

look for



Understanding the WaterSense Label



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WaterSense Program



EPA and WaterSense: Why & What

**Water shortages
expected in 40 states**

Communities face
major infrastructure
investments

**Consumers challenged
by rising utility bills**

Much of water used
outdoors is wasted



**Identify high-performing
technology**

**Promote water efficient
behavior/action**

**Help consumers
save money**

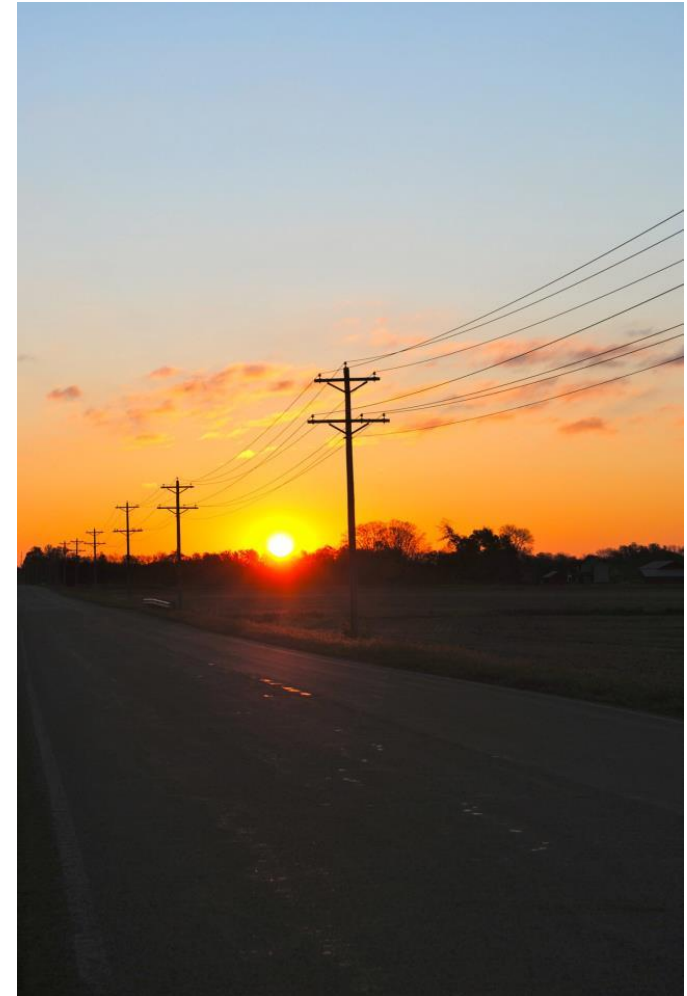
**Reduce need to
expand infrastructure
capacity**

**Save water for
critical needs**



Not Just About Water

- Moving, treating, and heating water uses energy
 - Every gallon of water has an energy “footprint”
- Energy used by the Water sector
 - Nationally - ~3-4%
 - California - ~20%
 - Municipal level - can be > 40%
 - System level - energy is one of the highest utility costs





What's Special About WaterSense?



- A label with integrity
 - Third-parties independently certify that products and homes meet EPA criteria
 - Backed by the credibility of EPA
- Smart use of resources
 - EPA provides national standardization and outreach for water-efficiency
 - Manufacturers absorb product research, testing, and branding costs
 - Licensed certifying bodies certify the products and police the label's use



Confidence in Labeled Products



- WaterSense labeled products must meet EPA criteria for both water-efficiency *and* performance
 - In conjunction with industry, EPA defines measurable performance criteria
 - If necessary, EPA works with other organizations to develop performance criteria (SDOs, industry groups)
- WaterSense labeled products are certified by an accredited/licensed, independent third-party
 - Test products
 - Assess manufacturers quality management system
 - Conduct periodic surveillance (i.e., audits, retest products, police the use of the label)
 - Issue label



Product Certification Process



- Manufacturer applies to a licensed certifying body
- Licensed certifying body conducts product evaluation
 - Assesses production process and quality management system
 - Samples and tests product's conformance to WaterSense specification
 - Certifies the product and provides list to WaterSense
- Licensed certifying body authorizes manufacturer to use the WaterSense label
- Licensed certifying body conducts ongoing conformity assessment
 - Annual product retesting
 - Annual assessment of production process and quality management system
 - Annual surveillance of label use in the marketplace



