WaterSense®

Weather-Based Irrigation Controllers Specification Review Webinar

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Housekeeping

- All attendees are muted to minimize background noise
- Please type questions into the Questions box in the GoToWebinar control panel. We will have a dedicated time for Q&A at the end of each section and at the end of the presentation as time allows
- This presentation and a meeting summary will be posted on the public website
- Submit written comments to: watersense-products@erg.com
- This meeting is meant to be an open discussion
- All questions, comments, and concerns are welcome!

Meeting Objective

- Present information EPA has collected as part of its specification review
- Summarize issues and considerations EPA must address if it decides to revise the specification
- Review public comments received to date on the *Notice of Specification Review,* as they relate to irrigation controllers
- Solicit additional feedback and information from manufacturer stakeholders
- EPA **does not intend** to make a determination as to whether to move forward with a specification revision during this meeting

Agenda

- WBIC Specification Considerations
  - Scope
  - Performance Test Method and Criteria
  - Supplemental Features
  - Packaging and Labeling
  - Definitions
  - Stakeholder Feedback
- Next Steps

Specification Review Process

Thru Mar 2019

Internal Research
- Update product information, analyze WaterSense product database, conduct industry research
- Issue *Notice of Specification Review* and hold first stakeholder meeting

Mar-Jun 2019

Stakeholder Engagement
- Hold meetings with individual partners, standards committees, industry experts, and utilities
- Review comments, conduct additional analysis based on in house data
- Hold product type meetings with stakeholders to review information collection to date

← We are here

Jun-Aug 2019

Analysis
- Compile additional comments received and post to website
- Review and analyze information collected
- Continue engagement with standards committees and industry as necessary

