



Weather- or Sensor-Based Irrigation Control Technologies

Notification of Intent
Stakeholder Meeting

April 19, 2007



Notification of Intent Stakeholder Meeting Overview

- Today's Agenda:
 1. Meeting Purpose and Format
 2. Overview of WaterSense Approach to Product Specifications
 3. Product Category Name and Scope
 4. SWAT Protocol Development & Status
 5. Review of Notification of Intent and Associated Technical Issues
 6. Technical Discussion Topics
 - Performance Requirements
 - User Interface Features
 - Testing Requirements
 - Certification Process
 7. Next Steps



Notification of Intent Meeting Purpose

- Marks the beginning of the specification development process.
- Define issues that need to be resolved to have an effective WaterSense specification.
- Collect various stakeholder perspectives on those issues.
- Resolve issues, to the extent possible.
 - Follow-up discussions on specific issues are anticipated.



Other Options for Input

- Write comment on note cards
- Sign up for a discussion group at the end of the day
- Email watersense-irrigation@erg.com



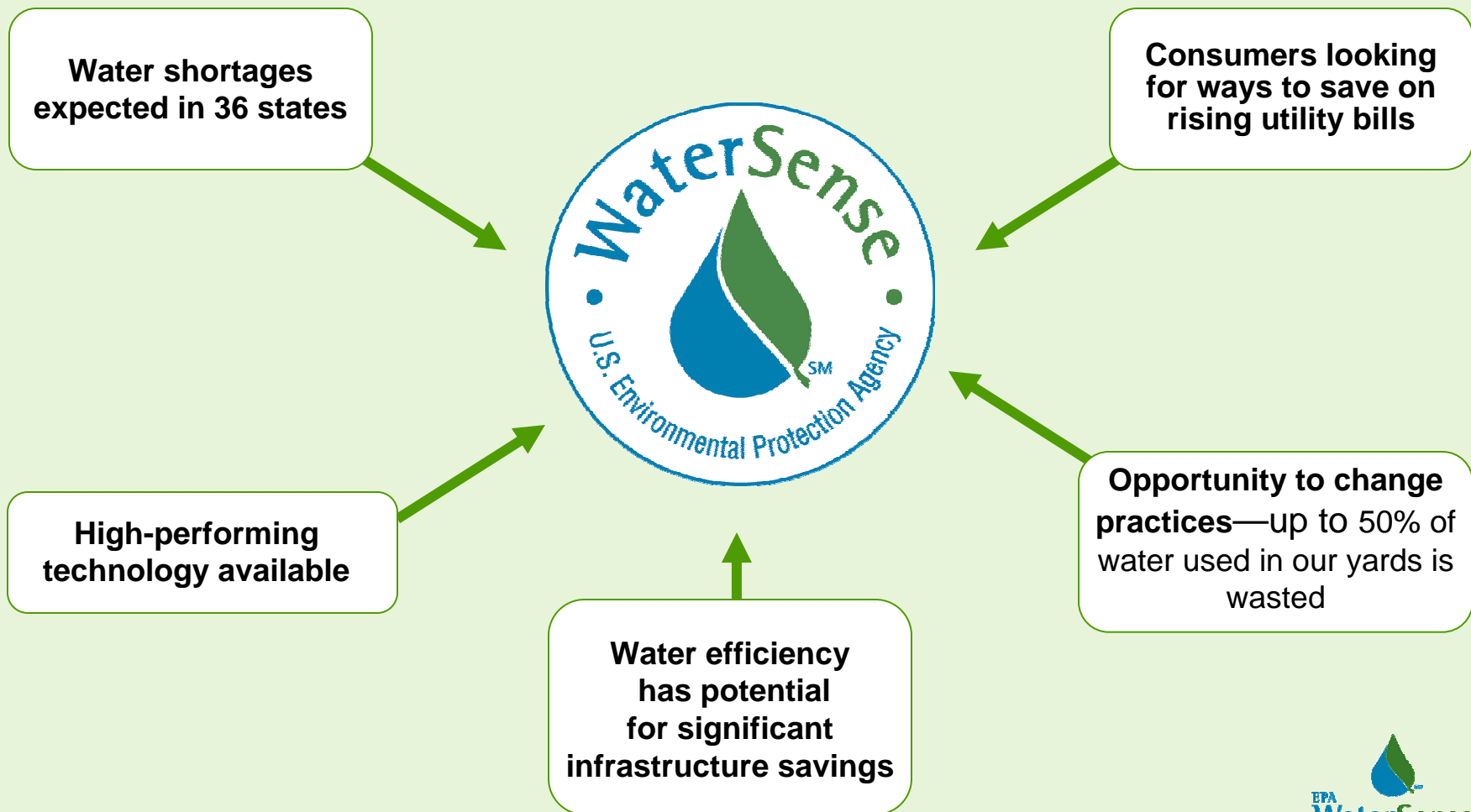
Overview of WaterSense Approach to Product Specifications

April 19, 2007



WaterSense Overview

Need for Water Efficiency





WaterSense Overview

Vision & Mission

Vision

Create an ethic of water efficiency.