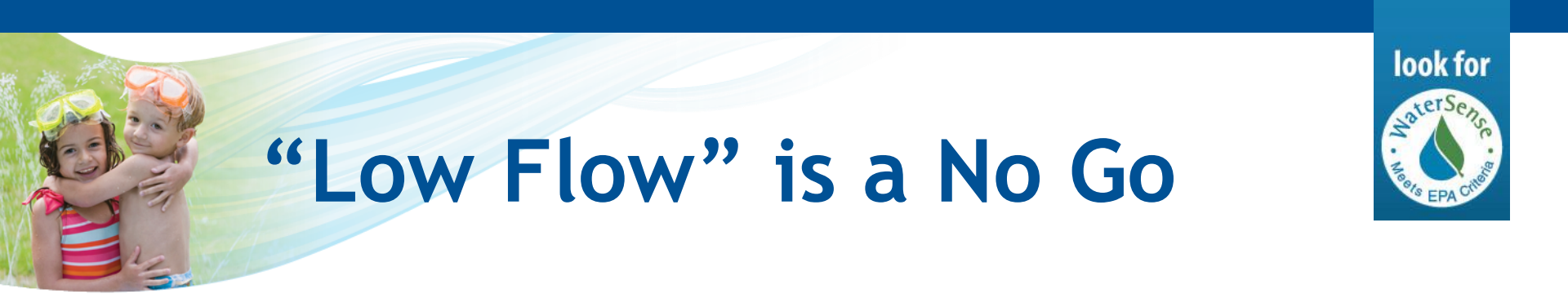
WaterSense Product Evaluation Factors

WaterSense uses the following factors in determining which products to label



Products must:

- Offer equivalent or superior performance
- Be about 20 percent more water-efficient than conventional models
- Realize water savings on a national level
- Provide measurable results
- Achieve water efficiency through several technology options
- Be effectively differentiated by the WaterSense label
- Be independently certified



