directly outside to
15 the left and additional restrooms are available behind the
16 stairwell on the right. There are coffee and light snacks
17 on the second floor through the doors under the awning.

18 I just want to let everyone know that this
19 meeting is recorded and your comments will be recorded, so
20 please remember, if you are speaking, to identify yourself
21 and the organization that you're representing. Comments
22 and presentations will be limited to ten minutes. After
23 the presentations, there will be a period for comments and
24 questions.

25 If you're online and wish to speak, please use

1 the raise your hand function and we will unmute you. If
2 you're in the room, please make sure you speak up to a mic
3 and press the button so that the light on the mic is green
4 so that you can be heard.

5 The purpose of our meeting today is to review the
6 staff proposal, to answer any questions, and to receive
7 comments about the proposal.

8 I'm going to go over a little bit of history. In
9 March 2012, we issued an order instituting rulemaking to
10 consider standards for spray sprinkler bodies. In May
11 2017, we requested information on spray sprinkler bodies
12 through an invitation to participate. In August of 2017,
13 we held an invitation to submit proposals webinar. We did
14 receive many proposals from various organizations, and
15 thank you for submitting them.

16 The information that we received helped to inform
17 our staff report, which was published February 14th of
18 2018. As I mentioned, the purpose of our meeting today is
19 to review the proposal, to go over why we picked the
20 efficiencies that we've picked, and to answer questions,
21 and to receive comments.

22 If you look at the chart here, this is a chart of
23 our rulemaking process. You can see where the blue arrow
24 is, this is where we are now. Every place there is one of
25 these little green bubbles is a place that public

1 participation is invited. But we are here discussing the
2 draft staff analysis at the workshop at this point.

3 After we receive all of the comments, we will
4 consider them and revise the staff report, if necessary.
5 And then we will have a 45 official comment period [sic],
6 at which time you can make comments again. The comments
7 for our draft staff report are due April 2nd, by five
8 o'clock p.m. You can submit them electronically at the
9 link here. You can submit them in writing or you can send
10 a digital copy to our docket. So please make sure in any
11 of your correspondence that you include 17-AAER-08 and
12 include the appliance type, which would be spray sprinkler
13 bodies, in the subject line.

14 At this time I would like to introduce our lead
15 on this, our mechanical engineer Sean Steffensen.

16 MR. STEFFENSEN: Okay. Good morning. Let me set
17 up the slides. Okay, good morning. Sorry. I'm new to
18 WebEx or -- anyway, my name is Sean Steffensen. Good
19 morning. A nice rainy morning.

20 So today I am here to talk about the spray
21 sprinkler body standards that we're proposing and receive
22 your input and your feedback. I'm a Mechanical Engineer
23 with the Efficiency Division.

24 I would like to welcome everyone today both in
25 the room and online. Thank you for your participation.

1 Here is the agenda for them presentation. I will summarize
2 the draft staff report and end by suggesting topics for
3 discussion.

4 Spray sprinkler bodies, including those sold with
5 and without a spray nozzle, consume a significant amount of
6 water in California, as much as 3,000 gallons per device
7 per year as estimated by Commission staff. There are no
8 mandatory water efficiency standards for spray sprinkler
9 bodies sold or offered for sale in California.

10 As I present today, I will attempt to say spray
11 sprinkler bodies. From time to time I may say
12 sprinklerheads or SSB to briefly mean spray sprinkler
13 bodies.

14 So why are we here, why are we studying this
15 topic? In May 2016, Governor Brown signed Executive Order
16 B-37-16 to instruct State agencies to help Californians
17 adopt the permanent changes and to use water more wisely.
18 In a sense, to make water conservation a California way of
19 life.

20 State agencies came together to work towards this
21 common goal. We documented our resolve and future actions
22 through a Final Report to the Governor. I will read the
23 first paragraph of the Final Report to provide the
24 background for our proposals.

25 And I quote, "The past five years have brought

1 both historic drought and flooding to California -- a
2 reflection of the fact that California experiences the most
3 extreme variability in yearly precipitation in the
4 continental United States. The variability marks
5 California's water resources not just year to year but also
6 by season and location. Our water systems routinely move
7 water hundreds of miles to serve large cities and immense
8 agricultural productivity, but also must sustain
9 ecologically valuable river and estuary systems. Our
10 population of nearly 40 million people is expected to grow,
11 and climate change is expected to bring rising sea levels,
12 reduce snowpack, and altered precipitation patterns that
13 will affect our ability to maintain our water supplies and
14 wildlife habitat. Widespread, careful use of water will
15 help us cope no matter how conditions change. We must
16 always be prepared for extreme fluctuations and use water
17 more wisely, eliminate waste, strengthen local drought
18 resiliency, and improve agricultural water efficiency and
19 drought planning.

20 I show two charts here. The chart on the left
21 shows the extent of California's historic drought and how
22 it was followed by a near historic deluge of rain. So the
23 more red we see, the more yellow, the more orange, the more
24 areas of California that are being impacted by severe,
25 extreme, or even exceptional drought.

1 The chart on the right shows the current drought
2 conditions. So despite last year's tremendous rainfall,
3 we're finding ourselves again approaching drought, where 47
4 percent of the state is experiencing drought conditions and
5 91 percent of the state is abnormally dry.

6 Improving the efficiency of landscape irrigation
7 represents an opportunity to save water in California.

8 Landscape irrigation in urban areas in California consumes
9 more than 1.1 trillion gallons of water per year.

10 Irrigation losses occur due to a variety of reasons.

11 Overirrigation, excessive water pressure, and leakage
12 during nonoperation contribute to the inefficient
13 irrigation of landscapes.

14 The water is lost as it runs off the landscape,
15 evaporates into the air, or drains beneath the reach of the
16 plant's roots, as shown in the figure on this slide. The
17 losses may be significant, such as in the case of
18 overirrigation, where Californians on average provide 50
19 percent more water than is needed. Widespread careful use
20 of water will help us cope no matter how conditions change.
21 We are here today to discuss approaches on this theme.

22 The staff proposal examines an opportunity to
23 increase the water efficiency of the spray sprinkler body
24 through pressure regulation. Pressure regulation addresses
25 the issue of excessive water pressure by maintaining the

1 optimum water flow from the sprinkler regardless of the
2 water pressure. By eliminating excessively high water
3 flow, overirrigation will also be addressed.

4 The pressure regulating standard will be
5 mandatory for all sprinkler bodies -- I should say spray
6 sprinkler bodies -- sold or offered for sale in California.
7 The minimum performance level and test method will be
8 identical to the U.S. Environmental Protection Agency
9 WaterSense Specifications for spray sprinkler bodies 1.0.
10 The proposal will require manufacturers to certify and mark
11 spray sprinkler bodies.

12 Much more detail is shown in the draft staff
13 report at this link
14 [[http://docketpublic.energy.ca.gov/PublicDocument/17-AAER-
15 08/TN222562_20180214T154205_Draft_Staff_Report_Staff_
16 Analysis_of_Water_Efficiency_Standard.pdf](http://docketpublic.energy.ca.gov/PublicDocument/17-AAER-08/TN222562_20180214T154205_Draft_Staff_Report_Staff_Analysis_of_Water_Efficiency_Standard.pdf)]. We hope to
17 receive public comments today and in the upcoming weeks as
18 part of the workshop process.

19 So what's in and what's out. The proposed scope
20 includes all spray sprinkler bodies. What is a spray
21 sprinkler body? Per the proposed definitions, "sprinkler
22 body" means the exterior case or shell of a sprinkler
23 incorporating a means of connection to the piping system,
24 designed to convey the water to the nozzle or orifice. And
25 "spray sprinkler body" means a sprinkler body that does not

1 contain components to drive the rotation of the nozzle or
2 orifice during operation and lacks an integral control
3 valve. That's a mouthful, but what we're trying to say is
4 it's the exterior shell minus the nozzle and that there are
5 no components that rotate the nozzle during operation.

6 And I try to illustrate this through a number of
7 pictures that show examples in the sense of these are items
8 that are intended to be included. And from left, from the
9 far left, I show a pop-up sprinkler body with a retraction
10 spring. I show a pop-up with a retraction spring with a
11 multi-stream, multi-trajectory nozzle attached. I show a
12 pop-up without a retraction spring. Those are the green
13 and brass one in the center, as well as a flush mount
14 sprinkler with no pop-up.

15 Staff believes that all devices will benefit from
16 pressure regulation because each uses a spray nozzle and
17 will benefit by the control of the flow of the water to a
18 nozzle.

19 So what's out? Staff proposes to exclude rotor
20 sprinklers, valve-in-head sprinklers, and detachable
21 sprinklers from the scope. The definition for a rotor
22 sprinkler body means a sprinkler body that contains
23 components to drive the rotation of the nozzle or orifice
24 during operation and lacks an integral control valve. And
25 a valve-in-head sprinkler body means a sprinkler body that

1 contains an integral control valve. And a valve-in-head
2 sprinkler is typically found on a golf course, for those
3 that -- or because I don't have a picture up here -- or
4 actually I do.

5 Staff intends this set of definitions to sort all
6 the various sprinkler bodies into one of three categories.
7 We'll be able to tell what is what. We seek comments upon
8 this approach for scope and definitions.

9 Staff proposes a performance metric to identify
10 SSB performance versus the issue we intend to address. In
11 this case, system overpressurization versus overirrigation
12 and excessive application rates. The metric is identical
13 to the WaterSense SSB specification.

14 The blue curve shows the average flow rate in
15 gallons per minute of a nonpressure regulated SSB as the
16 input pressure varies. As input pressure increases so does
17 flow. An SSB with pressure regulation will control the
18 flow rate through the SSB, as shown by the red curve.

19 Staff proposes to measure pressure regulation
20 performance per the WaterSense Spray Sprinkler Body
21 Specification. There will be four test points to capture
22 performance over the range of operational pressures. Staff
23 proposes one test at 1.5 gallon per minute to determine
24 compliance to the standard. Staff proposes a second test
25 at 0.75 gallons per minute to gather information at lower

1 flow rates. Performance at this flow rate will not
2 determine compliance to the standard but will be used to
3 gather information.

4 Staff proposes three mandatory performance
5 requirements identical to the WaterSense Spray Sprinkler
6 Body Specification. The maximum flow rate at any tested
7 pressure ensures that not any of the tested flow rates are
8 too high. The average flow rate across all tested
9 pressures ensures overall performance of the device. The
10 average outlet pressure at the initial calibration point
11 ensures that the device does not over compensate and can
12 provide a minimum outlet pressure to meet the minimum
13 pressure requirements of the nozzle.

14 Staff's proposal will set mandatory certification
15 and marking requirements for spray sprinkler bodies sold or
16 offered for sale in California. All spray sprinkler bodies
17 will be required to be certified to the Commission and
18 appear in the Commission's Appliance Efficiency Database.

19 I have listed the markings that must appear
20 either on the unit or on the unit's packaging. That
21 briefly is the manufacturer's name, the brand name or
22 trademark, the model number, the date of manufacture, the
23 regulation pressure and the maximum operating pressure.
24 Those items need to appear.

