WaterSense®

Draft Homes Program, Version 2.0 Stakeholder Meeting

Jonah Schein, EPA WaterSense
Olga Cano, EPA WaterSense
Kathleen Onorevole, ERG

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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.

  - The webinar is scheduled for 3 hours to ensure we have time to address as many questions as needed.

- This presentation PDF will be posted on the public website.

- Submit written comments to watersense-programs@erg.com.

- All questions, comments, and concerns are welcome!

Agenda

- WaterSense Introduction and Background

- Background and Goals for WaterSense Labeled Homes Program Revision

- Overview of Program Changes

- Draft Program Documents

  - *WaterSense Draft Specification for Homes, Version 2.0*

  - *WaterSense Draft Home Certification System, Version 2.0*

  - *WaterSense Draft Technical Evaluation Process for Approving Home Certification Methods, Version 1.0*

- Estimated Water and Energy Savings

- Partnership and Labeling

- Timeline, Next Steps, and Questions
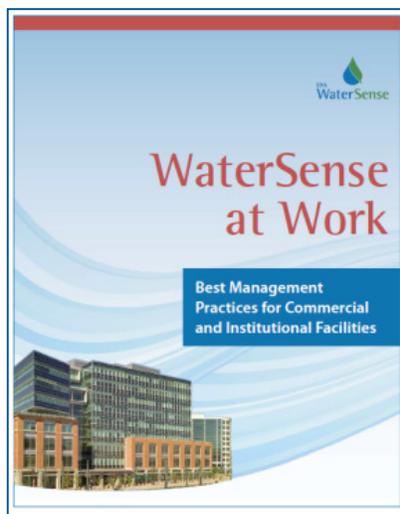
Poll Question

- Which industry do you represent?

  - Builder

  - Green building verification (certification program, rater, verifier)

  - Water utility/local government

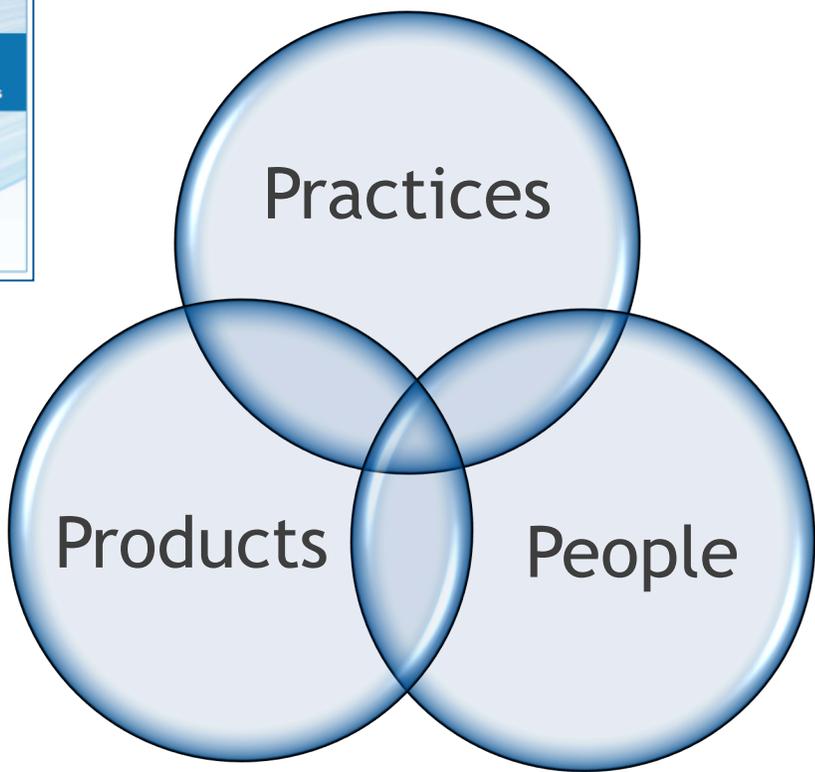 - Irrigation (equipment or services)

  - Other

WaterSense

- WaterSense was launched by EPA in 2006 as a voluntary program that provides a simple way to identify water-efficient:
  - Products
  - Programs
  - Practices
  - Homes
- Products are independently certified for water efficiency and performance

How Does WaterSense Work?

Actions can be taken to reduce water use at home, outdoors, and at work

Fixtures and technologies save water

Partners reach users to change behavior

Practices

Products

People

WaterSense Labeled Products

look for WaterSense — Meets EPA Criteria

- Are third-party certified for both efficiency AND performance
- Establish the principle of independent oversight as a foundational philosophy of the program

WaterSense · Meets EPA Criteria

Lavatory Faucets

Flushing Urinals

Tank-Type Toilets

Showerheads

Flushometer-Valve Toilets

Irrigation Controllers

Pre-Rinse Spray Valves (recently sunset)