“Low Flow” is a No Go



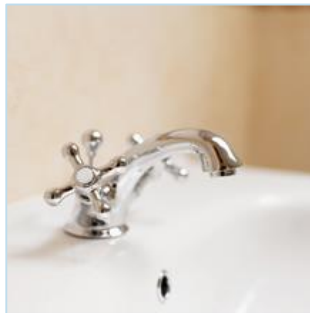
VS



WaterSense Labeled Products



**Flushing
Urinals**



**Lavatory
Faucets**



**Irrigation
Controllers**



**Pre-rinse
Sprayers**



**Tank-Type
Toilets**



Showerheads



New Homes

**More than
14,000
Labeled
Product
Models**

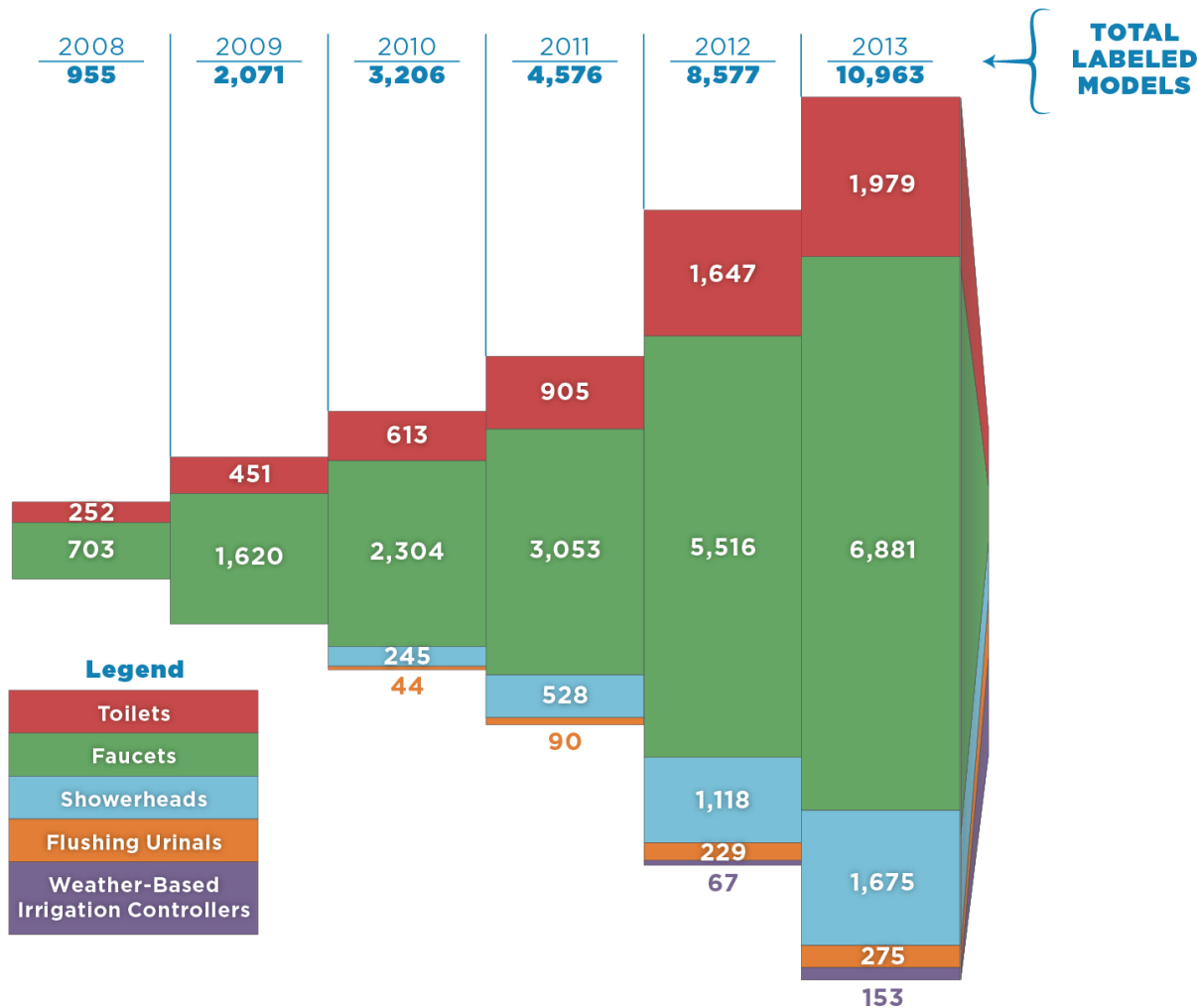


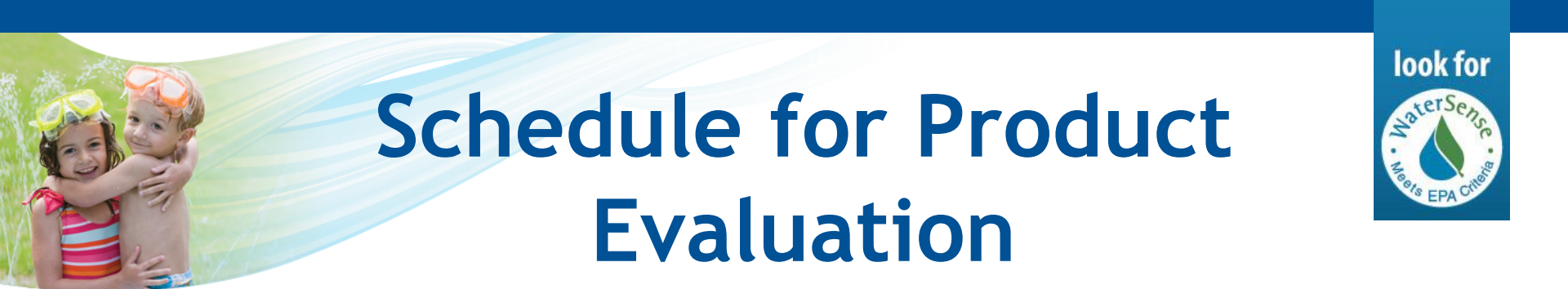
Water factors are also
included in many
ENERGY STAR
qualified products



