California Energy Commission

Landscape Irrigation Efficiency Standards & Labeling

Staff Technical Workshop #2

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Workshop Participation

- In-person Participation
- Via Internet – WebEx
  - go to https://energy.webex.com
  - meeting number **921 695 546**
  - meeting password **irrigation@130**
  - Webex audio and onscreen activity are recorded
  - Click the “Raise hand” button to ask a question
- Call-in Only Participation
  - 1-866-229-3239 (toll-free in the U.S. and Canada)
  - meeting number **921 695 546**
- Order of questions: dais, attendees, WebEx “Raise Hand”, phone-only participants

Agenda

- Welcome / Introductions
- Update on Controller Study
- Summary of Comments and Information Submitted by Parties in Responses to Key Questions
- Discussion of Proposed Landscape Irrigation Language and Requirements
- Parties Discussion of Possible Regulatory Language
- General Public Comments
- Closing Remarks and Next Steps

OVERVIEW

Landscape Irrigation Efficiency

- Requirements of AB 1881 (Laird, Chapter 559, Statutes of 2006)
  - Energy Commission
    - Efficiency performance standards and labeling requirements for controllers and sensors by January 1, 2010
    - Report schedule for emitters and valves to Legislature
    - Prohibit sale or installation of non-compliant equipment by January 1, 2012
- AB 1881's Purpose - reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy **OR** water

Efficiency Standards & Labeling

- Appliance Efficiency Regulations, (California Code of Regulations, Title 20, Sections 1601 through 1608)
- Public Resources Code sec 25402(c), requires the CEC to set standards:
  - for all appliances that use a significant amount of energy or water
  - that are feasible, and must reduce energy or water demand growth
  - that are cost-effective to consumers over the life cycle of the appliance

KEY QUESTIONS AND RESPONSE

Data and Analytical Needs

These questions seek to obtain the following:

Data for estimated volume of current water waste by residential and commercial irrigation systems.

Data to support an analysis for estimated volume of expected water savings.

Data to support estimated energy use from irrigation controllers currently being sold in California.

Data to support an analysis for estimated energy savings with the proposed smart controllers and better manual controllers.

Data to support the incremental additional cost from current controllers and the proposed better manual controllers.

Data to support the expected useful life of the controllers and moisture sensors.

Specific metrics and test methods which can measure and verify both water and energy savings (or additional demands) of these devices.

1. How do we define water "wastes", and how do these "wastes" occur in landscape irrigation practices? What are the different categories of wastes and strategies for mitigating them?

- *"You know it when you see it" - runoff, overspray, watering in the rain*
- *Harder to measure – deep percolation, leaks, poor system design, evaporation*

2. How are landscape irrigation controllers, both weather based and moisture sensor based or add-on devices, expected to help reduce these wastes? How effective are they in actually reducing waste of water in landscape irrigation?

- *Apply only the water that is needed*
- *Controllers that are properly calibrated*
- *Controllers can't address all inefficiencies*
- *Need good data and proper interpretation of the information*

3. Definitions of specific terms and equipment are required for any standards or labeling requirements. What are the applicable definitions for irrigation equipment, performance metrics and functions to be regulated? Are all the definitions used for the terms for this equipment agreed-to within the industry? If so, what is that terminology and what are the related definitions?

- *Refer to Irrigation Association and DWR Model Ordinance*

4. How do we minimize water use increases and maximize water use savings with an efficiency standard for landscape irrigation devices? What performance metrics must be included in such a standard (i.e., flow or application rate, pressure, net volume applied, duration, etc…)?

- *Need good information about prior practice*
- *Standards should also include energy use*
- *Standards on controllers can't do it all*
- *Set a water budget*

5. What measurements/protocols are used to verify these savings? Can these methods be applied to all types of controllers? If not, what adjustments must be made to more equitably compare different types of controllers? Sensors? Emitters? Valves?

- *Use the SWAT protocols*
- *Use EPA performance standards*
- *Use field verification and Prop 13-type studies*

6. Do we have definite measurements of efficiency or quantity of water and/or energy being saved by the use of either aforementioned controllers? How does this compare to add-on devices to traditional timers? Could standard or traditional timer-based controllers achieve similar savings? If so, how?