25 Additionally, there is a requirement to apply a

1 mark that will be visible after installation, to show the
2 presence of pressure regulation. A marking like this could
3 support compliance verification, say in the instance of a
4 local agency that has adopted requirements similar to the
5 Model Water Efficiency Landscape Ordinance. We seek
6 comments on the utility of this mark.

7 We must show technical feasibility for this
8 proposal. Technical feasibility means that products are
9 technically capable of meeting the proposed standard by the
10 effective date. The University of Florida tested several
11 brands of spray sprinkler bodies with the WaterSense Spray
12 Sprinkler Body Test Method. The results shown here show
13 that spray sprinkler bodies available now will meet the
14 proposed standard. In addition, the U.S. EPA's WaterSense
15 website lists 21 models from one manufacturer as certified
16 to meet the WaterSense specification.

17 Staff must also show the savings that will occur
18 due to this standard. Staff applied the standard savings
19 methodology used on previous rulemaking efforts to
20 calculate the savings on a consumer and statewide level.
21 Efficiency of current compliant products are held at the
22 same level, while noncompliant products are moved to
23 exactly meet the minimum standard. Staff assumed product
24 stock, duty cycles, and product lifetimes as provided by
25 stakeholders and through staff research.

1 How did staff calculate the 15 percent savings
2 rate? Staff assumed the statewide average supply pressure
3 is 65 psi, based upon a survey of landscape professionals.
4 Staff accounted for pressure losses due to the valve and
5 piping by assuming 10 psi for the losses. 65 psi minus 10
6 psi equals 55 psi, and that's the assumed pressure at the
7 sprinkler head. Then staff read the difference in flow
8 rates, as shown on this chart, the green diamond, between
9 the blue line down, that's the nonpressure regulating
10 sprinkler head, down to the proposed standard. From these
11 flow rates, staff calculated the expected savings rate.
12 Calculation details are show in Appendix A of the draft
13 staff report.

14 Cost-effectiveness is a measure of the benefits
15 to the consumer, compared to the costs to the consumer, due
16 to requiring the appliance to be more water- or energy-
17 efficient. The benefit to the consumer must exceed the
18 cost to the consumer for the proposal to be cost-effective.
19 To determine cost-effectiveness, staff must determine the
20 value of the water or energy saved, the effect of the
21 standard on the usefulness of the device, and the life-
22 cycle cost to the consumer of the efficient device.

23 The proposal is cost-effective. A compliant
24 spray sprinkler body is estimated to cost \$4.68 more than a
25 noncompliant spray sprinkler body, and the consumer will

1 save \$26.90 over a ten-year lifetime through reduced water
2 utility bills, resulting in an overall savings of \$22.22.
3 The life-cycle benefit of \$18.26 reflects a 3-percent
4 annual discount rate applied to the savings, so that the
5 incremental costs and the savings can be compared in terms
6 of net present value. In other words, can this money be
7 invested at a bank and achieve a greater return. In this
8 case the answer is no. That's the purpose of that
9 demonstration. Investing the money in spray sprinkler
10 bodies is more effective.

11 The proposal will deliver significant water,
12 electricity, and monetary savings to California. The table
13 provides estimates for first-year and stock turnover
14 savings. The proposal will deliver over \$500 million of
15 cost-effective savings to consumers through reduced water
16 utility charges.

17 The next slides will provide context for the
18 water and electricity savings.

19 How much is 84 billion gallons that's estimated
20 to be saved from this proposal? This illustration compares
21 the savings from the proposal versus recent Energy
22 Commission water standards. The proposal will save
23 approximately the same water as the 2015 Water Efficiency
24 Standards for toilets, faucets, and urinals, and over twice
25 that for the recent showerhead standard.

1 Overall great progress has been made to reduce
2 urban water use and there is an opportunity for much more.
3 These savings represent nearly seven percent of total urban
4 water use, showing significant strides to reduce water use
5 through approaches to water efficiency.

6 The requirement to move water consumes
7 significant amounts of energy. Water must be treated and
8 pumped and applied to a landscape.

9 This graphic compares the embedded electrical
10 energy, the energy that's required to move the water and
11 make it available for landscapes that will be saved when 85
12 billion fewer gallons of water are diverted from lakes and
13 rivers. It's compared to two popular mass transit systems.
14 Bay Area Rapid Transit uses about 400 gigawatt hours per
15 year, while the Los Angeles Metro uses about 200 gigawatt
16 hours per year. The numbers are per these agencies'
17 sustainability reports. So the energy saved by this
18 proposal will be in the neighborhood of the energy required
19 to power these trains.

20 I have listed questions here to help our
21 discussion. We will address these questions in detail
22 during the comment period after the formal presentations.
23 We can consider one or more questions and in any order.
24 Please keep your comments brief, so as to allow all to
25 respond. Additional comments may be made in writing to the

1 Commission Docket and are encouraged. I can also flip back
2 to these slides during the discussion period.

3 So the comments on this slide, we're looking for
4 comments on scope: What should be included or excluded.
5 What other landscape watering devices should be considered?
6 If so, what reason should they be considered in or out of
7 scope? What comments are there on the product definitions?
8 And should the Commission consider other definitions?

9 And we would like to discuss the test procedure
10 flow rates. Are there comments on the 1.5 gallon-per-
11 minute test flow rate or the 0.75 gallon-per-minute flow
12 rate? Are there comments on the test burden, industry
13 acceptance, accuracy, repeatability, and ability to rank
14 order performance? In a sense, tell the difference from
15 one product to the other.

16 Are there comments on pressure regulation
17 standards and product availability? How does the staff
18 proposal compare to other state and federal regulations?
19 Are there comments on product marking and certification
20 requirements?

21 Are there comments on the staff's estimated water
22 savings on the incremental cost or the cost-effectiveness
23 of the proposal?

24 Does the product lifetime vary between pressure
25 regulating and nonpressure regulating SSBs? Does the

1 maintenance and repair costs vary between pressure
2 regulating and nonpressure regulating SSBs?

3 We're also looking for comments on impacts to
4 small businesses or businesses located within California.
5 We're looking at -- we would also like comments on the
6 sales of SSBs? Are they likely to change due to the
7 proposed regulation?

8 And what factories or businesses within
9 California are likely to expand due to this regulation?
10 And this is tied to our Standardized Regulatory Impact
11 Analysis requirements for a proposal such as this. So we
12 would like to understand the nature of what may change.

13 So will pressure regulating devices change user
14 water behavior. What happens if one pressure regulating
15 SSB is added to an irrigation system where surrounded by
16 other nonpressure regulating SSBs? And then what other
17 approaches should staff consider for water savings?

18 So staff estimated sales for spray sprinkler
19 bodies, as shown in the draft staff report. We are
20 specifically looking for comment upon those estimated sales
21 and if those estimated sales may change due to this
22 regulation.

23 Additionally, any details we can get as to the
24 percentage of sprinkler sales as manufactured inside
25 California versus outside of California, that would -- that

1 is information that we are seeking. We're also looking for
2 of those that are manufactured outside and imported into
3 California, what percentage of sales is sold wholesale and
4 what percentage is sold retail.

5 And then, finally, do manufacturers need to
6 expand or buy new equipment to comply with the regulations?

7 Staff has released the draft staff report. We
8 are in a comment period now. Comments may be submitted
9 electronically at the link above or emailed to the docket.
10 Hard copies may also be sent to the Energy Commission at
11 the address shown on the slide. For those of you on the
12 phone, this entire slide package has been docketed and is
13 available in Docket 17-AAER-08. Comments are due by April
14 2nd, at 5:00 p.m. Once we received comments, we will
15 analyze the issues, compare the comments to the proposed
16 standard and figure out the best path forward.

17 We look forward to your feedback and we'll work
18 hard to incorporate into our next draft of the standards.

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

21 [Sean.Steffensen@energy.ca.gov, (916) 651-2908] we will
22 next proceed into the formal presentations, followed by an
23 opportunity to receive comments from the public.

24 I can take clarifying questions on this
25 presentation, but substantial comments and statements

1 should be saved for public comments following the remaining
2 formal presentations. Thank you.

3 I'll pause again after I've made this
4 presentation. I do want to emphasize we're looking for
5 feedback, so we don't think that there can be too much
6 feedback.

7 Seeing that there are no -- I feel there are no
8 clarifying questions, I will move on to the next
9 presentation.

10 MS. QUINN: May I come to the podium?

11 MR. STEFFENSEN: Yes, if you would like. Okay,
12 we could bring your comments up.

13 MS. QUINN: Good morning, everyone. My name is
14 Tracy Quinn. I'm the California Director of Water
15 Efficiency for the Natural Resources Defense Council. I
16 wanted to thank you all for the opportunity to provide some
17 opening remarks for the rulemaking for spray sprinkler
18 bodies.

19 NRDC supports the adoption of state efficiency
20 standards for spray sprinkler bodies. As Sean mentioned,
21 state policy calls for making water conservation a
22 California way of life, with water efficiency a priority
23 consideration regardless of water availability in any given
24 year.

25 The estimated savings at full stock turnover in

1 the staff analysis of 83,526 million gallons per year is
2 more than one and a half times greater than the entire
3 annual water use of San Diego, the state's second-largest
4 city. And while incredible, the actual savings is likely
5 to be even greater, as the staff analysis is fundamentally
6 conservative in both its estimation of water savings and
7 financial benefits of the proposed standard.

8 No benefits are credited for spray sprinkler
9 bodies used in any commercial or multi-family residential
10 landscape. And while these additional savings do not need
11 to be calculated to justify adopting a standard, we suspect
12 that are substantial.

13 Water savings were also calculated based on a
14 supply pressure of 65 psi at the curb, although California
15 water suppliers recently reported water pressure with a
16 population weighted average of 81 psi at the curb. Based
17 on this data, the Title 20 standards will correct an
18 irrigation overpressure problem that is pervasive
19 throughout California and achieve greater than estimated
20 water savings.

21 Financial benefits for consumers are estimated
22 based on the assumption of no further increase in the real
23 cost of water, even though charges for water and sewer
24 service have been increasing at more than twice the CPI for
25 over ten years, and such increases are expected to continue

1 further in the future.

2 Financial benefits were further understated by
3 basing the cost of compliance with the standard upon the
4 incremental cost of a six-inch pop-up stem rather than the
5 more widely used four-inch pop-up stem, whose incremental
6 cost is nearly 30 percent less.

7 We also continue to support the inclusion of
8 check valves in this spray sprinkler body standard, however
9 we do not recommend delaying the adoption of a final
10 standard in order to address check valves. While the
11 volume of water savings is small relative to the savings
12 attributable to pressure regulation, it is nevertheless a
13 meaningful savings of water, and the standard overall would
14 remain cost-effective with requirements for both pressure
15 regulation and check valve included.

16 Additionally, check valves are required by the
17 Department of Water Resources Title 23 regulation, the
18 Model Water Efficient Landscape Ordinance, on any new or
19 rehabilitated landscape where low-head drainage could be a
20 problem. However, enforcement on this provision could be
21 greatly simplified by including the requirement for check
22 valves in the Title 20 regulation.

23 NRDC also has some suggested clarifications and
24 corrections that we have included in our -- the talking
25 points that were submitted yesterday. I also have copies

1 available with me and we may be submitting further comments
2 with additional clarifications and corrections.