2013 WaterSense Accomplishments

Products Labeled

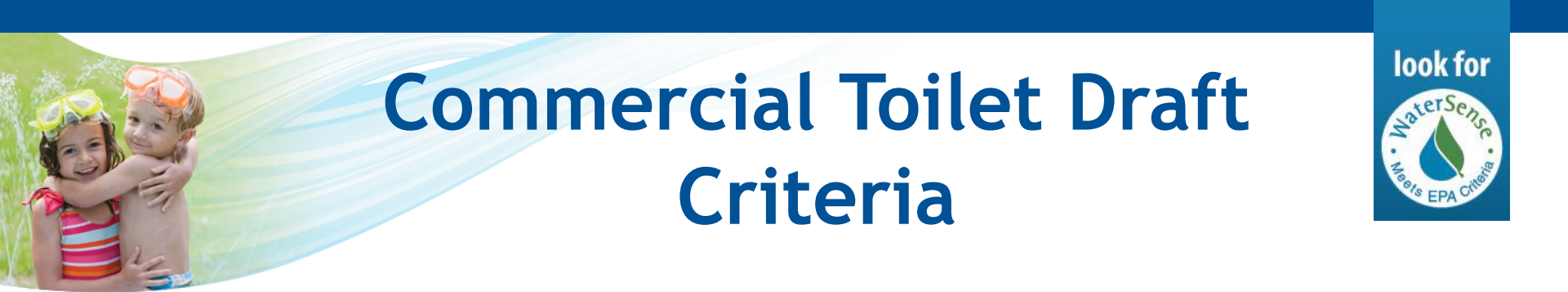




Schedule for Product Evaluation

	<i>Complete</i>	<i>2013/2014</i>	<i>2014 and Beyond</i>
<i>Irrigation</i>	<i>Weather-based Controllers Professional Certification Programs</i>	<i>Soil Moisture-based controllers *</i>	<i>Irrigation Emission devices (sprinklers)</i>
<i>Residential Products</i>	<i>Toilets Faucets Showerheads</i>	<i>Water Softening Systems*</i>	<i>Water Treatment Systems Whole House Humidifiers Kitchen faucets</i>
<i>Commercial Products</i>	<i>Flush Urinals Pre-rinse Spray Valves</i>	<i>Flushometer Toilets*</i>	<i>Dipper Wells Autoclaves Glassware Washers Kitchen Equipment</i>
<i>Other</i>	<i>Single and multi- family Homes</i>		<i>Water Meters Additional Professional Certifications</i>

* Notice of Intent Released



Commercial Toilet Draft Criteria



- **WaterSense is considering setting a maximum flush volume of 1.28 gpf (4.8 Lpf)**
 - Matches currently accepted industry standards for high-efficiency toilets (HETs)
 - 258 high-efficiency flushometer-valve toilet combinations have been tested to **Maximum Performance (MaP) testing** requirements
- **Plumbing Efficiency Research Coalition (PERC) published a drainline carry study in November 2012.**
 - Investigated waste transport through drainline lengths up to 135 feet for flush volumes varying from 0.8 gallons to 1.6 gallons.
 - Media were successfully cleared from drainline apparatus for all 1.28 gallon test runs



Confidence in Labeled Products

High Efficiency Residential Toilets (HET)

Conventional Toilets

- Maximum Water Use
 - 1.6 gallons per flush
- Performance Requirements
 - Must meet ASME A112.19.2 flushing requirements
 - Drainline transport of waste 12.2 ft

WaterSense Labeled HETs

- Maximum Water Use
 - 1.28 gallons per flush
- Performance Requirements
 - Must meet ASME A112.19.2 flushing requirements
 - Must successfully remove at least 350 grams of waste

<http://watch.discoverychannel.ca/#clip1073134>



Acceptance of WaterSense

- The WaterSense label is recognized by other green programs
 - FEMP Designated Products
 - U.S. Green Building Council's LEED Rating Systems
 - Green Globes' Green Building Initiative
 - National Association of Home Builders' National Green Building Standard
 - International Code Council's International Green Construction Code
 - IAPMO Green Technical Supplement
 - States and Municipalities