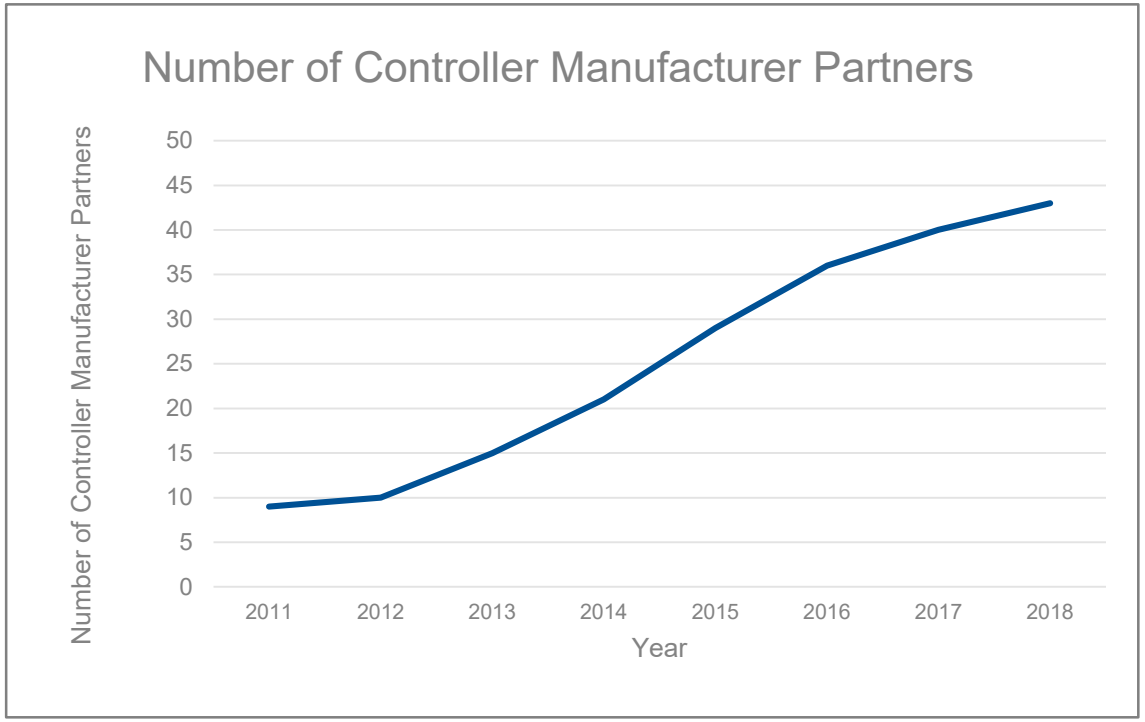
Aug-Dec 2019

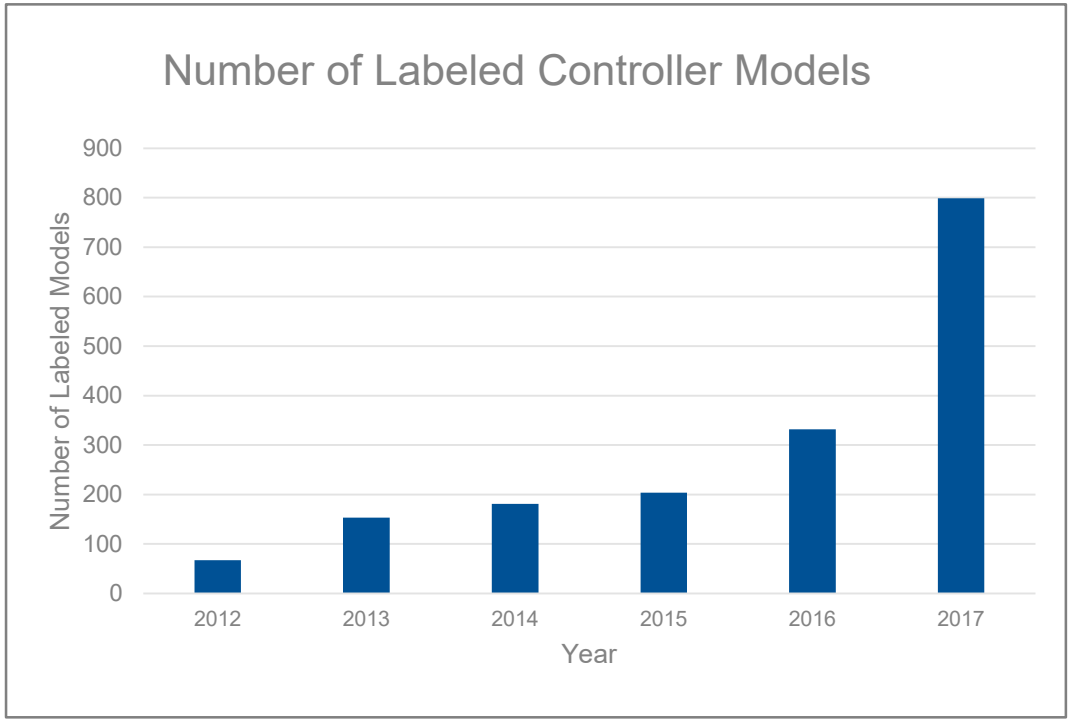
Develop Recommendations and Announce to Stakeholders by December 31, 2019
- Develop recommendations and review with EPA Management
- By December, present recommendations, post material to website, host public meetings

Weather-Based Irrigation Controller Specification Considerations

Specification for Weather-Based Irrigation Controllers

- Released November 2011
- More than 30 manufacturer partners
- Approximately 800 labeled models





Scope

Current Specification Scope

- Applies to stand-alone controllers, add-on devices, and plug-in devices that use current weather data as a basis for scheduling irrigation
- Applies to controllers that create or modify irrigation schedules based on evapotranspiration (ET) principles by:
  - Storing historical crop evapotranspiration (ETc) data characteristics of the site and modifying these data with an onsite sensor;
  - Using onsite weather sensors as a basis for calculating real time ETc;
  - Using a central weather station as a basis for ETc calculations and transmitting the data to individual users from remote sites; or
  - Using onsite weather sensors.
- Excludes soil moisture sensors
- Includes residential and commercial application