Spray Sprinkler Bodies
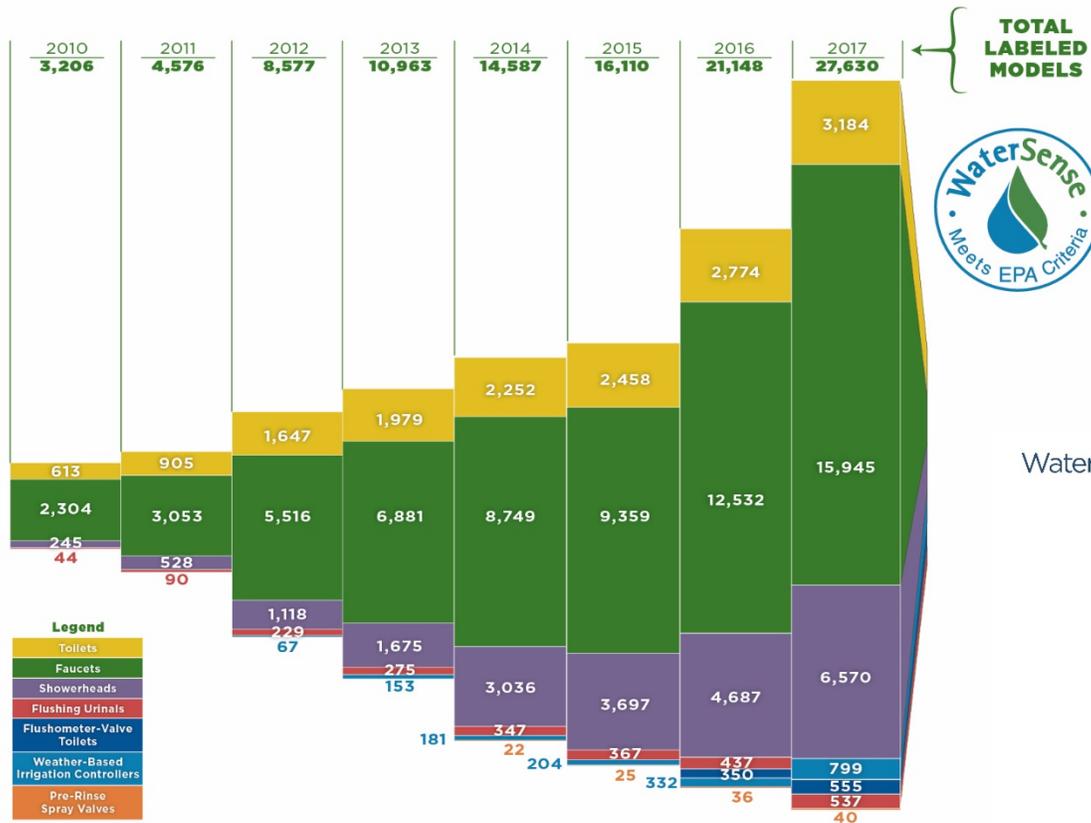
More Than 30,000 WaterSense Labeled Product Models

ENERGY STAR

Water factors are also included in many ENERGY STAR® certified products

Accomplishments

WaterSense Labeled Products

TOTAL LABELED MODELS

2010	2011	2012	2013	2014	2015	2016	2017
3,206	4,576	8,577	10,963	14,587	16,110	21,148	27,630

WaterSense Meets EPA Criteria

3,184

2,774

2,458

2,252

1,979

1,647

905

613

15,945

12,532

9,359

8,749

6,881

5,516

3,053

2,304

6,570

4,687

3,697

3,036

1,675

1,118

528

245

799

555

537

40

437

350

36

367

25 332

347

22 204

275

153

229

67

181

90

44

Legend
- Toilets
- Faucets
- Showerheads
- Flushing Urinals
- Flushometer-Valve Toilets
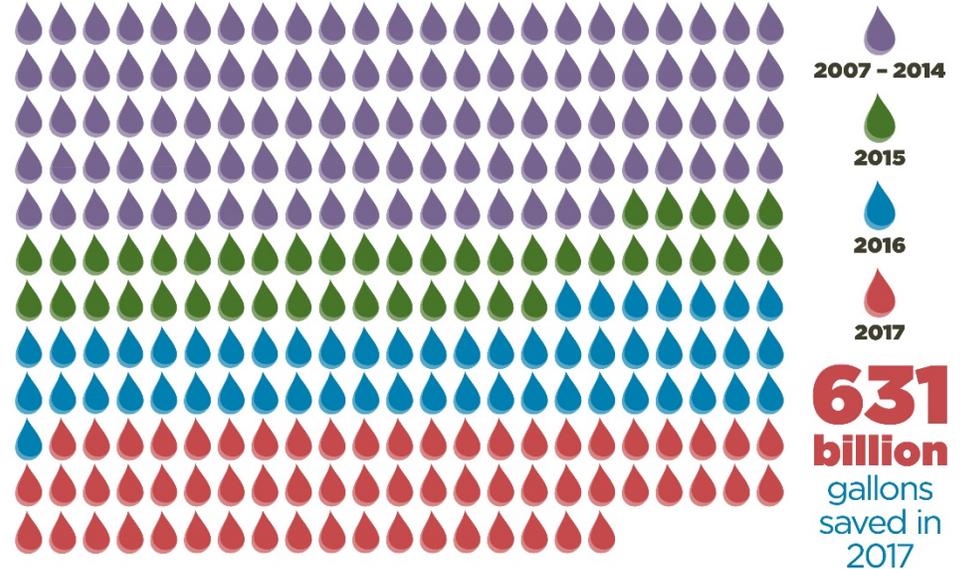- Weather-Based Irrigation Controllers
- Pre-Rinse Spray Valves

WaterSense partners helped…

$

…consumers save

$63.8 billion
in water and energy bills

2.7 trillion gallons of water saved since 2006!