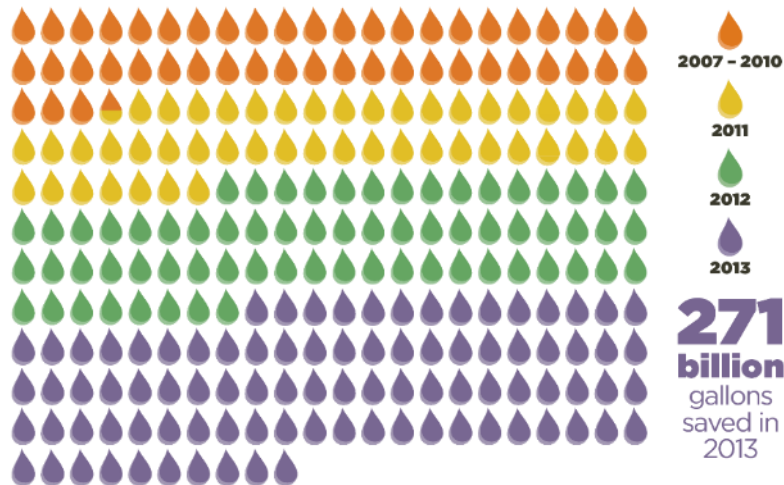


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Savings Add Up! 2006-2013

757 billion gallons of water saved since 2006!



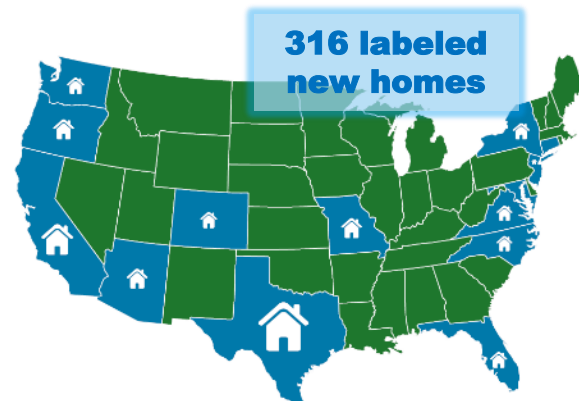
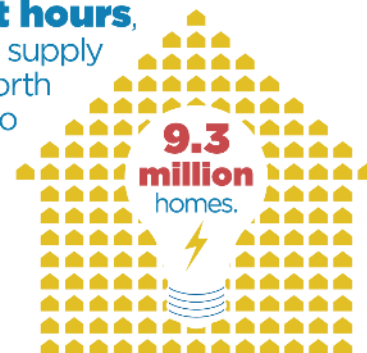
That's enough water to supply all the homes
in the **United States**
for 26 days!



WaterSense has **saved consumers**
\$14.2 billion
in water and energy bills.

WaterSense has helped **reduce** the amount of **energy needed** to heat, pump, and treat water by

101 billion kilowatt hours,
enough to supply a year's worth of power to more than



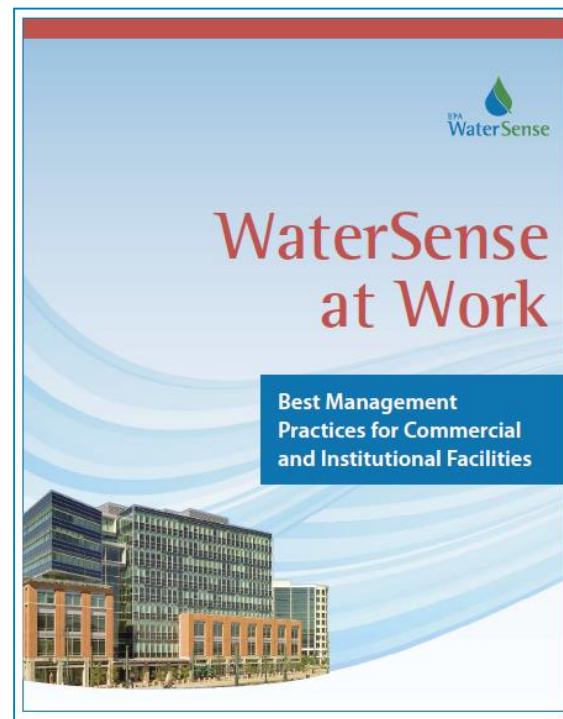


WaterSense at Work

Released November 2012

WaterSense at Work is a comprehensive set of water-efficiency best management practices created to help commercial and institutional facilities manage their water use. Best management practices (BMPs) include:

- Water management planning
- Water use monitoring and education
- Sanitary fixtures and equipment
- Commercial kitchen equipment
- Outdoor water use
- Mechanical systems
- Laboratory and medical equipment
- Onsite alternative water sources





What's Included?