Performance Test Method and Criteria

Current Test Method

- Eighth draft of the Smart Water Application Technologies™ (SWAT) test protocol for climatologically-based controllers with four modifications:
  - Minimum runtimes
  - Missing data from the reference weather station
  - Rainfall requirement
  - Order of operations

Performance Criteria

- **Irrigation adequacy** shall be ≥ 80 percent for each zone
- **Irrigation excess** shall be ≤ 10 percent for each zone
- The **average of the irrigation excess scores** calculated across the six zones shall be ≤ 5 percent

Performance Test Method and Criteria Considerations

2016 Audit

- Purpose was to review the LCBs to determine if they were correctly carrying out the program. In reviewing results, EPA identified potential weaknesses in current test method
  - Irrigation Required–Not all controllers irrigated in each zone during the test period
  - Unrealistic Irrigation Events Depth and Frequency–Some controllers were programmed with several small irrigation events resulting in schedules that are unrealistic in the field

Possible Resolutions

- Irrigation Required–Require that irrigation adequacy fall below 80 percent for a number of zones
- Unrealistic Irrigation Events Depth and Frequency
  - Place additional requirements on irrigation events, such as a longer minimum runtime, maximum cycle soak events/day, and maximum soak time
  - Alternatively, place a minimum irrigation amount (0.1 inch) on irrigation events
  - Implement watering restriction during testing

Performance Test Method and Criteria Considerations

ASABE X627 Weather-based Landscape Irrigation Control Systems

- Began in 2014–WaterSense is on the committee
- Initially developed to standardize the WaterSense test method, but includes several additional changes:
  - Hourly moisture balance–removes the order of operations question
  - Increased rainfall and ET_o requirements, resulting in a more rigorous test
  - Virtual zone attributes revised–such as root zone depth, crop coefficients
- It has not yet been published for public comment, but WaterSense encouraged manufacturer partner participation
- Several controllers were tested using this method in summer 2018, anticipate testing will continue this growing season
- WaterSense is currently assessing the test method and the potential impacts on test scores
- WaterSense will consider adopting the test method when final standard is published

Stakeholder Feedback on Performance Test Methods and Criteria

- WaterSense reached out to several manufacturers and utilities in the past few months:
  - Generally, manufacturers are not in support of revising the test method
  - They noted it is working for their products and they are satisfied with its ability to test for performance
  - No evidence consumers are dissatisfied with product performance
  - Generally, utilities are not in support of a test method revision, because they do not yet think the market is saturated enough with weather-based controllers currently on the market to warrant an increase in performance
- Are we missing any additional feedback or data?
  - Issues with LCBs and testing?
  - Does the test work for all weather-based products on the market?

Supplemental Capability Requirements

Current Supplemental Capability Requirements

- Preservation of programs when power source is lost
- Allow for independent, zone-specific programming and program storage
- Indication of operation in non-weather-based mode
- Capable of interfacing with a rainfall device
- Capable of accommodating water restrictions
- Includes a percent adjust (water budget) feature
- Reverts to proxy of historical weather data or percent adjust if weather data are lost
- Allows for manual operation for troubleshooting with automatic return to smart mode

Stakeholder Feedback

- WaterSense should not add regionally-specific feature requests from utilities

Current Packaging and Product Documentation Requirements

- The product, as packaged, shall include the same components (excluding the base controller for add-on or plug-in devices) or attributes that it was tested with to meet the requirements of this specification.
- The product packaging shall include an instruction manual that lists the settings and specific parts used during the performance test described in Section 3.0. The instruction manual shall also include the maximum number of stations for the product.
- The product shall not be packaged nor marked to encourage operation of the controller in standard mode. Any instruction related to the maintenance of the product shall direct the user on how to return the controller to smart mode.
- The add-on/plug-in device is not required to be packaged with the base controller(s) that it was tested with to meet the requirements of this specification.

