



California Energy Commission

# Landscape Irrigation Efficiency Standards & Labeling

**Staff Technical Workshop**

Sacramento, CA

June 1, 2009

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## Announcements

- Facilities and Logistics
- Call-in Participation
  - Call-in number: **888-968-4311**
    - Passcode: **Irrigation**
    - Call Leader: **Lorraine White**
  - Follow along on the Webcast: **[www.energy.ca.gov](http://www.energy.ca.gov)**
- In-person Participation
  - Blue Cards
- Service List: **<http://www.energy.ca.gov/appliances/irrigation/>**





## California Energy Commission

# Agenda

- Welcome / Introductions
  - Lorraine White, California Energy Commission
- Analytical and Legal Requirements of Efficiency Regulations
  - Betty Chrisman & William Staack, California Energy Commission
- Performance Studies of Irrigation Equipment
  - Peter Mayer, Aquacraft
  - Rich Brown, Lawrence Berkeley National Laboratory & Amanda Stevens, Energy Solutions
- Discussion of and Stakeholder Responses to Key Questions
- Discussion of Possible Regulatory Language
- Public Comments
- Closing Remarks and Next Steps
  - Lorraine White



## 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

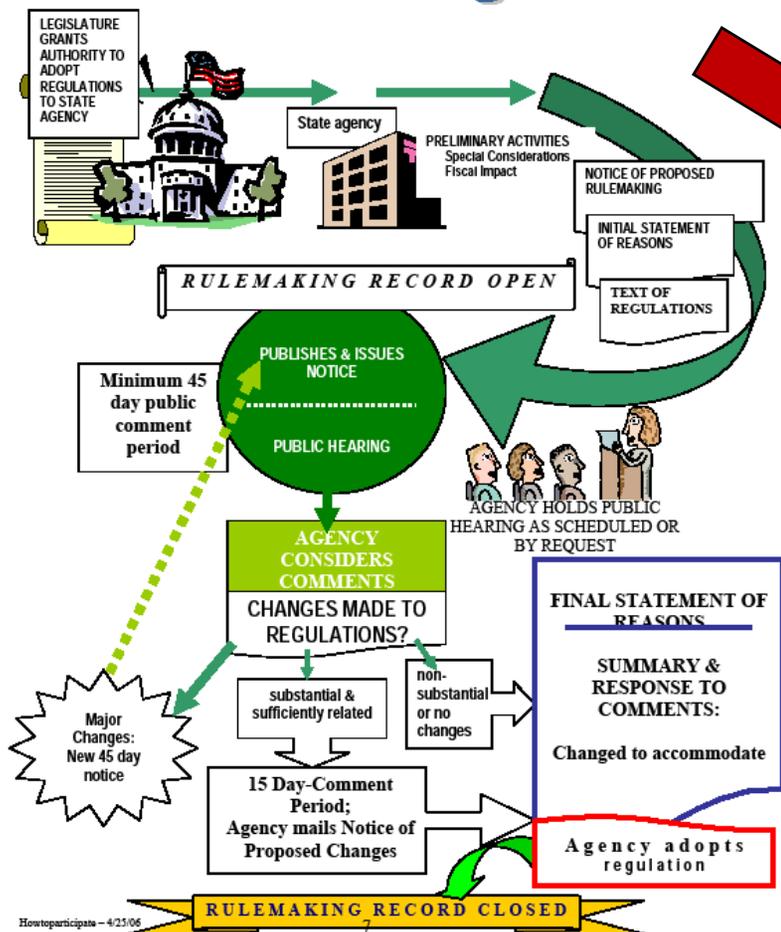


# Efficiency Standards & Labeling

- 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



## The Rulemaking Process



## 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



## Committee Scoping Order

- Issued May 13, 2009
- “This proceeding will focus on:
  - (1) irrigation controllers, including but not limited to clock timers, weather and soil moisture based controllers, and add-on devices to controllers;
  - (2) moisture sensors, including but not limited to rain and soil moisture sensors; and
  - (3) to the extent resources are available and adequate supporting evidence can be produced, check valves, flow sensors, low-head anti-drain, automatic shut off devices, pressure regulating devices, and other such elements of landscape irrigation equipment.”



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# 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



## Input & Participation

- Provide comments and responses on Key Questions – extended to June 15, 2009
- Contribute studies and analyses
- Provide suggestions for language
- Assist us with outreach
- Service list
- Next Workshop
  - Tentatively June 30 1:30- 5 pm.





## Proceeding Information

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





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# Questions ?





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# Key Questions

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?
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?
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?
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...)?
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?
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?



# Key Questions (cont.)

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?
8. What are the mandatory or required elements of an irrigation system to ensure increased efficiency?
9. Are new controllers or add-on devices compatible to existing irrigation systems? What difference in performance is there between new and modified systems?
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?
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...)?
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?



# Key Questions (cont.)

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...)?
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?
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?
16. Are there any special operational or regulatory considerations needed for systems that use recycled water?
17. What on-going data collection requirements are needed to ensure the compliance of regulated irrigation equipment with the standards?