- *Many studies are available*
- *Smart controllers can INCREASE as well as DECREASE water use*
- *Conventional controllers can be used efficiently*

7. Is there a common characteristic or operational element that can be defined between "smart" and "dumb" controllers that could be the basis of a performance standard for water savings? For energy savings?

- *Common differences – human adjusted v. automatic adjustment*

8. What are the mandatory or required elements of an irrigation system to ensure increased efficiency?

- *Maximum efficiency can not be achieved by controllers alone*
- *Self adjusting (ET or climate based)*
- *System design – operating pressure, pipe sizing, valves, sprinkler coverage, etc…*
- *Proper calibration (audits, training)*
- *Work with regulatory efforts during water shortages*

9. Are new controllers or add-on devices compatible to existing irrigation systems? What difference in performance is there between new and modified systems?

- *Yes, for the most part*
- *Add-on devices may be limited by the original controller*
- *Existing systems may not be designed properly or well maintained*

10. Do we know whether the uses of the weather or moisture sensor based controllers (or add-on devices) would result in a statewide net saving of water use compared to current time setting or clock controllers? How much? What should be the minimum expected water savings and energy savings of an efficiency performance standard for controllers? Sensors? Emitters? Valves?

- *Some studies and analyses show savings, others increases*
- *Estimates of savings vary greatly*
- *SWAT testing not indicative of savings*

11. What key elements or information are required for label content of landscape irrigation equipment (controllers, sensors, emitters, valves) to properly inform customers about potential of these devices to save water or energy? What content is required to ensure adequate understanding and installation to ensure desired performance? Where should labels be placed (on the device packaging, on the device itself, on informational documentation included with the device, etc…)?

- *"Confidence" label*
- *Equipment alone doesn't save water*
- *Irrigation efficiency rating*

12. Is there adequate evidence to substantiate a specific standard of performance for all controllers? Sensors? Emitters? Valves? If not, what analyses or evidence is required?

- *Yes, but performance level needs to be defined (irrigation adequacy, irrigation excess)*
- *Need to study water use overtime (Prop 13 type study)*
- *Re-examine assumptions about plant water needs, Eto, plant factors, etc…*

13. The Energy Commission must do a cost benefit analysis as defined by statute. What costs should be used for a unit of water saved (i.e., current average statewide average cost per gallon; marginal cost of next increment of new water to statewide supplies such as ocean desalination, etc…)? What costs should be used for a unit of energy (i.e., current statewide electric or natural gas average cost per watt; marginal cost of next increment of new generation or natural gas supplies, etc…)?

- *Water costs (avoided, savings, marginal)*
- *Energy costs (embedded, stand-by)*
- *Program and infrastructure costs*

14. What is the expected average operational life of landscape irrigation equipment: controllers, sensors, emitters, valves? What is the design life of these devices (required information to evaluate costs to consumers)? What are the retail costs of these devices? How are these costs expected to change over the next 10 years?

- *Some estimates but more detailed information needed*

15. AB 1881 requires the Energy Commission to prohibit the sale and installation of non-compliant equipment on or after January 1, 2012. How should the Energy Commission enforce the prohibition of the sale or installation of non-compliant devices? What partners should the Energy Commission collaborate with and what role should these partners play?

- *Planning and construction inspection process*
- *Awareness Campaign/Education*
- *Inspections at retail and wholesale facilities*
- *Enforcement at the manufacturer/distributor level*
- *DWR, Water Districts, SWAT, CLCA, IA, CUWCC*

16. Are there any special operational or regulatory considerations needed for systems that use recycled water?

- *No, but may pose salt problem*
- *Labeling requirements (purple pipe)*

17. What on-going data collection requirements are needed to ensure the compliance of regulated irrigation equipment with the standards?

- *Reporting by retail stores, manufacturers, distributors*
- *Water budget compliance*

COMMENTS ?