Packaging and Product Documentation Requirements Considerations

- WaterSense received several inquiries from consumers and utility partners expressing confusion about controller packaging and labeling
- In July 2018, WaterSense issued technical clarifications related to this issue, published a compatibility list, and held a webinar last fall for manufacturers to help resolve the confusion
- We have not received any additional inquiries or feedback since that time, but we are always looking to improve the process and requirements
- Are there additional ways EPA could consider revising the packaging and labeling requirements and/or definitions?

Definitions

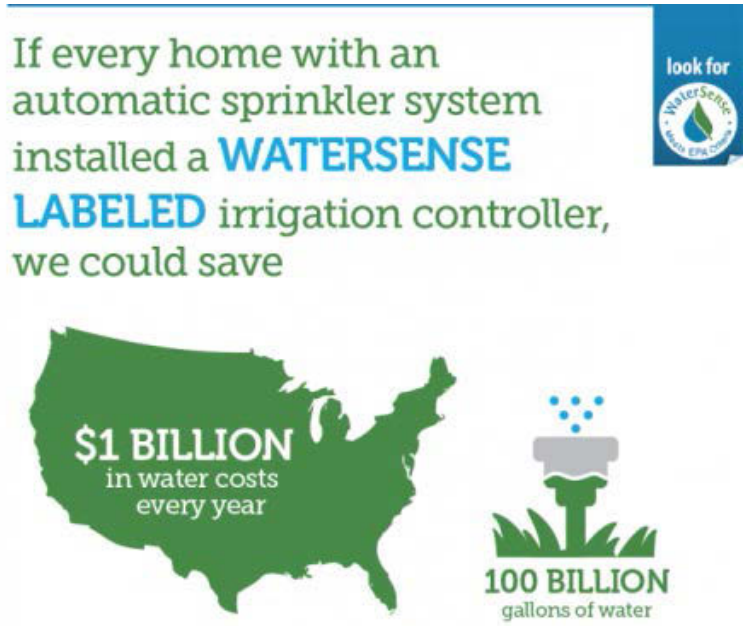
Current Packaging and Product Documentation Requirements

- **Add-on Device**: A product that modifies an existing system equipped with a standard clock timer controller to use current weather data as a basis for controlling the irrigation schedule. For purposes of this specification, add-on devices are defined as those that are designed to work with any brand of base controller and may connect through a variety of ways.
- **Base Controller**: The standard clock timer controller to which the add-on or plug-in device is attached for full operation.
- **Plug-in Device**: A product that modifies an existing system equipped with a standard clock timer controller to use current weather data as a basis for controlling the irrigation schedule. For purposes of this specification, plug-in devices are defined as those that are designed to work specifically with one brand of controller and may connect with the base controller through a variety of ways.
- **Stand-Alone Controller**: A product for which weather-based control is an integrated capability. This includes a single controlling device (i.e., the irrigation controller) and all of the sensors and/or weather service(s) that provide the weather data.

Water Savings

Current Water Savings Estimate

- 15 percent estimated savings for outdoor water use
  - Studies indicated a range of overall savings from 6 to 30 percent
  - Individual site savings can vary beyond these overall numbers, depending on the watering habits prior to installing the WBIC
  - In a 2009 comprehensive study, *Evaluation of California Weather-Based "Smart" Irrigation Controller Programs*, first year savings were shown to be approximately six percent
    - A limited subset of controllers tracked for three years, were shown to save 16 percent in the third year after installation



Water Savings Estimate Considerations

- No stakeholder feedback received to date
- WaterSense is currently reviewing more recent studies
- Please submit any additional savings studies or data

Manufacturer Feedback

- We did not receive any public comments from manufacturers during the official specification review public comment period
- In individual calls, the general feedback was positive regarding the current specification, including the items discussed in this presentation
- Manufacturers cautioned against increasing performance thresholds, test method difficulty, or requiring additional specific features that would increase the price of the product
    - Several manufacturers noted that a lower price point is likely a major contributor to the current rapid uptake in the market, and an increase in price for features that likely will not be used by the average end-user could depress market uptake