3 Thank you so much.

4 MR. STEFFENSEN: Thank you, Tracy.

5 Up next will be the CASE Team.

6 MS. ANDERSON: So this is Mary Anderson from
7 Pacific Gas & Electric, on behalf of all of the California
8 Investor Owned Utilities. We appreciate the opportunity to
9 participate in the Spray Sprinkler Body Rulemaking process.

10 This potential standard is extremely important as
11 the state moves closer towards drought once again. All
12 California residents deserve sufficient potable water to
13 meet their needs which necessitates that we utilize our
14 water in the most efficient manner possible. A spray
15 sprinkler body standard will facilitate a more efficient
16 landscaping water usage.

17 The CEC has wisely created a draft standard that
18 is both cost-effective and more efficient for all
19 Californians. The California IOUs support the CEC's
20 efforts and urge the CEC to move forward with this
21 rulemaking without delay.

22 Ed Pike will now provide a summary of the
23 California IOUs' technical comments. Thank you.

24 MR. PIKE: Okay. Thanks for the opportunity to
25 present this morning. And I'd just like to start with the

1 second slide, or shall I go up to the -- oh, you've got it.
2 Thanks.

3 So as Mary has pointed out and previous speakers
4 have mentioned, there is very important policy reasons for
5 moving forward with the standard. Climate change, risk of
6 drought, water security have all been mentioned, and I very
7 much agree with those.

8 And the standards are also justified by a lack of
9 consumer education and historic supplier stocking
10 practices. And the estimated savings from the CASE Team
11 are very similar to the estimates that the CEC staff report
12 have shown. And while we don't have quite as nice a graph
13 as you do, you know we do see over -- pardon me -- over 80
14 billion gallons of water saved per year and huge amounts of
15 embedded energy. So we're definitely strongly in agreement
16 with the Energy Commission staff report.

17 So just to give a really quick background on the
18 California Investor Owned Utility CASE Team. We have been
19 supportive of the Energy Commission throughout this process
20 and have been participating in support of the Energy
21 Commission effort, including responding to the invitation
22 to participate and providing a report to the proposed
23 standard and supporting what the Energy Commission has been
24 developing.

25 So as NRDC has pointed out, we feel that the

1 benefits are very conservative. And while they don't need
2 to be recalculated to justify moving forward with the
3 standard, they're actually much higher than the ratio of
4 roughly four to one, as shown in the Energy Commission
5 report. And we have similarly calculated that the benefits
6 are hugely in excess of the cost, even greater than some of
7 the conservative assumptions used in the Energy Commission
8 report. So definitely there is a huge advantage for moving
9 forward on these standards. The products are available, so
10 we can definitely move forward with the proposed
11 implementation date. And we will also provide some written
12 comments on some suggested clarifications.

13 I do want to speak to the test methods briefly.
14 And we do support the Energy Commission proposal to both
15 require product testing at 1.5 gallons per minute as well
16 as requiring testing at the lower flow rate, even though
17 that won't be used for compliance purposes. That was a
18 topic that WaterSense had considered, and they wound up not
19 having enough information to really know when the product
20 would perform definitely at those two different flow rates.
21 So we definitely appreciate the Energy Commission's
22 proposal to collect information so we can better understand
23 whether the products operate differently at different flow
24 rates, both of which we think are commonly encountered in
25 California the way that consumers use these products.

1 We also appreciate the Energy Commission's
2 interest in future topics. And while we don't see any
3 reason to not move forward on pressure regulations now, we
4 also support the Energy Commission's consideration of other
5 topics such as check valves for this product. We also
6 appreciate that the Energy Commission has been putting a
7 lot of effort into landscape irrigation controllers.

8 And we also have noted in the report, I believe
9 it was September is when it went on the docket from the
10 CASE Team, that there are other products as well: Both the
11 nozzles that fit within the spray sprinkler bodies, and
12 there are other landscape irrigation emission devices. So
13 I think this is very well scoped for this particular
14 standard. We do note that there are other potential
15 opportunities to follow up after the standard is done.

16 So thanks for the time and for everyone's
17 attention.

18 MR. STEFFENSEN: Great. Thank you, Ed.

19 Good morning. This is Sean Steffensen. Next up
20 is Julie Saare-Edmonds from the Department of Water
21 Resources.

22 MR. PIKE: I got a note from her this morning
23 that she is out sick.

24 MR. STEFFENSEN: Okay.

25 MR. PIKE: So I don't know if someone is going to

1 be taking her place.

2 MR. STEFFENSEN: Okay. Yeah, I wanted to extend
3 an opportunity. She had expressed interest.

4 Why don't we come back to her and we'll move on
5 to Ed Norum from the Center for Irrigation Technology.

6 MR. NORUM: Okay. All right, guys. Well, we
7 both -- in both cases, Ed and Sean, we have had some
8 personal conversations, and I think you know what my
9 feelings are. The sprinkler and nozzle has to be tested
10 the way it's used by the public and not -- everybody wants
11 to be a design engineer, so you seem to know what the
12 pressure should be required. That's like saying we could
13 save gas in your car if you ran the pressures up higher.
14 That's only a little piece of how that piece of machinery
15 works, and that's true here.

16 And since there is no commonly accepted protocol
17 for determining the relationship between sprinkler
18 performance and its efficiency, literally every link you
19 have made between pressure and water saved has to be an
20 assumption on your part rather than hard numbers on how the
21 sprinkler actually performs. And so that to me is suspect.
22 Even the fact that Hunter will say use 40 pounds on their
23 flow spray, I know those companies well enough to know when
24 they decided on the 40 pounds, they didn't have a protocol
25 for determining the efficiency of their sprinkler. That's

1 not to put them down for it, but they just didn't.

2 And you would have to run a series of tests on
3 each particular model at 30, 35, 40, 45, and so on, and get
4 a relationship between the pressure and the efficiency when
5 it's used in a 15-foot space, a frontyard with quarters and
6 halves, and so on. We've done some of that, enough to know
7 that these are not straight-line relationships, fellows,
8 that because you drop the pressure at 20 pounds or
9 something, you go from 60 to 40, that you get automatically
10 a saving equivalent by just plain old hydraulic formulas.
11 You don't. You're talking about a living thing. It throws
12 a different spectrum, a drop spectrum, and its
13 effectiveness when it hits the ground is going to be
14 different. The drop sizes are going to be bigger when at
15 lower pressure. They're going to be higher -- smaller at
16 higher pressures. Quite possibly more will run off if you
17 operate on some surges at 40 pounds.

18 So, fundamentally, guys, we haven't subjected
19 this to any kind of rigorous test. And I can say that with
20 some authority because we've got some 30 or 40 years of
21 testing for the different manufacturers and things are
22 evolved to the point where they're salable. And from my
23 point of view, there should be a whole lot more money spent
24 on just the classic hydraulics of how they operate.

25 For instance one thing you have left out is

1 aerial evaporation. It's about a \$5,000 test to do one
2 test on one sprinkler on one model. We haven't got it.
3 And not that you're hanging your hat on that, but still it
4 is something we should know about. So the manufacturer,
5 when he says, my sprinkler under these conditions has an
6 application efficiency of 80 percent, that he's covered all
7 of the possible losses. And that's a good scientific
8 figure. That's, frankly, what's missing, because you're
9 making assumptions on the effect of pressure alone on the
10 efficiency of the sprinkler head and it simply doesn't make
11 it scientifically.

12 And, anyway, with both of you guys I have had
13 long discussions on this point. It either flies or it
14 doesn't. But, basically, the analysis doesn't stand up to
15 rigorous scientific analysis to that point.

16 MR. STEFFENSEN: Okay. Thank you, Ed.

17 Next up will be Charlotte Ely from the California
18 State Water Resources Control Board.

19 MS. ELY: So good morning, everyone, today. I'm
20 here on behalf of the California State Water Resources
21 Control Board to support the CEC's Appliance Efficiency
22 Regulations for Sprinkler Spray Bodies.

23 The standard would not only help to bolster
24 certain provisions of a proposed wasteful water use
25 regulation that the Water Board is currently working on, it

1 also helps to ensure water is used more efficiently
2 outdoors in support of the conservation framework more
3 broadly.

4 So this image has become iconic. We see Governor
5 Jerry Brown standing and speaking to reporters at the site
6 of a manual snow survey in 2015. "We're standing on dry
7 grass," Brown said, "We should be standing on five feet of
8 snow."

9 A large body of research suggests that the warm
10 and dry conditions that gave rise to the recent drought are
11 not exceptional. Climate change is impacting California's
12 hydrology and these changes include declining snowpack,
13 earlier snowmelt, more precipitation as rain rather than
14 snow, more frequent and longer droughts, et cetera. This
15 is why making conservation a California way of life is so
16 important.

17 So this shows the California snow water content
18 as of March 8th. There isn't much of it, until the recent
19 rains. We were worse off three years ago, which is the
20 peak of the drought, as shown by the red line. As of 3/13,
21 we're now at thirty six percent of normal. You know, as of
22 last week, March 8th, we were 38.

23 So the proposed regulation that I am the lead for
24 at the Water Board, the Wasteful Water Use Regulation, is
25 part of a larger framework to make water conservation a

1 California way of life, which is part of even broader
2 framework to manage our water resources more sustainably.
3 The California Water Action Plan, through a pair of
4 executive orders, the Governor directed state agencies to
5 help Californians adopt permanent changes to make
6 conservation a California way of life. And I'm
7 implementing the executive orders, it directed the state
8 water board to permanently prohibit certain wasteful water
9 uses.

10 So just a quick overview of this regulation. It
11 would prohibit these wasteful water use practices unless
12 exempt to protect health and safety, to meet federal and
13 state permit obligations, and when used exclusively for
14 commercial and agricultural purposes. As highlighted here
15 on the slide, the very first provision is to prohibit more
16 than incidental runoff on irrigating turf and other
17 ornamental landscapes.

18 So that's it. I'd be remiss if I didn't include
19 my favorite WaterSense info graphic as the one-time
20 WaterSense liaison for the Southwest. In the CEC report,
21 you all identified overirrigation, excessive water
22 pressure, and leakage during nonoperation as contributing
23 to the inefficient irrigation of landscapes. The water is
24 lost as it runs off the landscape, evaporates into the air,
25 and drains beneath the reach of the plant roots. These

1 losses may be significant. In the case of overirrigation
2 in California, that on average more than 50 percent of
3 water is applied than needed. By eliminating excessively
4 high water flow, overirrigation will be addressed and it
5 will be much easier for Californians to comply with
6 Provision B.1.a of the Water Board's Proposed Wasteful
7 Water Use Regulation.

8 So we are in support of this regulation. Thank
9 you for your work to make conservation a California way of
10 life.

11 MR. STEFFENSEN: Thank you, Charlotte.

12 Sean Steffensen again.

13 So I'd like to call upon Julie Saare-Edmonds
14 again, if she is in attendance, to make comments.

15 Okay, if not we'll move on to open discussion and
16 public comment -- oh, I'm sorry, sorry. I apologize,
17 sorry. Yeah, I apologize.