2007 – 2014

2015

2016

2017

631 billion gallons saved in 2017

WaterSense Labeled Homes Program

WaterSense labeled homes allow EPA to:

- Address a home's water use using whole-house building science (including places where product solutions are insufficient)

- Communicate the value and impact of WaterSense labeled products

- Set industry definitions and guidelines for water efficiency referenced in various programs

The *America's Water Infrastructure Act of 2018*

- Formally authorized the WaterSense program
- Directed the agency to:
  - Enhance awareness of the label
  - Preserve the integrity of the label
- Defined the scope of products and systems that could be included in the program
- Provided direction on the frequency and process for revision of specifications
- Directed WaterSense to institute a comprehensive review of specifications developed before 2012

The *America's Water Infrastructure Act of 2018*

Not later than December 31, 2019, EPA shall,

- "Consider for review and revise, if necessary, any WaterSense performance criteria adopted before January 1, 2012."

Specifications covered by the provision:

- Tank-type toilets
- Flushing urinals
- Lavatory faucets and faucet accessories
- Showerheads
- Weather-based irrigation controllers
- **Homes (revision was already underway when the Act was passed)**
- Irrigation professionals (had undergone major revision in 2014)

Goals for the Revision

- Increase the number of WaterSense labeled homes
- Provide flexibility in technical requirements, while maintaining an equal (or greater) level of water efficiency
- Maintain quality-performance measures
- Encourage broader participation in the certification process
  - Better leverage the existing certification structure of green building/energy efficiency programs
  - Open the door for additional home certification organizations
- Better quantify the savings and value of a WaterSense labeled home
- Harmonize more cleanly with ENERGY STAR, Indoor airPLUS, and other green building programs

Background on WaterSense Labeled Homes Program, Version 2.0

Important Terminology

- **Home Certification Organization (HCO)**
  - Independent organization approved and licensed by EPA to certify/label homes
  - Responsible for administering a WaterSense Approved Certification Method (WACM); training and authorizing verifiers; and overseeing the verification, certification, and labeling of homes in accordance with the *WaterSense Specification for Homes, Version 2.0*
  - Similar to a Program Administrator or Verification Oversight Organization (VOO)

Important Terminology

- **Proposed Certification Method (PCM) and WaterSense Approved Certification Method (WACM)**
    - Each prospective HCO submits a PCM with its application
    - A PCM becomes a WACM upon technical evaluation and approval from WaterSense
    - WACM is the methodology used to evaluate a home's compliance with the water efficiency requirement in the *WaterSense Specification for Homes, Version 2.0*
    - WACM includes the technical requirements or criteria and the certification threshold homes must achieve to demonstrate adherence to the water efficiency requirement in the *WaterSense Specification for Homes, Version 2.0*
    - WACM administered (and possibly developed) by an HCO

Important Terminology

- **Certification Method Technical Evaluation Process**
  - Process by which EPA will evaluate the technical efficacy of a PCM to ensure that it can differentiate homes that meet the water efficiency requirement in the *WaterSense Specification for Homes, Version 2.0*, and approve it as a WACM

- **Designee(s)**
  - Party(ies), such as a Provider, to whom the HCO has designated specific responsibilities associated with verifying, certifying, and/or overseeing the verification and/or certification of WaterSense labeled homes
  - An HCO may choose to designate many (but not all) of the responsibilities associated with certification

- **WaterSense Home Verifier**
  - Individual who is trained and authorized by an HCO or its designee to verify (or rate) homes in accordance with the *WaterSense Specification for Homes, Version 2.0,* and HCO's WACM
  - Recognized by WaterSense home verifier promotional mark that can be used for professional development and marketing purposes
  - Analogous to a Water Efficiency Home Inspector, "WaterSense rater," or an energy rater

Program Documents

- *WaterSense Draft Specification for Homes, Version 2.0*

- *WaterSense Draft Home Certification System, Version 2.0*

- *WaterSense Draft Technical Evaluation Process for Approving Home Certification Methods, Version 1.0*