Manufacturer Feedback

- Multiple manufacturers commented on the desire to keep products simple and straightforward to use, noting that the more steps there are in the setup process, the less likely an end user is to execute programming properly
- One manufacturer encouraged WaterSense to continue testing for the “end result” using performance testing, rather than a prescriptive list of features or specific method of scheduling
- No manufacturers reported end user complaints about their labeled products
- Additional feedback can be submitted to watersense-products@erg.com by June 15

Utility Feedback

- One utility provided public comment on WBICs, expressing concern about users being able to opt in or out of weather-based control, suggesting a revised specification could address this concern
- The utilities we talked with were happy with the current specification and did not express a desire for a revised test method that incorporated scheduling based on predicted rainfall
- Several utilities expressed concern in using resources to revise the specification for possibly only incremental savings; instead they recommended:
  - Using funding to promote “good” products (those that are currently labeled) with a goal of increasing market share of weather-based controllers vs. clock timers
  - Using funding to educate end users on properly programming existing labeled products to the best of their ability, maximizing savings of the products currently on the market
- In general, utilities cautioned against raising the bar until there is more significant market penetration of weather-based controllers in the marketplace

Utility Feedback

- Utilities generally acknowledged that water savings are correlated to previous water use, with higher savings realized for high water users
  - Utilities in the eastern and southeastern United States acknowledged deficit irrigation occurs nationwide, but noted that in their regions, overwatering is much more prevalent and are not concerned with WBICs increasing water use
  - Utilities in drier regions acknowledged deficit irrigation and the potential for increased water use when a WBIC is installed, but said they are pleased with the savings they are seeing from their rebate programs
- Utilities are rebating WBICs across the country. According to annual reporting of WaterSense partners, 34 utilities are rebating to these products, with very few tailoring the rebate to their specific needs
- No utilities we talked with reported any performance issues with labeled products
- WaterSense will be holding a utility-specific webinar regarding all product specifications under review to request additional feedback

Request for Additional Feedback

- Does the scope accommodate all relevant products on the market?
- Are there any other issues related to the current test method that we are not aware of?
- Are the supplemental capability requirements still relevant? Are there any new capabilities that should be included?
- Do the current packaging and labeling requirements, and associated definitions of product types work for both manufacturers and utilities? If not, please provide suggestions.
- Are there additional, more recent water savings studies WaterSense should reference?

Questions and Discussion

Poll Questions

Poll Question

Question: Based on what has been presented, does WaterSense have enough information to determine whether to revise its specification for weather-based irrigation controllers?

- Yes
- No

Poll Question

Question: In your opinion, which pieces of the specification of the *WaterSense Specification for Weather-Based Irrigation Controllers* should EPA revise?

- Test method and performance thresholds
- Supplemental capability requirements
- Packaging and labeling requirements and/or definitions
- No changes needed
- Need more information

Related Webinars and Next Steps

Other Related Webinars

- WaterSense held two webinars in April and May on plumbing fittings and fixtures to discuss information received as a result of the *Notice of Specification Review* related to those product categories
- WaterSense will hold a similar webinar for utilities and promotional partners on June 5, 2019
  - Register at: www.epa.gov/watersense/product-specification-review#webinars

Next Steps

- Pertinent information and comments can still be submitted to watersense-products@erg.com
- WaterSense will summarize information collected and issue a decision on whether it intends to move forward with a specification revision for each product category by **the end of 2019**
- If a specification revision is needed, WaterSense will:
  - Identify existing data gaps, concerns, and next steps (as applicable) related to development of a draft specification
  - Provide opportunity for public comment prior to and following the development of draft specification revision
  - Hold additional stakeholder meetings, as appropriate, before issuing a final specification

Questions

Contact Us

General E-mail: watersense@epa.gov

Comment Submission E-mail: watersense-products@erg.com

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