18 Brent Mecham for the Irrigation Association.

19 MR. MECHAM: So if you will run the slides for
20 me, that will be great, like you did for Ed. I appreciate
21 it.

22 MR. STEFFENSEN: Okay, great.

23 MR. MECHAM: Okay. So we can skip the first
24 slide that you have there because it was just a reference
25 that we're talking about these documents that you supplied,

1 so I'll start with the introduction. And maybe to give a
2 little bit of background -- to the next slide, Sean, thank
3 you -- is that the Irrigation Association is a trade
4 association. And we have about 1700 member companies that
5 represent the manufacturers, dealers, distributors,
6 consultants, designers, contractors.

7 What's missing from this list are retailers, such
8 as big box stores, online vendors, hardware stores that,
9 you know, also supply this product to the do-it-yourself
10 market. So while we tend to try and represent irrigation,
11 there is a big segment that is beyond our scope. And so I
12 will be speaking on behalf of the industry as a whole and
13 not any specific manufacturer, because while I think we do
14 have consensus and that we're favorable for supporting this
15 initiative, not everybody agrees exactly that it's the
16 right way to go. So the next slide there.

17 So we do appreciate the staff. I have found some
18 tremendous information in this report that has been
19 gathered over the last few months and it's more information
20 than I've ever had about what's going on in the California
21 market. And we are very interested in what happens in
22 California because it tends to move eastward over time with
23 water conservation programs and stuff. And so we are very
24 interested in making sure that this goes well and that the
25 expectations are realistic.

1 So I've heard already that everybody thinks
2 they're way conservative, and I might be on the other side
3 of it and say would you still be happy if it was only half
4 of what you expected, because while the data would say,
5 yeah, we can get there, the reality in the field sometimes
6 doesn't live up to it. And so I just want to make sure as
7 an industry that if we only saved 40 billion gallons of
8 water and not the 80 billion, would that still be
9 justification for going forward on this.

10 So next I just have a couple of thoughts and this
11 could lend to more of the discussion, but next slide. We
12 have a couple of things that I noticed in the document
13 about word selection. So sometimes the word emitter is
14 being used, which I think maybe a better term might be
15 emission device or sprinkler. Because when we say emitter
16 we often then are going to like drip emission devices. And
17 so I think that, just for the communication going forward
18 that we're pretty clear and not confusing people by the
19 mixing up of some words.

20 Next slide. So in Chapter 3, the background, and
21 this is a question I have had other people pose to me, and
22 I don't know that I have exactly the right answer, but it
23 says water supply over pressure, and it says is the 65 psi,
24 is that static or dynamic or operating, because there is a
25 big difference. I'm going to guess that most of the time

1 that's a static pressure reading, and so that needs to be
2 actually very specified. And the reason for that being is
3 by the time you install an irrigation system and then you
4 have losses through the backflow device, the piping, the
5 valve, even the water meter as the water is running, you
6 suddenly are going to find out that you're losing 15 to 20
7 pounds pressure, so that what's at the sprinkler in the
8 field is not 65 psi, but it's probably more like 40 or 45.
9 And so the potential savings, you know, based on is where
10 we need to really be looking. How is it operating in the
11 field.

12 One of the little known things that people don't
13 understand is that most homes have a pressure-regulating
14 device installed to protect the washing machine and the
15 dishwasher, because those also have solenoids and valves
16 and they're not rated for over 80 psi, so they tend to put
17 in pressure-regulating devices. And they are usually set
18 around 65 pounds. So that's why we get that static
19 reading. But as water flows through that device, they also
20 have an additional pressure loss, and they call it falloff.
21 And so what happens out in the field is way different.

22 And so when you run an individual appliance in
23 the house, like a shower at maybe two-gallons a minute,
24 there is a little bit of falloff. But when you start
25 running the irrigation system and it's running at 10- or

1 12-gallons a minute, the falloff is significant. And so
2 what is the operating pressure compared to static is a
3 pretty important point that we need to have in order to
4 actually get a realistic expectation on potential water
5 savings.

6 So, anyway, and so this brings me up to the graph
7 on page 13. It would indicate that about 40 percent of
8 California homes have static pressure less than 60 psi.
9 And if that's the case, the field pressure is probably
10 closer to 45, not 55. And so to me that's a difference in
11 the potential water savings that might be generated by
12 using a pressure-regulating sprinkler.

13 With the advent of multi-stream, multi-trajectory
14 rotating nozzles, a really long name to classify
15 everybody's product, you know they tend to work best at 40
16 to 45 psi, and this is what the manufacturers are making
17 their products and pressure-regulating devices for that
18 type of nozzle. So you have areas in California where you
19 wouldn't even need the regulating device or pressure-
20 regulating sprinklerhead in order for the device to work
21 well. And so one of the questions has been brought to me
22 by water providers is why should we force our customers to
23 buy a product where we don't have excessive pressure. You
24 know, and I think that's going to be one of the challenges
25 going forward. Like I said, we're very in favor of this,

1 but we want it to be a really positive experience for all
2 parties involved.

3 The other thing to just mention, that the
4 pressure-regulating devices, even though it's not in the
5 manufacturer's literature, needs somewhere between 5 and 7
6 psi differential for them to actually work. So this is a
7 big reason why with the WaterSense specification they start
8 the testing at 40 psi. They know at that point that these
9 regulators are then working. But if you were to start at
10 35 psi, maybe yes, maybe no.

11 Next slide. Chapter 6 in your document, I notice
12 that, yes, we're going to use the WaterSense specification.
13 We have had a lot of contribution to the outcome of that.
14 We have done our own testing and supplied that to
15 WaterSense. And so our manufacturers are onboard. They
16 are getting tested. I know products are currently being
17 tested for that labeling program.

18 One of the red flags that has come up is the
19 additional requirement for the .75 gallons per minute. And
20 while I understand it, the reporting of the data to the
21 Commission is a red flag to the manufacturers. And it's
22 not just that data point but it's going to be actually all
23 the data that manufacturers get for labeling. And so the
24 question is who gets to see the data. So this is where the
25 manufacturers all begin to say: I'm not going to put out

1 data that my competitors use against me. So they're very
2 comfortable with the labeling program because it is a pass-
3 fail and that data isn't made available and so the
4 manufacturers go forward and it does give consumers some
5 confidence in products actually meeting a minimum
6 performance requirement without actually knowing exactly
7 how they perform that. So that will probably definitely be
8 a comment that will come from us, is on that.

9 And so it is a sensitive issue that if this
10 becomes public information, I can't speak on behalf of the
11 manufacturers what they will do, but I think there will be
12 hesitation to want to say that that's out there.

13 Chapter 7. So I think I have already touched on
14 this. The potential pressure-regulating savings does seem
15 reasonable. But you know if it turns out to be only half
16 of that, will this program still be worthwhile? And I
17 think that's just trying to take into the realistic look at
18 what's going on. That if all 209 million sprinklerhead
19 were overpressurized and brought down to a reasonable
20 expectation, yes, that savings is there. But if we have
21 jurisdictions where the water pressure is really not as
22 high and according to the graph, then I'm saying will 60
23 percent of them achieve the savings that we're interested
24 in.

25 The last couple of slides I had was definitions.

1 The big gun I'm not sure really pertains to this and don't
2 even know if we need to mention it. It's used on sports
3 fields and it's an agricultural type product.

4 But I will offer a little comment on pressure
5 compensation. So this is typically used in drip emitters,
6 has been around for a long time. It's used in bubblers.
7 And in the landscape world, almost everything now is being
8 pressure compensated. But it's different than pressure
9 regulation, so it may be a different category.

10 A few manufacturers make pressure-compensating
11 devices for nozzles either in the nozzle or in the screen
12 that actually really works well in the case where you only
13 have maybe 10 psi overpressurization, over -- too much
14 pressure, that the pressure-compensating device actually
15 can kick in and do well. When you get way above that, then
16 they struggle, and that's why pressure-regulating
17 sprinklers is a good answer.

18 And then our last question is, and so this last
19 slide is: How do you control the products that come from
20 outside of California? Well, I can see where this work
21 well, our manufacturers are onboard, the distributors are
22 onboard. You know, they will put that on their shelves.
23 That will be the only thing. But even in your own report,
24 you are referencing vendors because it's easy to get the
25 pricing from outside California that's shipped into the

1 state. so how would you regulate, make sure only the
2 right devices would be sold within California from outside
3 vendors.

4 So those are quick comments and stuff. I will
5 iterate again we are supportive of this initiative and we
6 just want it to be a win-win for the industry as well as
7 the citizens of California. Thanks.

8 MR. STEFFENSEN: Thank you, Brent. I apologize
9 for -- anyway, you bring up a lot of good points and I look
10 forward to going over those comments and questions during
11 the open discussion.

12 I think now that we will go into the open
13 discussion. I believe there may be a number of people who
14 will want to make a comment at this time. We will start
15 with people in the room who want to make a comment and just
16 maybe a show of hands, or who wants... Okay.

17 And you have your option to either make the
18 comment from where you sit or you can come up to the
19 podium.

20 MR. BOHLIG: Hi, Sean. A question. On --

21 MS. MOHNEY: Please state your name and
22 affiliation.

23 MR. BOHLIG: Sorry. Charles Bohlig, East Bay
24 municipal Utility District.

25 On your Presentation Slide 7, I was a little

1 confused what's in and out. But I know on the outside you
2 had the valve-in-head sprinklers at golf courses, parks,
3 sports fields, and things like that use. Can you clarify
4 what "out" is?

5 MR. STEFFENSEN: Yeah. What I refer to as being
6 out, this would be outside the scope of the regulation. So
7 these products would not need to be tested. They would not
8 need to then show that they meet a particular standard and
9 they would not need to be certified to the Energy
10 Commission or have any sort of product marking that we
11 would require. They're just -- they're set aside.

12 MR. BOHLIG: And then another kind of comment. I
13 unfortunately do a lot of testing in my background and two
14 speakers kind of hit on it, Ed and Brent, about potentially
15 productivity of testing something, just because we know in
16 one of the slides that someone showed that 50 percent of
17 the water that goes on the landscaping is oftentimes
18 overspray and runoff. And that's oftentimes more of an
19 issue. And I do a lot of with MWELo, of people not
20 understanding that this is a living organism, you need to
21 pay attention to it, and it's kind of set and forget it.
22 And sometimes I think by just having a requirement, you
23 sometimes miss the end goal of is it being productive, is
24 productivity actually being sacrificed for another area.

25 So I think as we go forward that definitely needs

1 to be addressed. And I'm not sure it is like a uniform cup
2 test, per se, that is very prevalent out in the industry,
3 but just because you will potentially have a flow not go
4 above a certain amount and you won't have your misting, I
5 think is what you're really getting back or, you know, the
6 drainage that goes back into the valve and then back into
7 the area, if that -- if it makes the requirement but it's
8 still cheap and it doesn't do a very good job, then who's
9 ever running that irrigation system is going to run it
10 longer and then you're going to cause runoff again. So
11 you're not going to necessarily achieve the savings that
12 you hope. Because I was, you know, looking at the savings
13 numbers and I thought conservative or not, there are a
14 couple of different ways to look at it, because like if
15 they even picked out the number like for ten years, that
16 there is an assumption of a turnover every ten years. Just
17 being a homeowner and working for a water utility and
18 working with a lot of customers, because we have like
19 328,000 single-family residential, not all those people
20 have irrigation, and there are still a lot of metal
21 products in the ground that, you know, have galvanized pipe
22 from many years ago. So I just kind of wonder that ten
23 years, is that -- what is that number based on to say that
24 the product will turnover in ten years?