Each section incorporates WaterSense labeled products, water-efficient technologies, and water-saving techniques for both new and existing buildings:

- Overview of each practice or technology
- Operation, maintenance, and user education practices
- Retrofit options
- Replacement options
- Water, energy, and cost savings potential
- Additional resources

6.3 Cooling Towers



Overview

Cooling towers are used in a variety of commercial and institutional applications to remove excess heat. They serve facilities of all sizes, such as office buildings, schools, supermarkets, and large facilities, such as hospitals, office complexes, and university campuses. Cooling towers dissipate heat from recirculating water that is used to cool chillers, air conditioning equipment, or other process equipment. By design, they use significant amounts of water.

Cooling towers often represent the largest use of water in industrial and commercial applications, comprising 20 to 50 percent or more of a facility's total water use. However, facilities can save significant amounts of water by optimizing the operation and maintenance of cooling tower systems.⁴



Cooling towers work by circulating a stream of water through systems that generate heat as they function. To cool the system, heat is transferred from the system to the water stream. This warm water is then pumped to the top of the cooling tower, where it is sprayed or dripped through internal fill (i.e., a labyrinth-like packing with a large surface area). Fans pull or push air through the tower in a counterflow, crossflow, or parallel flow to the falling water. As some of the water is evaporated, the heat is removed.⁵ The remaining cooled water is recirculated back through the systems to repeat the process.

The thermal efficiency and longevity of the cooling tower and its associated water loops depend upon the proper management of water recirculated through the tower. Water leaves a cooling tower system in four ways: evaporation, blowdown or bleed-off, drift, and leaks or overflows.

Evaporation

Evaporation is the primary function of the tower and is the method that transfers heat from the cooling tower system to the environment. The quantity of evaporation is not typically targeted for water-efficiency efforts, because it controls the cooling process (although improving the energy efficiency of the systems that use the cooling water will reduce the evaporative load on the tower). The rate of evaporation from a cooling tower is typically equal to approximately 1 percent of the rate of

⁴ North Carolina Department of Environment and Natural Resources, et al. May 2009. *Water Efficiency Manual for Commercial, Industrial and Institutional Facilities*.
Page 39. www.waterwise.org/Downloads.php.
⁵ Ibid.

6-8

WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities

2014 Commercial Focus



WaterSense® An EPA Partnership Program

WaterSense / Commercial / H₂Otel Challenge

WaterSense H₂Otel Challenge

HOME TAKE THE PLEDGE RECRUIT HOTELS TOOLS & TRAINING

Take the Guest Work out of Saving Water!

Launching in January 2014, the WaterSense H₂Otel Challenge will encourage hotels to assess water use, learn about the best management practices for reducing water in hotels, and track their results.

WaterSense partners will challenge hotels to learn about *WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities (BMPs)*, a comprehensive guide to commercial water efficiency. EPA and its partners will provide hotels with the tools to "ACT":

- Raise awareness of WaterSense among hotel facility managers
 - Increase the use of WaterSense labeled products
 - Promote best management practices for water use reductions
 - Improve data quality by tracking progress
- Give WaterSense partners a framework to engage commercial and institutional customers
- Provide training and tools to assist hotel facility managers in saving water, energy, and money
- Educate hotel facility managers, employees, and guests about water efficiency