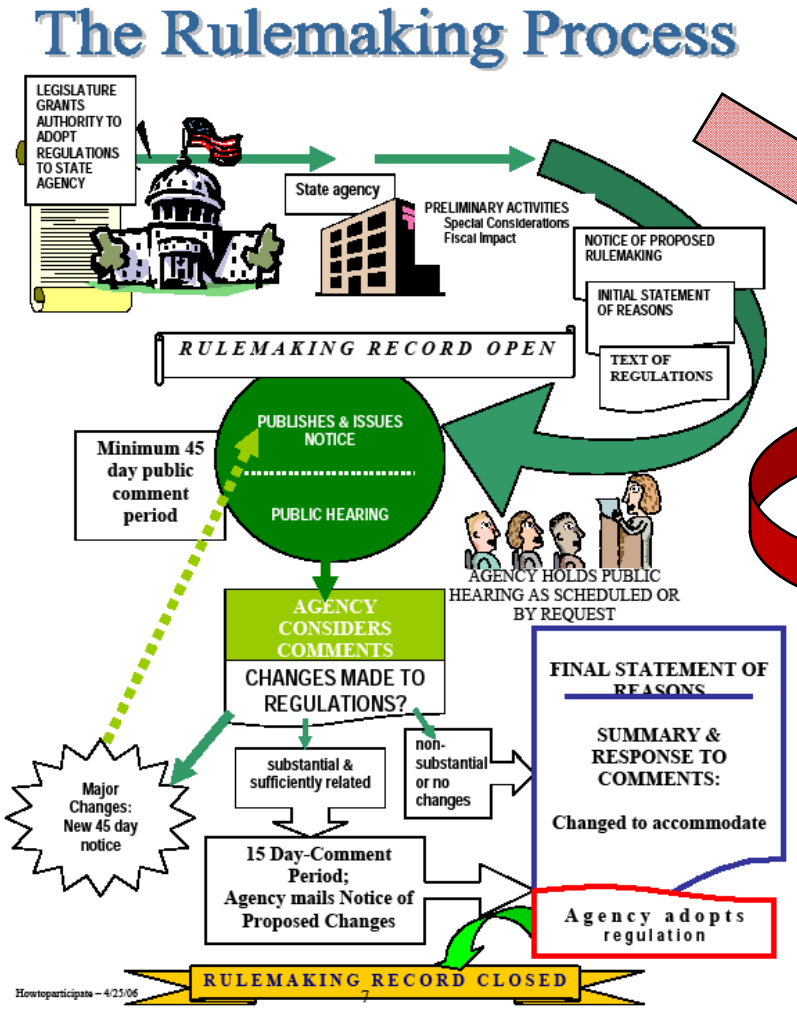
NEXT STEPS

Further Input

- Seeking more real data, especially on costs and performance
- Submit written comments by Friday July 10, 2009.
- Docket number 09-AAER-1A and indicate "2009 Irrigation Equipment Performance Standards and Labeling Requirements June 30, 2009 Workshop" in the subject line or first paragraph of your comments.

Schedule

Phase	
Preliminary Activities	Hold Workshop: April 1, 2009 Publish Scoping Order: May 13, 2009 Technical Workshop #1: June 1, 2009 Technical Workshop #2: July 2009 Staff Report: end of July 2009 Committee Workshop on Staff Report August 2009
Formal Rulemaking	Target date to publish proposed regulations in the registry: Aug 14, 2009 Public hearing: week of September 14, 2009 Revise language if needed and publish for comments: October – November 2009 Commission Approval: Dec 16, 2009
OAL Review	Submit final packet to OAL: Jan 4, 2010 OAL decision: Feb 18, 2010



Phases

- Preliminary Activities
  - Scoping
  - Information and data collection
  - Public outreach
  - Analyses and supporting documents
  - Draft Language
    - Define standard, test methods & labeling requirements
- Official Rulemaking
  - Publish Notice
  - Public Hearing(s)
  - Agency Adopts Regulations
- OAL Review

Proceeding Information

- Energy Commission's Website:
  - http://www.energy.ca.gov/appliances/irrigation/
- General information: Lorraine White
  - lwhite@energy.state.ca.us
  - 916 654-4075
- Office of Administrative Law
  - http://www.oal.ca.gov/reg_notice.htm
- Department of Water Resources
  - http://www.owue.water.ca.gov/landscape/ord/updatedOrd.cfm/