25 MR. STEFFENSEN: So --

1 MR. BOHLIG: Sorry. That's a lot of words --

2 MR. STEFFENSEN: -- I don't know if you want,
3 yeah, we could pause and I could answer your question. If
4 you had any additional questions, I certainly will answer
5 them, because we'll be kind of maybe blending and
6 transitioning more to a discussion where perhaps even
7 others could offer their perspective and answers.

8 But going back to the last question you asked,
9 the ten-year product lifetime. We've asked for estimates,
10 we've received comments from stakeholders that indicate a
11 lifetime of about ten years. I think it was -- it varied
12 somewhat, not off the top of my head. But ten years
13 specifically is staff's research, my research, and several
14 other staff have helped me. What we've taken is the
15 product warranty that's typically stated. Those product
16 warranties are about five years. And we've said, well, the
17 manufacturer probably will expect their product to last
18 twice the warranty.

19 So we look for comments. We want to understand
20 from your expertise what that number should be. It's a
21 very important number because it feeds into, well, how
22 quickly will we achieve the water savings. It feeds into
23 will the consumer receive a payback. If the device doesn't
24 last very long, then it doesn't achieve very much water
25 savings before it has to again incur that incremental cost

1 that to -- so we want to understand that it's a very
2 important part of truing up the analysis that we look to
3 vet. So the ten years is based on a set of assumptions and
4 research, but we do want to understand if there are other
5 ways to look at it.

6 I think the other comment that you made was
7 regarding, well, how do we understand what will happen if
8 this regulation takes effect; will people to look to see,
9 well, what is the effect, and alter their behavior. That's
10 a question that I asked during my presentation. Again, we
11 want to receive comments from those out in this room and
12 outside this room that are listening on the line and
13 elsewhere as to what we think will happen if we make this
14 change.

15 The assumption I state in my analysis is people
16 that, and I think as you stated, don't really pay a lot of
17 attention in a lot of cases. There are those super users,
18 green thumb gardeners, that type, that really do try to
19 dial it in. But, for the most part, as I wander around my
20 neighborhoods and elsewhere, I see a lot of inattention; a
21 lot of runoff; a lot of overwatering or even underwatering,
22 for that matter; maintenance issues; all that sort of
23 stuff.

24 So when I look to say, okay, if these devices are
25 changed in some way, will people make a change to their

1 watering schedule. And the assumption -- the only
2 information I have that leads me towards the assumption I
3 made was it's likely they will not make a change. So I
4 look again for comments and perspectives as to is that the
5 right assumption to make. So the savings are then just
6 calculated not from any sort of mechanism of whether it has
7 reduced evaporation or runoff. it's really just what's the
8 cycle time. The cycle time will be constant between a
9 noncompliant device and a compliant device.

10 And then the flow rate. The pressure regulator
11 will reduce the flow rate. So it's really -- it's almost
12 analogous to like taking a shower with a lower-flow
13 showerhead. The cycle time will stay constant, because
14 people are overwatering anyway, way overwatering, to reduce
15 the water by just a little bit with the 15 percent, they're
16 not going to perceive a difference and life will go on.

17 But again that's my -- I want to try to be clear
18 as to how I'm coming up with this. I'm not really up on
19 evaporation rates or runoff rates or percolation rates.
20 It's just how long does the device run and what's the flow
21 rate.

22 MR. BOHLIG: Charles, East Bay MUD again.
23 Because those are really good, valid points. And I just
24 kind of keep thinking back in my head back to like the
25 single-family residential houses that we have so many of,

1 that, okay, they lopped off one of their sprinklerheads and
2 they have to go buy one of these new products. So
3 everything else is, you know, free flowing. So suddenly
4 they put a pressure compensating device in and suddenly
5 they're getting brown spots on their lawn because it's not
6 throwing the water quite as far. So what they do is then
7 they increase the timer. So I just think there are a lot
8 of variables -- and I'm not opposed to this. I think it's
9 a good thing, but I think it needs to be -- there is a lot
10 more devil in the details of like what the estimated
11 savings could be. And then, you know, I'll let some of the
12 other people speak and add to it, but just being a
13 researcher and developing a lot of standard test methods,
14 I'm like, hey, it's a tough one.

15 MR. STEFFENSEN: So, yeah, we look forward to
16 comments made into the record that will guide this process.

17 Let's continue around the room with open
18 discussion and comment. Please identify yourself and your
19 organization.

20 MR. DUNDON: Hi. My name is Chris Dundon and I'm
21 with Contra Costa Water District. I work in the Water Use
22 Efficiency section of the district. We have been
23 conducting home water use audits for 25 years and we have
24 seen everything.

25 You know a few of the things we see commonly are

1 bent and broken sprinklers; high pressure, which this thing
2 addresses; misting; low-head drainage. Then you get
3 mismatched heads because, as Charles pointed out,
4 homeowners will replace nozzles and heads as they break and
5 they go down to a big box store and they buy the first one
6 they find and nothing matches and, you know, it just
7 becomes a nightmare. And we also see a lot of stuck heads,
8 so pop-ups get stuck.

9 I actually -- reviewing this proposal, I think
10 it's very good. We see high pressure fairly constantly.
11 And if this is going to eliminate the misting and,
12 basically, like you say, bring the flow rate down, and all
13 other things being equal, which they may or may not be, but
14 I think we're going to see some savings.

15 My test for things are, and I've seen it with
16 toilets and clothes washers, if what you're recommending is
17 readily available, manufacturers are making them and
18 they're quality, and you have shown that they're going to
19 save water, then I think it's probably something that you
20 should move forward with.

21 I question if you're in areas that have low-
22 pressure water agencies, they're supposed to supply a range
23 of pressure and there is a minimum, but some of them are
24 well down at that minimum. And so make sure that this
25 regulation doesn't adversely affect an area that has low

1 pressure, nor should it adversely affect sprinkler nozzles
2 that maybe require a little higher pressure, like the --
3 I'm not sure of the term you used, but I'm going to call it
4 an MP rotator. But those nozzles have come on like a storm
5 in the landscape industry and are very good. And I think
6 I've seen a real nice result. They have actually done what
7 you're proposing. They have -- there is no misting and so
8 the water is being applied in bigger droplets and it's
9 soaking into the ground as opposed to misting off. So this
10 should not adversely affect those products.

11 And I'd like to throw out one other area you
12 talked about. You know, are there other areas we see that
13 we could have improvements. We see a fair amount of really
14 low end -- you know some of the major manufacturers make --
15 I won't call it low end, I will call it a very cost- -- or
16 inexpensive big box store model that they make. And
17 everything is cheaper about the product. This particular
18 spray body that I see fairly regularly, the cap has very
19 few threads and it doesn't thread on well. So you get, you
20 know, water shooting out.

21 The wiper seal is thin and cracks and is hit by
22 UV light because they have holes in the top of the
23 sprinkler cap, so it gets brittle and we get fountains.
24 And, finally, the spring doesn't set properly. They use a
25 little less metal. I guess it's cheaper that way. But

1 those heads are just really, really bad. And when we get
2 out there, all you can really do is replace them. And if
3 they go back down to the big box store as opposed to going
4 to somewhere that knows sprinkler heads, they're going to
5 get, you know, the same one unless they pay more. So I
6 think it's something maybe, you know, you could look into
7 in the future. And I sent you some stuff on that.

8 MR. STEFFENSEN: Great. Thank you. Yeah, I'll
9 address your comments about improvements. I mean we're
10 always looking for improvements. We review, received
11 several proposals as to improvements and why did we arrive
12 at this one and it had to do with, well, we have to have a
13 test method that differentiates products. So as we look to
14 perhaps these improvements that you're suggesting, you
15 know, we look for what test method would allow products to
16 be separated from those that comply and those that do not
17 comply.

18 So whether it's the wiper seal, the spring, the
19 cap, those design features, that's the implementation and
20 design, how can we back away from maybe a prescriptive
21 requirement that says something like that cap has to have
22 three threads or the wiper seal can't be visible after --
23 you know, I mean we really don't -- we strive per our APA,
24 or the acronym escapes me, that's basically the rules I
25 have to work to to set rules, to move away from

1 prescriptive requirements. We're not prohibited, but if we
2 can come up with a performance standard, that's preferred.
3 So that was the path we took, is our performance standard.

4 We could certainly make a prescriptive standard
5 in this rulemaking, but the preference was for a
6 performance standard. So I do hear your comments about
7 perhaps there are other items that could be improved.
8 We'll consider those comments. And we would look to -- you
9 know, if there is a way to state it, what's the performance
10 that could be improved about this product that would seek
11 to remedy these instances that you see.

12 And then you had a comment about low pressure.
13 I'm sure there are a lot of solutions to low pressure, and
14 that is a concern. We want to understand what happens with
15 low pressure and pressure regulation. How do they
16 interact? And if they interact in an adverse way, is there
17 a solution? What's the solution out there.

18 I believe in my memory someone has mentioned to
19 me that a remedy for low pressure is to apply nozzles that
20 have a lower precipitation rate. So that way the water
21 draw doesn't equal as much of a pressure drop to the
22 system.

23 I'm certainly no expert. I look to those out in
24 the field to inform me in the instance of low pressure. So
25 I just wanted to -- I am looking for comments regarding,

1 you know, on any unintended consequences, so we can
2 understand those and work towards any solution.

3 Looking around the room, I wanted to extend to
4 anyone who hasn't spoken yet, otherwise we'll go online.
5 And we'll try to go -- and unless you have a comment
6 directly related to this? Okay, then, yeah, let's --

7 MR. PIKE: Yeah. Ed Pike with Energy Solutions,
8 on behalf of the IOU CASE Team. And I just wanted to speak
9 in part to the comment about product quality, because there
10 is a standard. I believe it's ICC/ASABE 802, and Brent can
11 probably kick me under the table if I got that wrong, but
12 it does have an anti-burst requirement. And it won't -- I
13 don't know if will address all of the things that you
14 mentioned, but I could see that like an anti-burst
15 requirement might address something like the cap blows off,
16 you know, when you subject it to the ICC/ASABE 802
17 standard.

18 And if you're not familiar, I can -- I'd be happy
19 to share with you some information, and we referenced it in
20 the report we submitted to the Energy Commission.

21 And then, secondly, in terms of utilities with
22 low flow, unfortunately the presenter from NRDC had to
23 leave, but I did find their information very interesting
24 about basically finding that the minimum reported operating
25 pressure was 45 psi, listed on Attachment A. And I believe

1 they found that that was very rare and that it was unusual
2 to find, you know, a water system that was low with a
3 typical water pressure of 81 psi at the curb.

4 I don't know if that fully addresses your
5 question, but it seems like they did have some information
6 on showing the low curb pressure was very unusual.

7 MR. DUNDON: Chris, Contra Costa Water. Yeah,
8 agencies might have reported that, but I mean I know we
9 have a few areas that are just right on the bubble. And it
10 depends on what time of day as well because that will
11 fluctuate. Even though it's static pressure, it's in a way
12 dynamic because there is water moving on the main line.