- *WaterSense Draft Specification for Homes Supporting Statement*

  - Resource for stakeholders to learn more about the revised program

Proposed Components

- **Technical Requirements for Homes**
  - Adherence to the Mandatory Checklist
  - At least 30 percent more efficient than typical new construction
- **HCO Organizational Requirements**
  - Expectations for HCO's operations and structure
  - Covers independent oversight, quality assurance, verifier training and authorization, inspection, impartiality, and messaging/reporting
- **Certification Method Development Process**
  - Demonstrates a certification method developed through an open and transparent process
- **Certification Method Technical Evaluation**
  - Method by which EPA assesses whether a PCM meets WaterSense's efficiency requirement and can be approved as a WACM

Process to Approve HCO and PCM

1. Prospective HCO submits application to WaterSense

   • HCO demonstrates that it has the administrative capacity to perform certification and authorize the use of the WaterSense label

   • HCO demonstrates that its PCM was developed in accordance with EPA's certification method development requirements

   • EPA uses its technical evaluation process to assess whether the PCM meets the efficiency criteria

2. WaterSense approves the HCO and the PCM (which becomes a WACM)

3. HCO administers program

Process to Label Homes

1. Home builder partners choose an HCO/WACM to certify homes to WaterSense

2. WaterSense home verifiers inspect homes per the relevant WACM

3. HCO issues WaterSense label to homes that have achieved certification

Overview of Potential Benefits

- Allow for easier implementation and certification by using the organization and processes of existing HCOs

  - Prospective HCOs can apply to oversee certification and labeling of homes for WaterSense

- Increase flexibility to accommodate verifier community and regional home certification and/or labeling programs

  - Transferrable WaterSense program-specific training

  - Designation for WaterSense home verifiers

  - Flexible geographic scope for HCOs

Overview of Potential Benefits

- Reduce prescriptive requirements

  - Simplified criteria of Mandatory Checklist

    - Version 2.0 draft includes a single, short, easily achievable checklist

    - Version 1.2 requires multiple checklists and several requirements where difficulty and impact varied greatly by region and market

- Focus on primary goal of saving water

  - Efficiency requirement focuses on quantifiable water savings

- WaterSense has developed new program documents and a new application process to support the revision

Questions?

WaterSense Draft Specification for Homes, Version 2.0

Specification Background

- Establishes requirements that homes must meet to be eligible for the WaterSense label

- Updated scope

  - Single-family and/or multifamily buildings

  - New and/or existing construction

Mandatory Checklist

- Must be completed for all WaterSense labeled homes regardless of HCO/WACM

- Ensures that all WaterSense labeled homes contain a minimum set of features that meet homeowners' expectations for performance

- Two categories reflected in the Mandatory Checklist
  - WaterSense labeled plumbing products
  - Leak detection protocol

- Criteria for checklist features
  - Basic measure of quality performance not represented by volumetric use
  - Universally applicable to homes regardless of market or climate
  - Easily attainable at little or no incremental cost

Mandatory Checklist

Item	Requirements	Confirmed
Leaks	Pressure-loss test on all water supplies detects no leaks	☐ Yes ☐ No
	Free of visible leaks from hot water delivery system	☐ Yes ☐ No
	Free of visible leaks from toilet(s), as determined through visual assessment and by conducting a dye tablet test in each toilet to ensure the flapper is not leaking	☐ Yes ☐ No
	Free of visible leaks from bathroom faucet(s)	☐ Yes ☐ No
	Free of visible leaks from showerhead(s)	☐ Yes ☐ No
	Free of visible leaks from bathroom tub faucet(s), i.e., tub spout(s), when showerhead(s) is activated, as determined through visual assessment after showerhead has been activated for one minute	☐ Yes ☐ No
	Free of visible leaks from kitchen and other sink faucet(s)	☐ Yes ☐ No
	Free of visible leaks from other fixtures or appliances (e.g., clothes washers, dishwashers, hose bibs, irrigation systems) at point of use or point of connection to water distribution system	☐ Yes ☐ No
Toilets	WaterSense labeled*	☐ Yes ☐ No
Bathroom sink faucets	WaterSense labeled*	☐ Yes ☐ No
Showerheads	WaterSense labeled*	☐ Yes ☐ No

*A listing of WaterSense labeled toilets, bathroom sink faucets and showerheads can be found at: www.epa.gov/watersense/product-search.

What About Outdoors?

- Outdoor requirements may not appear on the checklist, but *this doesn't mean they aren't included in the program*

- Checklist only intended to include universal items

- Homes in dry regions are unlikely to meet efficiency requirement without incorporating outdoor measures

- Allows builders to incorporate features most appropriate to the region

Performance Measure
Climate Scaling Example*

Lot: 4,400 sq. feet

House: 2,400 sq. feet, 4 bedrooms

Landscape: 1,910 sq. feet with automatic irrigation

	Duluth, MN	Phoenix, AZ
Annual water use	~72,000 gallons	~125,000 gallons
Indoor water use	~73 percent	~42 percent
Water savings from installing WaterSense labeled plumbing products	~9 percent	~5 percent
Approaches to achieve 30 percent reduction	Both indoor and outdoor improvements	MUST make substantial outdoor improvements

*Using *Draft WaterSense Technical Evaluation Process for Approving Home Certification Methods* to estimate water use.