Mission

To promote the value of water and help Americans make smart decisions regarding water use and water-using products.

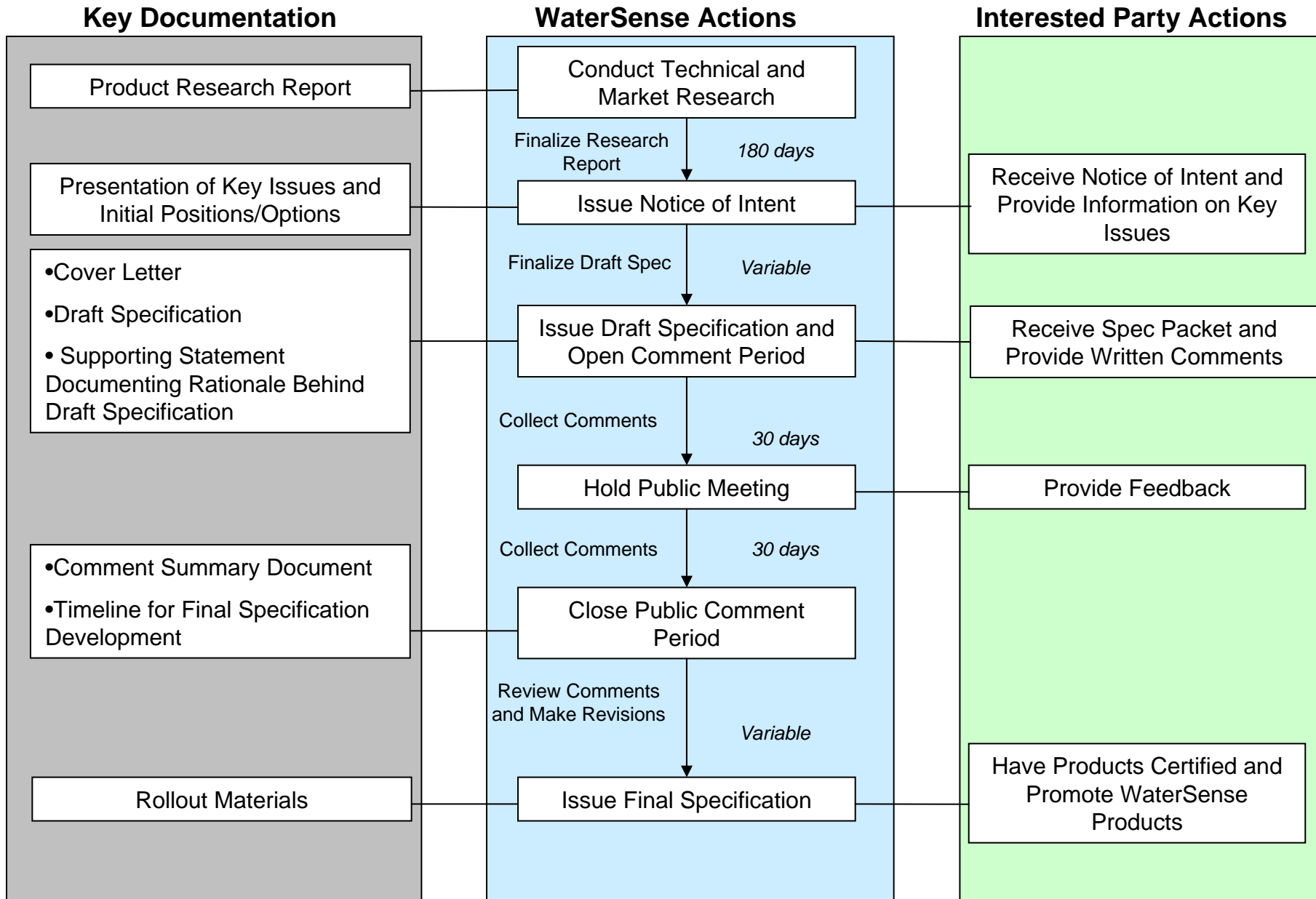
Transform the marketplace by encouraging consumers and organizations to purchase water-efficient products and services.