13 And then when you throw in -- if it's a
14 commercial site, you throw in an RP backflow preventer, now
15 you really drop it. Some agencies maybe don't require an
16 RP and others do. So if you have a double check, you're
17 not going to lose as much as an RP. That's where I've seen
18 some of the issues, is at a commercial site where there is
19 an RP and it's on our low end. And then, you know, maybe
20 they push the design a little bit and maybe they put 12
21 heads when they should have had 9. But it's just -- the
22 ones on the bubble, I think we just got to be careful.
23 That's all.

24 MR. STEFFENSEN: Okay. Thank you.

25 Let's turn our attention now to those that are

1 online, and my colleague will call on them.

2 MR. TIMOTHY: Stephanie Tanner, you're unmuted.

3 MS. TANNER: Hi. Can you hear me?

4 MR. TIMOTHY: Yes.

5 MS. TANNER: Okay. Hi. This is Stephanie Tanner
6 with the EPA's WaterSense Program.

7 I just wanted to state that, you know, we agree
8 with -- you know we're happy the CEC is proposing to use
9 our test method. We think that it will make it easier for
10 more products to come into the California marketplace
11 sooner. I think the more products we have and the more
12 harmony we have between our method and California's, the
13 better it is for both consumers and manufacturers.

14 I think Sean already said that we have 21 labeled
15 models of sprinklerhead bodies right now. We have a lot
16 of, a number of other manufacturers that are present with
17 WaterSense, that have product and testings, and we hope to
18 see a lot more products on the market in the near future
19 which will make the market sort of when this goes into
20 effect, there will be lots of products that are already out
21 there and ready to be -- that are already being sold in the
22 state that are compliant.

23 And then I guess with the only other comment I'd
24 make is with respect to testing at the lower flow rate.
25 I'm glad to see that we'll be collecting data on that. We

1 did not -- we tested, when we did our testing we tested at
2 a higher flow rate because that was one of the comments
3 that came off in our comment process, but we did not have
4 any comments about testing at a lower flow rate at the
5 time. But I guess we would like to see that data if it
6 becomes available, we'd be interested in it. That's all.

7 MR. STEFFENSEN: Okay. Thank you, Stephanie.

8 I think we'll just go back to maybe an earlier
9 comment from Brent regarding product data, and while you're
10 here, Stephanie, I'll just say what we intend in California
11 that was part of my proposal.

12 We require, and this is typical across all
13 appliance standards, that we require performance data if
14 it's a part of meeting a standard to be presented to the
15 Commission, that data then becomes public. It's published
16 in our appliance database. So as we ask or request the
17 regulating pressure, which basically public data, I mean
18 it's marked on the product, but we would also look for the
19 flow rates to establish the three criteria, to establish
20 that understanding of what's the initial calibration of
21 flow rate, and then the comparison to the max and the
22 average. So we will be looking for those sort of gallons-
23 per-minute data presented to the Commission so we can
24 validate that the device has met the standard, as well as
25 provide a way further to get public discourse. If there

1 ever were a need to update the standard, we'll have a
2 dataset to then review, say, okay, is the market now ready
3 to transition to a lower standard to achieve even greater
4 water savings.

5 So that would be the use of it, to allow
6 customers -- one would be to allow consumers to make
7 objective choices based off on data, and another would be
8 to inform the public discourse as to a future standard.

9 I guess, Stephanie, I see that in the Water -- I
10 was on the WaterSense website yesterday and I downloaded a
11 spray sprinkler body sheet that showed the various products
12 that are now certified to the specification. Does
13 WaterSense receive that data? I guess how is that handled
14 at EPA?

15 MS. TANNER: So at WaterSense, we do not get the
16 test data from the manufacturer. We only get the results
17 that when they test, the testing, then they get listed. So
18 we don't see that data, I mean mostly because we're a
19 voluntary program. So we just didn't want to have all of
20 that data to manage.

21 We do see the data that we do require, like the
22 things that are required to be marked, like the minimum. I
23 think there are some, like what's the maximum regulation
24 pressure is and that kind of thing, we do get that
25 information. But we don't get whether or not they pass or

1 fail, or that kind of data.

2 MR. STEFFENSEN: Okay. So you don't get the
3 specific data that --

4 MS. TANNER: We don't.

5 MR. STEFFENSEN: Yeah.

6 MS. TANNER: Right.

7 THE COURT: Okay.

8 MS. TANNER: But I would suspect that if a
9 manufacturer -- I mean, you know, manufacturers don't have
10 to -- I mean, well, I don't want to say. You know if your
11 product doesn't pass the test, then you can't be sold and
12 then you wouldn't be listed, so failing data, I don't know
13 that that would be reported anyway, right.

14 MR. STEFFENSEN: Yeah, I think it would be
15 similar here. A product that doesn't comply would not be
16 listed in the database and we wouldn't -- I mean that --

17 MS. TANNER: Right.

18 MR. STEFFENSEN: -- just wouldn't be presented to
19 the public.

20 MS. TANNER: Yeah.

21 MR. STEFFENSEN: So we would only present devices
22 that met the standard because those are the only devices
23 that are allowed to be shown in the database.

24 MS. TANNER: Right.

25 MR. STEFFENSEN: So I guess, Brent, I mean that's

1 the nature of the proposal and the nature in which these
2 appliances do work.

3 So we'll look for you and for others to make
4 comments as to our approach. And Table X specifically, I
5 think it's the last chapter of the report, presents what
6 data we will request.

7 I will call on the next person.

8 MR. TIMOTHY: Sean McFarland, do you have a
9 question?

10 Sean, are you there?

11 MR. STEFFENSEN: We can barely hear you.

12 MR. MCFARLAND: Hello? Is this working now?

13 MR. STEFFENSEN: Yes, that's much better. Please
14 speak up.

15 MR. MCFARLAND: Great. Thank you.

16 MR. STEFFENSEN: Thank you.

17 MR. MCFARLAND: No problem. No, I'm just making
18 a comment. I typed a couple of comments in the room about
19 --

20 MR. STEFFENSEN: Would you -- sorry to interrupt.
21 Would you identify your organization if you're representing
22 one?

23 MR. MCFARLAND: Yes, the Water Management Group.

24 MR. STEFFENSEN: Okay.

25 MR. MCFARLAND: Now he have also participated in

1 the MWEL0 regulations. But looking at the issue of
2 overwatering, of going beyond the idea of reducing
3 pressure, which does help and prevents misting and all the
4 other things that was mentioned before, that there is a way
5 to redesign systems that make use of both sprayheads and
6 rotors and use them in a more efficient manner by layout
7 adjustments that increases the efficiency. So this is one
8 of the things that we wanted to say, that usually
9 overwatering then becomes a management issue as opposed to
10 a design issue.

11 MR. STEFFENSEN: Okay, great. Thank you. Just
12 to follow up on your comment, we're looking at an appliance
13 standard which will apply to what may be sold or offered
14 for sale in California. That standard regulation will
15 apply at the point of sale. We hope that consumers will
16 use those devices in the most efficient manner, but this
17 regulation will not address the use of those devices, how
18 they're laid out, what the design is. So we'll be looking
19 at -- our focus here today is on what may be sold or
20 offered for sale in California.

21 MR. MCFARLAND: Right, beyond the device.
22 Because the device itself will be mostly efficient in
23 isolation. But the devices are used in a system wide basis
24 and that incorporates the design, and I just wanted to
25 point that out of course.

1 MR. STEFFENSEN: Okay, great.

2 Okay. So that -- I think that concludes the
3 commenters online.

4 I just I wanted to just perhaps go back to some
5 of the questions that Brent had and just try to understand.

6 So, Brent, you had asked a number of good
7 questions and, unfortunately, my memory is again failing
8 me. I think we had covered the product data. I think that
9 was an important point. I want to be clear as to how our
10 process will work.

11 I think you had had a question about perhaps
12 enforcement. It was what happens -- or how are we going to
13 identify those products that may not be aware of our
14 standard that are being sold in California or maybe
15 somewhere beyond that. We do have an enforcement unit. We
16 would require all devices to be sold -- that are sold or
17 offered in California meet the standard if this were to
18 become law. And there are enforcement mechanisms and
19 investigative processes that can be used to go about with
20 compliance.

21 Alternatively, there is also outreach that our
22 office does. So we will definitely make outreach a
23 component of this rulemaking if this were to move forward.
24 We will want to work with everyone to spread the word if
25 this becomes law. We want to spread the word now so people

1 know what may occur.

2 I have gone out and looked at, as best I can, to
3 identify stakeholders that may be affected, manufacturers,
4 and tried to contact them individually. And so I have
5 reached out to various people that I have been able to
6 identify. Ed Pike has been very helpful to identify
7 stakeholders individually, who I have reached out to to
8 contact. So I'm talking about individual corporations.

9 And so we're looking for feedback from those
10 stakeholders as to how they may be affected. That will be
11 an important part of our standardized, our statewide
12 regulatory impact analysis as part of our process that will
13 come up next, as shown on Leah's chart. So we want to get
14 as much information from those stakeholders as we can.

15 And so I'm trying to think of were there other --
16 yeah. Sorry.

17 MR. MECHAM: Brent Mecham with the Irrigation
18 Association. So I've got a few other questions that you
19 kind of generated in my mind now. One of them was about
20 the product marketing -- marking. So we appreciate trying
21 to get all that, but there is really very limited real
22 estate to do all of that on a sprinkler and especially make
23 it visible above ground. So most of the manufacturers
24 already identified the product has like a pressure
25 regulator or a check valve in it. But all these other

1 requirements, could that just be available either on the
2 packaging and/or on publicly-available literature, whether
3 it's website or printed piece. You know some of these
4 things, it would be very difficult for them to actually put
5 on the product. So if it's readily available but not
6 actually on the product, is that acceptable.

7 MR. STEFFENSEN: Yeah. We -- in the proposal,
8 I'm just thinking if I could get the proposal language up
9 here quickly, but what we're intending to do is follow a
10 model which we already have in regulation, where say a box
11 of lightbulbs, those could be packaged individually. In
12 that case, the product marking and all these requirements
13 would be required for each individual on the product
14 itself, or on the individual package. Or if say you have a
15 big box of florescent lightbulbs, they could all be boxed
16 together -- or as long as they're all in the same box, that
17 would also be acceptable.

18 So I don't know if that answers your question,
19 but that's what we're looking to receive comments on, is we
20 require all these markings, but there are several options
21 and hopefully one will suit all parties to provide that
22 identification. Because it's really about ensuring a fair
23 playing field. If something comes into California that's
24 not marked, how do we know what it is, how do we know if it
25 complies? We want to make sure that is just really marked

1 in some way. So we provide these three options, hopefully
2 to ease the burden, but we want to receive comments as to
3 how we could perhaps alter the proposal.

4 MR. MECHAM: So Brent Mecham again. Another
5 quick question. Acceptable labs for testing the product.
6 So currently the manufacturer is aware of the EPA
7 WaterSense Program, and so they work with the labs that are
8 certifying and the certifying bodies. Would those actually
9 be the very same for California or would there be other
10 labs that they would have to go through testing.
11 Essentially, our manufacturers are sensitive about having
12 to test twice to meet somebody else's different
13 requirements.