What About Hot Water Distribution?

- Domestic hot water distribution requirement is not included in the Mandatory Checklist
  - Can still be used as a measure to meet the efficiency requirement
  - Speaks to quality performance of a home, but fails to meet the other criteria
    - Not always easily attainable and can represent significant cost
  - Necessary protocol refinements would be very difficult
  - Plumbing codes are evolving
    - More recent base codes are implementing right-sizing techniques for plumbing design which could make this requirement a size limitation

Why a Percent Reduction/Performance Measure?

- Focuses on WaterSense's primary objective: saving water

- Increases flexibility and adapts to regional differences

  - Allows builder to choose which technologies or practices best suit their process, market, and style

- Aligns impacts of specific measures with their quantifiable impacts

- Easily translates to water and cost savings

- Scales with climate

Water Efficiency Requirement

- Homes demonstrate adherence to water efficiency criteria by certifying to an HCO's WACM

- WaterSense evaluates a PCM using the technical evaluation process to determine whether it can differentiate homes that improve water efficiency by at least 30 percent compared to typical new construction (based on national standards)

  - Does not preclude homes in states with more efficient codes from participating

- The WACM stipulates the criteria or points/rating threshold a home must meet

Why 30 Percent?

- Maintains—or in some cases, increases—water savings compared to current requirements

- Establishes a level that, while rigorous, is still universally achievable in all markets and climates

- Provides a balance of indoor and outdoor measures that scale appropriately with climate

Questions?

WaterSense Draft Home Certification System, Version 2.0

The Players

EPA	HCOs	Verifiers	Builders
Approve WACMs	Administer the WACM and oversee certification (some duties may be assigned to designees)	Verify homes to see if they meet the WACM	Build homes to earn the label
Oversee the HCOs			

Certification System

- Identifies the organizational requirements for HCOs, roles and responsibilities for all parties, and process by which EPA will review HCO applications

- Ensures that the HCO has the organizational capacity to administer its WACM and issue the WaterSense label

- Allows HCO to delegate many oversight requirements to designee(s)

- Includes HCO organizational requirements: independent oversight, quality assurance, verifier training and authorization, home verification protocols, impartiality, and messaging and reporting

- Outlines certification method development process requirements

HCO/PCM Application

- Included as appendix to certification system

- HCO submits all supporting documents that illustrate compliance with requirements outlined in certification system

  - Application includes space to identify the locations in the documents in which the certification system requirements are met

- EPA reviews application materials and issues decision to HCO point of contact

Organizational Requirements

HCO Organizational Requirements

Independent Oversight

- Maintain an independent oversight committee
  - At least three individuals of varying backgrounds
  - Employees of HCO cannot make up more than one-third of committee

HCO Organizational Requirements

Quality Assurance

- Audit representative sample of WaterSense labeled homes to ensure they meet technical requirements of the HCO's WACM and the Mandatory Checklist

- Ensure qualified verifiers

- Maintain disciplinary procedures for verifiers, as necessary

- Respond to and resolve complaints, as necessary

- Maintain thorough quality assurance documentation

HCO Organizational Requirements

Verifier Training and Authorization

- Train verifiers on home verification and documentation procedures

- Provide verifier training reciprocity (for WaterSense specific portion only)

  - Waive WaterSense program-specific training requirements for potential new verifiers (if training completed within the past two years with different HCO or designee)

- Formally authorize verifiers to verify homes in accordance with the HCO's WACM and the specification

- Update verifiers on changes and maintain up-to-date training records

HCO Organizational Requirements

Home Verification Protocols

- Require verifiers to conduct verifications in accordance with *WaterSense Specification for Homes, Version 2.0*

  - Includes Mandatory Checklist and, by reference, the technical requirements of HCO's WACM

- Verify builder partnership agreement with EPA

HCO Organizational Requirements

Home Verification Protocols (continued)

- Obtain home verification documentation from verifiers
- Minimum requirements include:
  - Builder partner name
  - Address or lot number of verified home
  - Documentation of verification results, including a completed Mandatory Checklist
  - Name and contact information for verifier
  - Home verification date(s)
- May offer builder partners the opportunity to participate in a sampling protocol

HCO Organizational Requirements

Impartiality

- Implement a conflict of interest (COI) strategy that ensures financial, legal, and ethical impartiality with regard to verifying a home and issuing the WaterSense label

- Includes organizational and individual COI

  - Organizational pertains to the organization(s) responsible for various aspects of home verification and certification

  - Individual COI pertains to a specific person involved in verification and certification

HCO Organizational Requirements

Impartiality (continued)

- **HCO Impartiality:** HCO responsible for implementing its COI strategy for the organization and any individuals *under its direct employ*

- **Verifier Impartiality:** HCO using verifiers *outside its direct employ* responsible for implementing a COI strategy that includes:

  - Requiring current or prospective verifiers to disclose potential or existing COI

  - Written procedures for evaluating and resolving potential COI disclosed by verifiers