WaterSense Overview Philosophy

- Products labeled through WaterSense will:
 - Be backed by the credibility of the U.S. EPA
 - Be promoted through partnerships with utilities, manufacturers and retailers
- To be considered for the label, a product area must be able to:
 - Realize water savings on national level
 - Perform as well or better than their less efficient counterparts
 - Be about 20% more efficient than conventional counterparts
 - Achieve water efficiency through several technology options
 - Be effectively differentiated by the WaterSense label
 - Be independently verified by a third party to confirm that the product meets EPA criteria for efficiency and performance
 - Provide measurable results

WaterSense Overview: Specification Development Process





Weather- or Sensor-Based Irrigation Control Technologies

Category Name and Scope



WaterSense Landscape Irrigation Efficiency

- Outdoor water use accounts for up to 50% residential water use.
- To improve landscape irrigation efficiency, WaterSense is labeling certification programs for irrigation professionals.
- Irrigation system efficiency is achieved through a systems approach & requires efficient components, installed and maintained properly.
- WaterSense intends to label water efficient irrigation products.



WaterSense Landscape Irrigation Efficiency

Weather Based Irrigation Controller Water Savings Results from Publicly Available Studies

Study Reference	Water Savings	Duration of Study
Savings Compared to Historical Water Use Data		
AquaConserve, 2002	Denver demonstrated 21% total outdoor water savings in 37 households (average of 21% per participant). Sonoma demonstrated 23% total outdoor water savings in 27 households (average of 7% per participant). Valley of the Moon demonstrated 28% total outdoor water savings in 10 households (average of 25% per participant).	1 year
Aquacraft, Inc., 2003	Reduction in irrigation applications by 21%.	1 year
Santa Barbara County Water District, 2003	Average reduction in monthly water use of 26% (with results ranging from a low of 8% to a high of 59%).	1 year
IRWD and MWDOC, 2004	10% total household water savings (41gpd).	18 months
LADWP, 2004	Water2Save demonstrated a 28% reduction in irrigation. HydroPoint demonstrated a 17% reduction in irrigation.	1 year
University of Arizona, 2006	29% reduction in total monthly water use.	1 year
Savings Compared to Similar Sites with No WBIC		
Carlos et al., 2001	Water savings between 15% and 30% in residential landscape irrigation.	1 year
IRWD, 2001	Year 1: Reduction of 7% total household water use and ~16% irrigation water use. Year 2: Reduction in 7.7% total household water use and ~18% irrigation water use.	2 years
Saving Water Partnership, 2003	Average water savings of 20,735 gpy per account using controller with rain sensor (~15%). Average water savings of 10,071 gpy per account using controller with no rain sensor (~7%).	1 year



WaterSense Landscape Irrigation Efficiency

Soil Moisture Sensor Water Savings Results from Publicly Available Studies

Study Reference	Water Savings	Duration of Study
Savings Compared to Theoretical ET		
DeOreo, 1997	Applications at 76% of ET	1 year
DeOreo and Lander, 1994	Applications closely matched the ET requirements	1 year
Savings Compared to Similar Sites with No Sensor		
Allen, 1997	10% reduction compared to the control sites with no sensor	1 year
Irrigation of Australia, 2004	41% water savings compared to other households with no sensor	4 years
Cardenas-Laihacar et al., 2005	46% to 88% for three of four properly functioning sensors compared to sites with no sensor	1 season
Augustin and Snyder, 1984	26% water savings compared to plots with no sensor	2 years
Pathan et al., 2003	25% water savings compared to plots using Best Management Practices	1 year
Savings Compared to Historical Water Use Data		
Arizona Department of Water Resources, 2004	5% water savings to previous years	1 year (preliminary results)



WaterSense Landscape Irrigation Efficiency

- As a first step, WaterSense intends to develop product specifications for weather- or sensor-based irrigation control technologies.
 - Weather-based irrigation controllers
 - Soil moisture sensors



Irrigation Control Category Name and Scope

- WaterSense labeled weather- or sensor-based irrigation control technologies will:
 - Include all products that are within the scope and are certified to meet the performance specifications.
 - All product types will have the same water efficiency performance requirements.
 - Testing requirements will differ for each type of product.
- WaterSense specifications will be developed in conjunction with appropriate industry-accepted testing protocols
 - Weather-based irrigation controllers based on the Draft 7 SWAT™ protocol.
 - Soil moisture sensor SWAT™ protocol is still being developed.



Irrigation Control Category Name and Scope

Product Category Name:

- Weather- or Sensor-Based Irrigation Control Technologies

Product Category Scope:

- Products that establish an irrigation schedule, or modify a predetermined irrigation schedule, based on data input from offsite weather stations or onsite weather stations or sensors



Discussion Questions

1. Is this general approach appropriate?
2. Is the scope definition of the intended product category appropriate?
3. Are there other irrigation control technologies that WaterSense should consider within the scope of this product category?
 - Rain Sensors?
 - Others?



SWAT™ Protocol Presentation

SWAT™ Protocol Presentation