14 MR. STEFFENSEN: I'm trying to think about how to
15 answer this. We require that the test labs be certified to
16 us, and there's a process in our regulations. It's not
17 specifically in this proposal because we're not changing
18 anything, but the manufacturers can certainly test and
19 certify their products. Alternatively, they can delegate
20 that testing authority to a third party. What that does is
21 the manufacturer is still ultimately culpable or
22 responsible for the results, but they can -- they don't
23 have to test the product themselves, and so a relationship
24 can be formed between the manufacturer and a separate test
25 lab, as long as the manufacturer declares that this test

1 lab, the results from them, they're still ultimately re- --
2 so there is -- that's sort of the connection we make
3 through our regulations, where a test lab can then certify
4 to us, but it's been delegated by that original
5 manufacturer.

6 MR. MECHAM: Brent Mecham again with the
7 Irrigation Association. Just thinking, going forward,
8 okay, the Commission will want to have some kind of
9 performance data reported to you. And the manufacturer's
10 going to be very sensitive that, you know, currently there
11 is a plus or minus ten percent, we'll just keep it simple,
12 on the flow rate, which translates to a little different
13 pressure rating if you do it just on the pressure. So I
14 don't want to necessarily say that my product works good at
15 31 psi, even though we are advertising it at 30, but that's
16 the way it tested. And so that's get out there. But
17 somebody else comes in and says, well, mine works really
18 good at 30.5 psi, and so I have the superior product,
19 because that's how this marketing gets done when data
20 becomes available.

21 Would it be acceptable to the Commission that
22 says the product that they're -- instead of reporting the
23 exact numbers that they fall within the range? And while
24 we don't have that for the low flow of the .75 gallons per
25 minute, let's just assume that it's going to be that same

1 as it is for the 1.5, would that be an acceptable way of
2 reporting data to the Commission versus the exact numbers?

3 MR. STEFFENSEN: I mean that's part of this
4 process here. We're seeking comments as to alternatives.
5 I would encourage you to write those comments out so I can
6 understand them, so that way we can -- we can understand,
7 you know, what the priorities are.

8 It is of interest to us to understand how this
9 test procedure rank orders performance. And certainly if
10 there are ways too, the test procedure may provide certain
11 flexibility to understand perhaps how that flexibility
12 affects the ability to rank and order the product, so that
13 is of interest.

14 So I mean that's -- I guess what I'm trying to
15 say is as a stakeholder would propose an alternative way of
16 certifying, we want to understand the reason behind it, so
17 they kind of go hand in hand. So I would encourage you to
18 comment upon that. Okay.

19 MR. TIMOTHY: Hi, Stephanie Tanner. You're back
20 on.

21 MS. TANNER: Hi. This is Stephanie Tanner with
22 the EPA WaterSense Program. I just wanted to respond to
23 Brent's question about duplicate testing.

24 We have this issue with other products that
25 California regulates and that WaterSense labeled. And you

1 know the test labs or the certifying bodies for WaterSense
2 are usually reporters, you know, approved reporters for
3 California. So once you -- if the test methods are the
4 same or very similar, that data can then just be sent with
5 the manufacturer's permission from the WaterSense test to
6 California or vice versa, so they don't have to do
7 duplicate testing. That's why we are so strongly in
8 support of having harmonious test methods between the two
9 organizations, because it just makes everybody's life that
10 much simpler. That's all.

11 MR. STEFFENSEN: Yeah, I agree with what
12 Stephanie said. As long as the manufacturer forms that
13 relationship with the test lab, per our regulations of the
14 delegation, then I don't see an issue.

15 And, Brent, of interest to us is the water
16 savings, and I had heard from Brent and from other
17 stakeholders as to the assumptions that went into my
18 analysis and how they may be improved. And so the concepts
19 of falloff, how pipe flow works, supply pressures, the
20 availability of water, choke points, a lot of this I would
21 say, you know, I seek to learn more, so comments upon that
22 topic are very much of interest to me, and I will consider
23 them.

24 But to follow up on maybe comments that the water
25 pressure may be lower. I mean we did look to see, well, at

1 what point is this not going to be cost-effective. At what
2 point will people not receive a benefit, and that is of
3 interest, and a lot of appliance standards, although
4 they're -- and I believe in this case they're
5 overwhelmingly using my assumptions, cost-effectiveness is
6 the majority if not most. We did state in the staff report
7 that we believe that maybe two out of ten people, if they
8 were -- would not achieve a cost-effective solution with
9 this regulation, and we look to see how that could be
10 improved. And that that based upon that, that was under
11 the analysis of looking at the distribution note of data
12 that was provided to us of water pressures. It was looking
13 at, okay, at psi does it not become cost-effective in a
14 particular instance, and we determined it was about 40 psi,
15 where the water saving is from delivery charges solely. We
16 don't worry about the utility savings, which are separate
17 and distinct from that, but to the consumer, the water
18 utility delivery charges. At what point does that not pay
19 back that \$4.68 over the product lifetime, and it was
20 around forty -- so we did a sensitivity to figure out where
21 assumptions, where that line is crossed from cost-effective
22 to noncost-effective.

23 We do want to get more information on that to
24 understand, you know, is that the point at which it goes
25 from cost-effective to noncost-effective. Currently the

1 analysis shows it's a good place to be. It's strong, it
2 shows most people will receive a benefit.

3 Go ahead.

4 MR. LANGRIDGE: Dave Langridge, East Bay MUD
5 Water Conservation. One, I just wanted to follow up on
6 Brent's question about whether the 65 was a static or a
7 dynamic pressure under study. And, second, I want to
8 reiterate Chris' concern about low pressure. It's from
9 dealing with numerous irrigation audits over the years at
10 the district. Low pressure is a concern. We have low
11 pressure zones within our district and I'm sure in other
12 water districts. So in many cases, the pressure-
13 compensating sprinkler will not work. It may not even pop
14 up. So I just wanted to see if that was addressed by the
15 proposal.

16 MR. STEFFENSEN: Okay. So to address the first
17 concern, static versus dynamic pressure for when we say 65
18 psi. The way that data is presented to me, and I will look
19 if it's part Ed Pike's report, I will just say my
20 understanding is that it's a reading that's taken from a
21 pressure gage. That would indicate to me that it's static
22 pressure.

23 I will just pause if there is any clarification
24 you wanted to add.

25 MR. PIKE: Ed Pike, Energy Solutions, on behalf

1 of the IOU CASE Team.

2 We will look into that. PG&E and the California
3 Landscape Contractor's Association designed a survey, and
4 CLCA rolled that out to their members. So we'll follow up
5 on that and get back to you.

6 MR. STEFFENSEN: Okay. And I do intend to review
7 the NRDC data set too. I mean I understand there is a
8 difference between static and dynamic pressure. It's an
9 important distinction. We want to make sure we're
10 consistent, so that way as we look to see what's happening
11 at the device, since that's tied directly to the
12 statement's calculation, we want to make sure it's right.

13 The second concern that you've expressed is low
14 pressure. Again, to say we want to know what adverse
15 effects could happen. It sounds like you have some
16 experience maybe with a certain situation. If there is
17 information about what happened, what was adverse about it,
18 how it was addressed, we want to understand that. You
19 know, how could -- and maybe that plays into the scope of
20 the regulations.

21 Again, I don't want act like I know the solution.
22 I really want to understand from a variety of stakeholders
23 what may occur.

24 MR. LANGRIDGE: Yeah. I want to emphasize that
25 we're for -- we do want, you know, high-efficiency

1 sprinklers and pressure-regulating sprinklers do a great
2 job in some areas. But there will be situations where
3 customers or contractors, or whoever, there's low pressure,
4 15, 20 pounds of pressure throughout an irrigation system,
5 and it's very common. And then if they have to go to the
6 store to put in a pressure-regulating sprinkler, 40 or
7 whatever, it may make the situation worse. And so I just
8 want to emphasize there will be situations where the
9 customer only has x amount of pressure that's given to him,
10 and to see how the group is going to address that, if there
11 is a way around that the customer can still get the
12 sprinkler he needs, without doing major surgery to an
13 existing system.

14 MR. STEFFENSEN: Yeah, we'll look for comments as
15 to that.

16 Yeah.

17 MR. TIMOTHY: Edward Osann, you're on.

18 MR. OSANN: Yeah. Can you hear me on?

19 MR. TIMOTHY: Yes.

20 MR. OSANN: Yeah. I just wanted to point out
21 that the last speaker I believe was from East Bay MUD, but
22 I'm not sure. Those on the line could hardly hear any of
23 those comments at all about pressure. Will there be a
24 transcript of today's meeting?

25 MR. STEFFENSEN: Hi. Sean Steffensen. Yes,

1 there will be a transcript as well as a recording should be
2 available soon. I'm trying to think --

3 MR. OSANN: Okay.

4 MR. STEFFENSEN: The discussion in the room, for
5 those that may not have been able to hear, we're discussing
6 the instance of what happens when a consumer finds
7 themselves with low pressure in their system inherent for
8 whatever reason, whether it's a design defect or a delivery
9 issue, or what-have-you. You know, there are probably
10 various circumstances. How will this regulation interact
11 and what can be the outcome, how could that be handled. So
12 we look for comments to better inform the rulemaking or
13 this proposal.

14 Please.

15 MR. BOHLIG: Sean, this is Charles from East Bay
16 MUD. A couple of follow-up questions. On the total water
17 savings that you had on slide 15, and I thought I may be
18 heard Brent mention that it was based on 20 million --
19 excuse me -- 2.9 million sprinkler spray boards; does that
20 sound right? Like when you came up with this total out of
21 acrefeet of water saved and GWh, gigawatt hours, yeah.

22 MR. STEFFENSEN: Okay. So I have yet to explain
23 I guess the stock. We look for -- one of the items that we
24 want to try to address per our process is we want to
25 understand how many devices there are in California that we

1 believe would be within the scope of the regulation. So I
2 had to work with a number of assumptions. I make a request
3 out to have everyone take a look at those assumptions.

4 But how did I come up with this number? I didn't
5 know -- it was presented at an earlier proceeding, so I'm
6 trying to remember back. We looked at the number of
7 households in California. So it's just single-family
8 homes, and that echoes the comments from the NRDC that we
9 didn't look at beside single-family households, so we
10 limited our focus to that, to be conservative. There could
11 be additional savings from other instances.

12 And we said to ourselves, okay, there's a number
13 of homes, I think it was like 7 million or 8 million. And
14 then we say we knock that down by another assumption that
15 said maybe only 75 percent have an irrigation system that
16 would use this type of device. Then we said how big is the
17 average size yard. So there are a number of assumptions.
18 We look to the community to vet and say is that about
19 right. I think it was like 3600 square feet. So how many
20 heads do you need for that. So a lot of a number of
21 assumptions. We said about 36 heads to cover that. We
22 take, you know, 7.5, 8 million, whatever the number was.
23 I'm probably misquoting. Multiply those numbers together,
24 and we came up with a number roughly around 210 million.