- If HCO uses a designee to implement verifier COI, it should have procedures to ensure compliance

HCO Organizational Requirements

Impartiality (continued)

- **Designee Impartiality:** HCOs using a designee are responsible for implementing a COI strategy that includes:

  - Requiring current or prospective designees to disclose potential or existing COI

  - Written procedures for evaluating and resolving COI presented by a designee

HCO Organizational Requirements

Messaging and Reporting

- Create centralized messaging structure to disseminate information from WaterSense to stakeholders

- Develop procedures for stakeholders to submit questions

- Report home certification information to WaterSense at least quarterly

- Respond promptly to non-routine requests for program information from WaterSense

- Maintain basic information about verifiers and report to WaterSense at least quarterly

Designees

Use of Designees

- HCOs can delegate most responsibilities to one or more designees (such as a Provider)

- Certain requirements cannot be delegated

- HCOs must:
  - Maintain final authority over certification decisions and issuance of the WaterSense label
  - Establish and implement designee impartiality requirements
  - Report authorized verifiers and certified homes to WaterSense

Use of Designees

- HCOs using designees are required to provide WaterSense with information about the designees and the policies they will be required to follow

- At minimum, HCOs shall implement procedures to:
  - Oversee and monitor designees performing quality assurance
  - Oversee and monitor designees responsible for verifier training; develop or approve training program
  - Collect data from designees to meet WaterSense reporting requirements

Certification Method Development Process

Certification Method Development Process

- Ensures that the certification method was developed in an open and transparent manner
- Prospective HCO is responsible for providing evidence that it meets one of the options for certification method development in its application:
  1. Use an ANSI-approved standard;
  2. If HCO operates under auspices of a public agency, demonstrate compliance with the administrative and transparency requirements of the jurisdiction having authority; or
  3. Provide written documentation demonstrating that technical requirements were developed in a way that meets key components of the ANSI essential requirements (components described in next two slides)

Certification Method Development Process

Option 3: Key Components

- *Openness:* Was participation open to all materially affected parties?

- *Lack of dominance:* Was the process dominated by a single interest category?

- *Balance:* Was a balance of different interests represented in the process?

  - Interest categories that should be given consideration should include (but are not limited to) builders, certification community, manufacturers, utilities, municipalities, and general interest

Certification Method Development Process

Option 3: Key Components (continued)

- *Notification of certification method development:* Was development of the certification method announced through appropriate channels?

- *Consideration of views and objections:* Was prompt consideration given to written views and objections?

- *Consensus vote:* Is there evidence of consensus in accordance with written policies and procedures?

- *Appeals:* Are there formal/written procedures for appeals?

Questions?

WaterSense Technical Evaluation Process for Approving Home Certification Methods, Version 1.0

Technical Evaluation

- Describes the process and assumptions WaterSense will use to assess PCMs

    - Ensures EPA is confident the methodology can differentiate homes that use at least 30 percent less water compared to typical new construction

- Prospective HCOs indicate the scope of their PCM

    - Single-family homes and/or multifamily buildings

    - Geographic range (local, regional, or national)

- WaterSense conducts technical evaluation based on the scope identified by the HCO

Reference Homes

- Set of homes with a defined set of designs and characteristics

- Intended to parameterize the infinite potential variations of home design and landscaped area

- Limited to building eligibility and geographic scope defined by prospective HCO

Reference Homes

- Intended to represent a broad range of typical home design and landscape features based on national surveys/reports

- Four single-family reference homes

  - Small and large footprints with small and large lots

- Four multifamily buildings

  - Small and large buildings with and without irrigated area

Large home

Small home

Large lot

Small lot

Feature	Small Footprint and Large Lot	Small Footprint and Small Lot	Large Footprint and Large Lot	Large Footprint and Small Lot
Single-Family Reference Homes				
Bedrooms	2	2	4	4
Bathrooms	1	1	2.5	2.5
Footprint (sq. ft.)	1,000	1,000	2,500	2,500
Lot size (sq. ft.)	22,000	4,400	22,000	4,400
Landscaped area (sq. feet)	12,694	1,910	12,694	1,910
Number of toilets	1	1	3	3
Number of showerheads	1	1	2	2
Number of lavatory faucets	2	2	5	5
Number of kitchen faucets	1	1	1	1
Number of clothes washers	1	1	1	1
Number of dishwashers	1	1	1	1
Irrigation season[1]	Determined based on climate data	Determined based on climate data	Determined based on climate data	Determined based on climate data