www.epa.gov/watersense/challenge



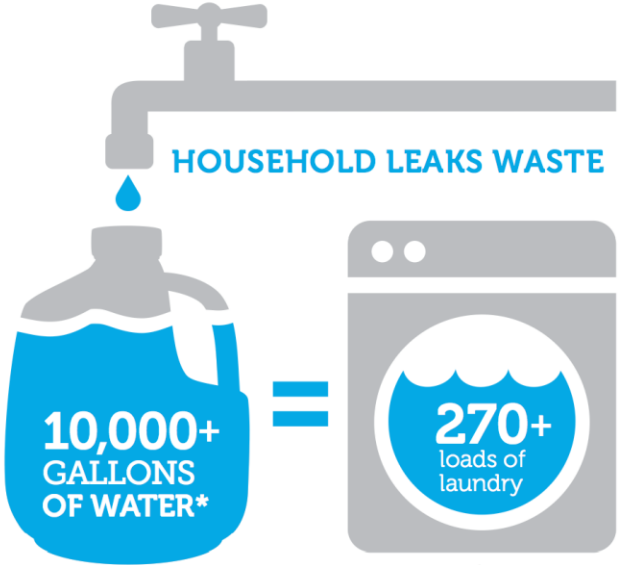
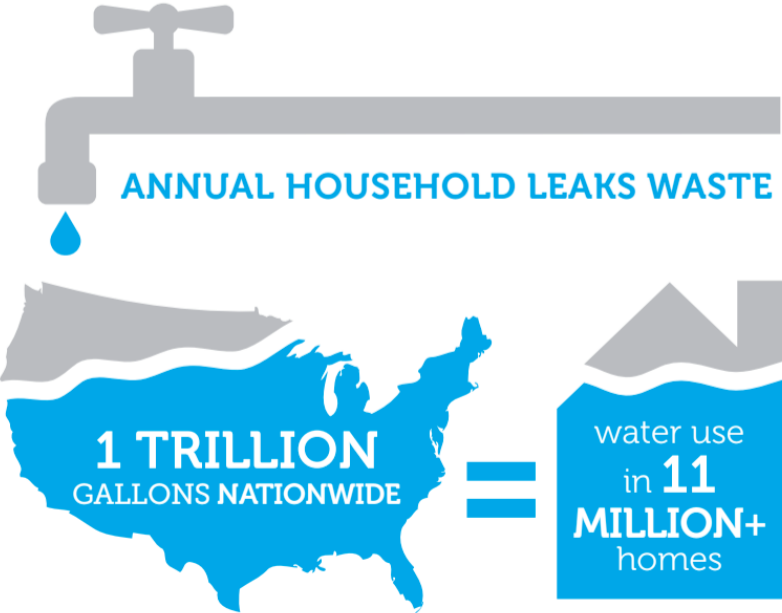
Technical Webinars

WaterSense will provide a series of technical webinars, each aimed at addressing major water use areas within a hotel:

- Take the Plunge: Introductory webinar
 - Assess, Track and Realize Payback
 - Washing 101: Laundry and Plumbing Primer
 - Make a Splash With Outdoor Water Savings
 - Water Assessment and Evaluation Tool
 - Minimize Water in Mechanical/HVAC Systems
 - Let's Talk About Education and Outreach
 - What's Cooking: Commercial Kitchen Savings
-
- Registration will be through WaterSense website:
<http://www.epa.gov/watersense/commercial/challenge.html>
 - All are/will be recorded/posted for future listening:
<http://www.epa.gov/watersense/commercial/webinars.html>



Why Fix a Leak Week?



*Average U.S. family per year

Fix a Leak Week: March 16–22, 2015

1. Check



Check for leaks.
Look for dripping
indoor and
outdoor fixtures.

2. Twist



Twist and tighten
pipe and hose
connections, and
twist on WaterSense
labeled faucet
aerators.

3. Replace

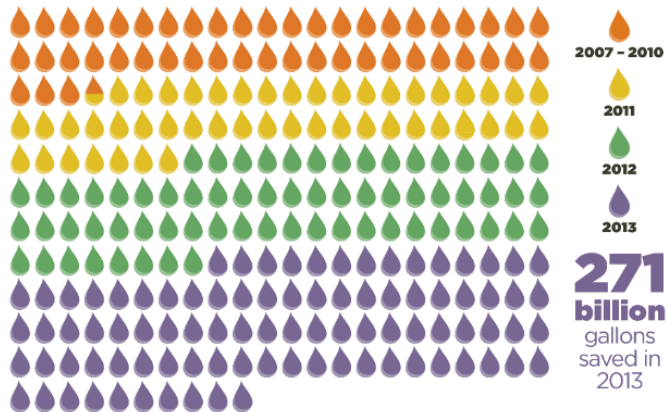


Replace the leaking
fixture if necessary.
Look for WaterSense
labeled models!



For More Information

757 billion gallons of water saved since 2006!



That's enough water to supply all the homes
in the **United States**
for 26 days!

Website:

www.epa.gov/watersense

Lists of products

Partnership information – on line
applications

Educational fact sheets and resources

Email: watersense@epa.gov

Toll-free Helpline:

(866) WTR-SENS (987-7367)