25 We did look to try to check that number. I mean

1 I always want, as an engineer, I want to check to see if
2 I'm on track. And we didn't find a published source of
3 this information. We asked stakeholders what they thought
4 and we generally got a thumbs up. So we'll just -- you
5 know, we'll just put it out there. This is what we think
6 it is. We think -- we have confidence in it. It seems to
7 make sense. You know, I wander around, count the number of
8 sprinklers in people's yards, you know.

9 It seems like it's on track but, you know, it --
10 but I guess to emphasize it, it's a large number. If 210
11 million isn't quite right, it should be somewhat less,
12 something more. If we start including other properties.
13 It's a significant number, and you take a significant
14 number times what is -- I think 15 percent is a significant
15 amount of savings if there's truly 3,000 gallons of water
16 flowing through these devices. We start to get through
17 these big numbers of 80 billion gallons of savings per
18 year.

19 Did that answer your question? Was there another
20 one?

21 MR. BOHLIG: Yeah.

22 MR. STEFFENSEN: It took a while for me to kind
23 of rid the cobwebs --

24 MR. BOHLIG: No, no. Sean, that was good because
25 I do calculations like that myself from time to time

1 because it's your best guesstimate.

2 And then the 15-percent savings, did that come
3 from a research laboratory?

4 MR. STEFFENSEN: The University of Florida,
5 through the U.S. EPA published their test results, and so
6 what I looked at was they took a number of devices, brand
7 A, brand B, brand C, I think through brand F, and they
8 presented the flow rates for both a product that has
9 pressure regulation and nonpressure regulation.

10 So bring the chart back that shows the -- we are
11 looking at slide 13 of the presentation I presented earlier
12 today. The 15 percent is just looking at the blue line.
13 That's the nonpressure-regulating device and saying what's
14 the difference in flow rates. They're about two gallons
15 per minute at that 55 psi, which again we're looking for
16 comments on. Is that the right place on that line. We
17 could look, you know, to the right of that point or to the
18 left of that point to establish an average savings.

19 And then what's the difference down to the
20 standard that we're setting. And so we're saying the
21 standard, that's I think 12 percent above the initial flow
22 rate of 1.5, is about 1.69, or so. So I don't want to
23 quote the math, but it's some combination of the 1.69 and 2
24 gallons per minute, taking a difference, dividing by a
25 certain denominator that ends up 15 percent. So the flow

1 rate is 15 percent less, and then what's the other
2 component. That doesn't give us a quantity of water. We
3 need to say, well, how long does it run. And my assumption
4 is that we don't get a difference in cycle time, so
5 therefore we look to the difference between before and
6 after. It's just the flow rate creates a difference, and
7 so the savings rate flows right through. So that's the
8 derivation of it all.

9 I've tried to -- there could be additional
10 effects, but I didn't want to go there. I just wanted to
11 say -- try to make the simplest assumptions. You know
12 there could be a difference in runoff, percolation,
13 evaporate rate that could affect behavior, but I look to
14 the room and elsewhere and as to is there a better
15 assumption.

16 Okay. Comments in the room. Ed Pike.

17 MR. PIKE: Thank you, Sean. Yeah, and so I think
18 these are good questions. And I just want to point out
19 that the CASE report addresses these topics also. And in
20 terms of the number of units, like we did not find any
21 definitive published number for the number of units, so if
22 anyone comes out with that, please let me know.

23 But, you know, accounting for variability, will
24 it vary from year to year, you know yours obviously is
25 going to have a big reduction. We came out a little bit

1 different from Sean's estimates, but I think given that
2 there is some uncertainty and variability that those two
3 are essentially consistent values in terms of the number of
4 units, analysis sales.

5 And in terms of the water savings, we did
6 actually look beyond just the amount of water that was
7 saved, and we came up with estimates for how much was due
8 to the reduced flow rate through the device, how much was,
9 you know, misting, overspray, increased evaporation. We
10 didn't get into how much results in decreased efficiency of
11 distribution, which we think there is probably additional
12 savings there. And, you know, it turns out to be about the
13 same whether you just look at the total amount of flow rate
14 versus the amount that's just wasted and can't be recovered
15 by adjusting flow rates. Those two values aren't exactly
16 the same, but they lead to the same conclusion, that there
17 is just a huge opportunity for water savings and that there
18 will be many multiples of benefit over cost, you know,
19 regardless of how these assumptions play out.

20 So if you want to take a look at the report that
21 we did, we're also interested in learning too if there are
22 better assumptions, but we have a very high degree of
23 confidence that there is, you know, a huge amount of
24 savings and it's hugely cost-effective overall.

25 MR. STEFFENSEN: Okay, Brent.

1 MR. MECHAM: Brent Mecham with the Irrigation
2 Association. So the assumptions that you have done really
3 are based on single-family residential irrigation. And so
4 we do have this whole other world of commercial irrigation
5 that I think covers whatever error there may be, that I
6 think you've done a good job. You know, I feel fairly
7 comfortable with the assumptions and we're in favor of it.
8 I just am still a little hesitant about will we really get
9 that much savings or if it's half that will we still be
10 winners. And I do that just because our manufacturers are
11 very sensitive to water issues, and they do make really
12 good products and they're trying to answer the problems
13 that exist. But we don't want to have this unrealistic
14 expectation that it's going to all get achieved.

15 MR. STEFFENSEN: Okay.

16 MS. ANDERSON: So this is Mary Anderson from
17 PG&E. One of the questions that I'm kind of noodling
18 around, and we've been -- we've asked it but I think might
19 be helpful, do we -- did the water utilities have an idea
20 of what percentage of their customers struggle with low
21 pressure. So I'm hearing, you know, there is a good
22 portion, there is -- it course, you know, with some vague
23 references. Is there better information that we could use
24 that we haven't found that could be submitted to Sean that
25 would allow him to make a more informed decision? That

1 might be really helpful if that was available.

2 MR. DUNDON: Chris with Contra Costa Water. It's
3 a good question. I think I could talk to our O&M folks and
4 see if -- you know, they have a map where they say in this
5 area we guaranty a minimum of this. So I could say tell me
6 the areas that are the lowest. You know, see how many we
7 have, look at our service area, and maybe a percent -- it's
8 -- it's going to be small. And I think where it got
9 exacerbated, in the few audits I have done, it's because
10 they had an RP. So it was a commercial site but they had
11 an RP, and it took it down even more. And then maybe they
12 overtax -- actually I found one site that had two RPs, so
13 that helped. We removed one of them.

14 So I don't think it's super widespread, but it's
15 there. And I think maybe East Bay Mud, I think --

16 MR. BOHLIG: Yeah, this is Charles, East Bay MUD.
17 I agree, it's very -- we don't design our systems to have
18 low pressure, but things happen from time to time. So are
19 you curious like then would affect the savings or the
20 amount of people that would be affected by not being able
21 to get a pressure -- excuse me -- a nozzle -- excuse me --
22 the body -- boy, talk about nomenclature right off the bat,
23 those are all of them right there. So talking about the
24 people that wouldn't be able -- that would have to buy a
25 pressure-regulating body. Was your question going to have

1 two effects?

2 MS. ANDERSON: Probably. The number of people
3 and then overall the percentage, I think this would -- in
4 my opinion, this would impact both the savings and the
5 percentage of people who would struggle. So I think to get
6 really -- to be able to understand the size of the
7 potential issue, it would be helpful to understand to the
8 best of our ability.

9 And I get life is imperfect. We all live in an
10 imperfect world, and this doesn't mean that you guys
11 haven't done a fantastic job. As one of your customers,
12 I'm very grateful. You do a wonderful job. But, you know,
13 nonsense happens, life isn't perfect.

14 MR. BOHLIG: Yeah. Like Chris, I think we can --
15 Chris and I will talk and we'll talk to some of our
16 particular that do these sort of things and see if we can
17 just kind of get a general ballpark number on that.

18 MR. DUNDON: Yeah. Chris, Contra Costa. Yeah,
19 if I can holler over to Oniven (phonetic), get a fairly
20 quick answer, and maybe we could expand that and maybe do a
21 quick survey to a handful of agencies and say, hey, here is
22 who I went to, see if you can get it. And then if we can
23 get you something that's more valuable.

24 MR. BOHLIG: And Charles from East Bay Mud, one
25 other last question I do want to follow up, and I actually

1 will give up the microphone. I really want to kind of
2 emphasize the importance that whatever test method comes
3 out that the test is done with a dynamic pressure, because
4 that's going to be a lot more real world, and that will
5 then give you a better idea of the productivity that the
6 spray nozzle is actually throwing the water out there,
7 effectively, just because it can drop awfully significantly
8 once you turn on those systems, and I'm not sure if you're
9 just going to be testing them one at a time or you're going
10 to have it maybe where you have a dozen sprinkler heads
11 that go on.

12 So just being in the world of testing, it's kind
13 of good to play around with different scenarios so you can
14 kind of neutralize the one-offs that are either
15 exceptionally artificially saving some savings or on the
16 other side that's suppressing the savings per se.

17 MR. STEFFENSEN: Okay, great. Thank you.

18 So there was a comment earlier in the room, that
19 perhaps we haven't heard from everyone who may be affected.
20 And I really want to emphasize to anyone who is listening
21 out there or who will hear this later, that I am interested
22 in your perspective. I know we have a wide variety of
23 personnel here and on the line. I thank you for your
24 participation.

25 The comment period does extend until April 2nd.

1 Please comment. I will read your comments, I will consider
2 them. So I know there was a comment earlier that perhaps
3 there may be other entities that haven't participated, and
4 I want to emphasize I want -- I will as best I can, reach
5 out to you, but please reach out to me.

6 Your comments can make a difference, is what I
7 want to emphasize.

8 I will just maybe survey the room and online if
9 there are additional comments or questions, and I will
10 provide concluding remarks then.

11 (No audible response.)

12 MR. STEFFENSEN: Sean Steffensen with the Energy
13 Commission. I want to thank everyone today for their
14 comments. I believe we have a strong proposal here. I
15 have heard the concerns, I will review these. I look
16 forward to your comments into the record that are due by
17 April 2nd. I think there have been a lot of good points
18 brought up today and I think the written format is an
19 excellent opportunity to expand upon and provide more
20 evidence and data. I love data. So please, I encourage
21 you to follow up with what you've said today. And I guess
22 that's it. Did anyone else want to speak after me?

23 (No audible response.)

24 MR. STEFFENSEN: Okay. Well, then this concludes
25 this meeting. Thank you.

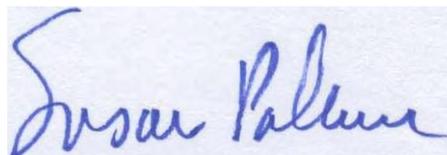
1 (The public hearing was adjourned at 11:55 o'clock
2 a.m.)
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

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 March, 2018.



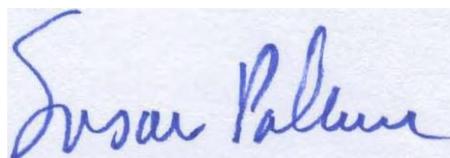
Susan Palmer
Certified
Reporter
CERT 00124

TRANSCRIBER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber.

And 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 March, 2018.



Susan Palmer
Certified
Reporter
CERT 00124