1. The EPA uses a value for $ModNetET_o$ as an indicator of irrigation season.

Multifamily Reference Buildings

Feature	Small Building; No Irrigated Area	Small Building With Irrigated Area	Large Building; No Irrigated Area	Large Building With Irrigated Area
Bedrooms	20 units x 1 bedroom/unit = 20	20 units x 1 bedrooms/unit = 20	300 units x 2 bedrooms/unit = 600	300 units x 2 bedrooms/unit = 600
Bathrooms	1 bathroom per unit	1 bathroom per unit	2 bathrooms per unit	2 bathrooms per unit
Landscaped area (sq. feet)	None	40,000	None	600,000
Number of toilets	20 units x 1 bathroom/unit = 20	20 units x 1 bathroom/unit= 20	300 units x 2 bathrooms/unit = 600	300 units x 2 bathrooms/unit = 600
Number of showerheads	20 units x 1 bathroom/unit = 20	20 units x 1 bathroom/unit = 20	300 units x 2 bathrooms/unit = 600	300 units x 2 bathrooms/unit = 600
Number of lavatory faucets	20 units x 1 bathroom/unit = 20	20 units x 1 bathroom/unit = 20	300 units x 2 bathrooms/unit = 600	300 units x 2 bathrooms/unit = 600
Number of kitchen faucets	20 units x 1 kitchen/unit = 20	20 units x 1 kitchen/unit = 20	300 units x 1 kitchen/unit = 300	300 units x 1 kitchen/unit = 300
Number of clothes washers	20 units x 1 machine/unit = 20	20 units x 1 machine/unit = 20	300 units x 1 machine/unit = 300	300 units x 1 machine/unit = 300
Number of dishwashers	20 units x 1 machine/unit = 20	20 units x 1 machine/unit = 20	300 units x 1 machine/unit = 300	300 units x 1 machine/unit = 300
Irrigation season[1]	Determined based on climate data	Determined based on climate data	Determined based on climate data	Determined based on climate data

1. The EPA uses a value for $ModNetET_o$ as an indicator of irrigation season.

Least Efficient Home

- WaterSense will identify the home and landscape design(s) representing the least efficient home(s) under the PCM that could still earn the WaterSense label

- WaterSense will evaluate the least efficient designs against the baseline reference homes to ensure that they meet efficiency criteria

Assessing Water Savings

- Use series of calculations to determine indoor and outdoor water use for different water-using features of a home

  - Repeat for baseline and water-efficient versions of each reference home

- Total water use (indoor + outdoor) for the PCM's least efficient home must be at least 30 percent less than the baseline reference home for each reference home

$$\frac{\text{Least Efficient Home Water Use} - \text{Reference Home Water Use}}{\text{Reference Home Water Use}} \geq 30 \text{ percent}$$

Features Impacting Water Use and Savings

Indoor

- Toilets
- Showerheads
- Lavatory faucets
- Kitchen faucets
- Clothes washers
- Dishwashers
- Bathtubs
- Hot water delivery/recirculation system
- Thermostatic shutoff valves in showers
- Leaks and leak detection systems
- Other (if applicable)

Outdoor

- Plant types (e.g., turf, shrubs/ornamentals, xeriscape)
- Irrigation types (e.g., spray or microirrigation)
- Pressure-regulating valve or WaterSense labeled spray sprinkler bodies
- Irrigation scheduling technologies:
  - WaterSense labeled weather-based irrigation controller
  - Soil moisture-based control technology
  - Rain shutoff device (rain sensor)
- Professional irrigation design, installation, or audit
- Residential Irrigation Capacity Index (RICI) score

Assumptions and Calculations

- Represent features for which the EPA has identified studies, research, or other data that suggest quantifiable water savings

- Baseline water use based on national codes, standards, norms established by field data, and common landscape practices

- Utilize best available data and industry-recognized studies, such as the *Residential End Uses of Water Study (REUWS), Version 2,* to establish use patterns for fixtures, appliances, and systems

Assessing Water Use and Savings: Toilets Example

Toilet Water Use (gallons) =

Occupants x Daily Use x Toilet Flush Volume

- Daily use = 5.0 flushes per person per day (from REUWS v2)
- Toilet flush volume =
  - Baseline homes: 1.6 gallons per flush
  - Water-efficient homes: Based on HCO's PCM; ≤ 1.28 gallons per flush

Assessing Water Use and Savings: Clothes Washer Example

Daily Clothes Washer Water Use (gallons)=

Occupants x Daily Use x Clothes Washer Capacity

x Clothes Washer Integrated Water Factor

- Daily use = 0.3 loads per person per day

- Clothes washer capacity = 3.9 cubic feet

- Clothes washer integrated water factor =

  - Baseline homes: 6.5 gallons per cycle per cubic foot

  - Water-efficient homes: Based on HCO's PCM; if credit for ENERGY STAR certified clothes washers, 4.3 gallons per cycle per cubic foot

Example Evaluation

Hypothetical: Point-based rating system for specific features, includes 5 points for every WaterSense labeled fixture installed. Requires 80 points to prove 30 percent water efficiency.

Small lot, large footprint

Problem #1: Fixtures

- **Where:** Small lot, large footprint, cool/wet climate.

- **Why:** Since water use does not necessarily increase proportionally to number of fixtures, this could over-emphasize the impact, specifically in large homes with many fixtures.

- **Options:** Increase point thresholds or cap points achievable on the specific credit.

Example Evaluation

Hypothetical: Point-based rating system for specific features, includes 20 points for use of a "Smart Irrigation Controller." Requires 80 points to prove 30 percent water efficiency.

Large lot, small footprint

Problem #2: Irrigation Controllers

- **Where:** Large lot homes in cool/wet and hot/dry climates.

- **Why:** "Smart" controllers is a poorly defined term. Even well defined, this practice could over-value the controller in cool climates where water use is low. In hot climates, "smart" controllers may not meet performance or efficiency expectations, so points could be awarded without realizing expected water savings.

- **Options:** Increase point threshold and/or require WaterSense labeled weather-based irrigation controllers (WBICs).

Questions?

Estimated Water and Energy Savings

National Water Savings

- 30,800 to 77,300 gallons per home per year
  - Depends on climate, which impacts total water use
  - Average 54,050 gallons per home per year
- Estimated national water savings of 4.3 billion gallons annually if 10 percent of newly constructed homes earn the WaterSense label

National Energy Savings

- Assumes 30 percent reduction in total indoor water use

  - 33.2 percent of indoor energy use is for heating water (REUWS v2)

- 789 kilowatt hours (kWh) of electricity or 3.49 thousand cubic feet (Mcf) of natural gas saved per household by not needing to heat water saved through greater water efficiency

- Additional 173 kWh of electricity saved by:

  - Not supplying the 54,050 gallons of total water (indoor and outdoor) saved

  - Not treating the 12,990 gallons of indoor water saved

- Estimated national energy savings of 42.3 million kWh and 144 MMcf of natural gas annually

National Cost Savings

- Estimated water/wastewater cost savings of $340 to $850 per home per year

- Potential additional savings of $104 for electric water heating or $34 for natural gas water heating

- Estimated total cost savings of $378 to $954 per home per year

Additional Program Benefits

- Revised homes program also supports WaterSense program at large

- Increases brand awareness and adoption of WaterSense labeled products

  - Benefits manufacturer partners

  - Higher degree of homeowner satisfaction due to quality-performance

- Creates new professional identification for WaterSense homes verifiers

- Facilitates water efficiency goals in multifamily buildings

- Scales to geographic areas/climates and allows for customized regional program in areas that have distinct water use concerns

Questions?

Partnership and Labeling

Procedures for Builder Partners

1. Partner with EPA

2. Identify WACM under which they would like to obtain home certification and apply to receive certification for individual homes

3. Work with the HCO and/or verifiers to verify the home's compliance with the specification, including the Mandatory Checklist and, by reference, the technical requirements of the WACM

Procedures for Verifiers

- Approved verifiers in good standing will be referred to as WaterSense home verifiers and will have a new promotional mark
  - New designation provides a way for EPA to better collaborate with and support verifiers
- Approved verifiers will be listed on the WaterSense website
- HCOs are responsible for training and approving verifiers and for reporting any status changes to EPA
- Verifiers will verify homes seeking the WaterSense label in accordance with the specification and HCO's WACM

Procedures for HCOs

1. Submit HCO/PCM application to EPA

2. Upon approval, sign licensing agreement with EPA to certify homes and issue the WaterSense label

3. Issue WaterSense label to homes that have met the Mandatory Checklist and the technical requirements of the WACM

4. Routinely report certified homes and trained verifiers to WaterSense

5. Report planned updates to WACM or HCO operating procedures to WaterSense at least 60 days prior to their implementation

6. Maintain records

Timeline and Next Steps

Revision Timeline

February 15, 2018 → October 24, 2018 → April 18, 2019 → Tentatively End of 2019 → 2020/2021

February 15, 2018	October 24, 2018	April 18, 2019	Tentatively End of 2019	2020/2021
NOI to Revise WaterSense Labeled Homes Program	WaterSense Labeled Homes Program, v2.0 Concept Paper	Draft WaterSense Labeled Homes Program, v2.0	Final WaterSense Labeled Homes Program, v2.0	WaterSense Labeled Homes Program, v2.0 Roll-Out

- Public comments can be submitted until **June 3, 2019**

- Final specification to be released after public comments have been resolved

Proposed Specification Transition

- Prospective HCOs can apply immediately after the final specification release

- Homes intending to receive the label under Version 1.2 of the specification must:

    - Be permitted within six months of the Version 2.0 specification release date

    - Complete final inspection within one year of Version 2.0 specification release date

- WaterSense anticipates that homes will be eligible to be labeled under Version 2.0 of the specification within six months of final specification release

Comment Submission

- Please provide any comments by June 3, 2019

- Comments can be sent to watersense-programs@erg.com

Poll Question

- Do you intend to submit comments on the draft WaterSense Labeled Homes Program, Version 2.0?

  - Yes

  - No

Questions?

Thank You!

Send comments on the draft specification to:

watersense-programs@erg.com

Jonah Schein | Schein.Jonah@epa.gov

Olga Cano | Cano.Olga@epa.gov

WaterSense Helpline

Email: watersense@epa.gov

Phone: (866) WTR-SENS (987-7367)