WaterSense Adds Up to Big Water and Energy Savings

December 13, 2021

Tools of Change Illustrated

- Building Motivation, Engagement and Habits Over Time
- Financial Incentives
- Norm Appeals
- Overcoming Specific Barriers
- Schools Programs that Influence the Home
- Vivid, Personalized, Credible, Empowering Communication

Location

- Across the U.S.A and Canada

Initiated by

- U.S. Environmental Protection Agency (EPA)

Partners

- A wide range of commercial and NGO partners
- Utilities / water districts / regional and local government agencies

Results

Savings by 2020

- 5.3 trillion gallons of water
- 603 billion kWh of electricity
- Over $108 billion in water and energy costs

Introduction

WaterSense, a partnership program sponsored by the U.S. Environmental Protection Agency (EPA), seeks to protect the future of the nation's water supply by offering Americans a simple way to use less water with water-efficient products, homes, and services. WaterSense labeled products, which are independently certified to use at least 20% less water and perform as well or better than standard models, have been on the market since 2007. As of 2021 there are more than 30,000 labeled models, including products used in residential and commercial bathrooms, and outdoor irrigation. EPA's WaterSense program has also certified over 3,000 homes with WaterSense labeled fixtures and water-efficient features. Designated a *Landmark* case study in 2021.

Background

Note: To minimize site maintenance costs, all case studies on this site are written in the past tense, even if they are ongoing as is the case with this particular program.

The U.S. Congress first enacted statutory water-use conservation measures in 1992 by amending the Energy Policy and Conservation Act (42 U.S.C. §6295(j)-(k)) to address toilets, showerheads, faucets, and urinals.

Subsequent actions have added dishwashers, clothes washers, and prerinse spray valves to the act. Clothes washers and dishwashers were labelled by the U.S. ENERGY STAR® program for energy efficiency, which included a water-efficiency factor for these products.

In 2003, the U.S. Government Accountability Office forecast water shortages in 36 states, and consumers were being challenged by rising utility bills. There were requests from stakeholders for a water conservation program like ENERGY STAR®, which used public-private partnerships intended to educate consumers and simplify the identification of high efficiency products.

Getting Informed

In 2004, the EPA held stakeholder meetings across the country to get input on designing a national, voluntary market-based program for promoting water-efficient products.

Delivering the Program

WaterSense label

WaterSense officially launched June 12, 2006, in San Antonio, TX, at the American Water Works Association's Annual Conference & Exposition. It started with a few priority behaviors, products, partners, and communication campaigns. Each year, it expanded from there.

Categories Introduced

Year	Categories Introduced
2007	• Labeled toilets (residential and commercial) • Sink faucets (bathroom)
2008	• New homes (pilot)
2009	• Flushing urinals • Pre-Rinse Spray Valves (often used in commercial and institutional kitchens— designed to remove food waste from dishes prior to dishwashing.) After several years, WaterSense had successfully transformed the marketplace and the U.S. Department of Energy (DOE) adopted the WaterSense efficiency threshold and performance test for the national energy regulation covering these devices. Therefore, WaterSense sunset its specification for pre-rinse spray valves, in 2019.
2010	• Showerheads • New homes. Certified homes that re at least 20% more water-efficient than typical new construction, based on the following factors. ○ Efficiency of plumbing products ○ Efficiency of water-using appliances ○ Water waste from hot water delivery ○ Housing design and layout ○ Influence of landscape size, design, and plant choices on theoretical irrigation requirements • Irrigation design and technology
2012	• Irrigation controllers (weather-based)
2013	• Multi-family buildings
2015	• Commercial toilets - Flushometer–Valve Water Closets. • Federal agencies directed to give purchase preference to WaterSense-certified products and services (Executive Order 13693, Planning for Federal Sustainability in the Next Decade).
2017	• Spray sprinkler bodies (for landscape irrigation)

2021	• Irrigation controllers (soil moisture-based) • Homes Version 2 (updated to better leverage the green building market.) Builders could seek the WaterSense label from EPA licensed Home Certification Organizations with WaterSense approved certification methods that ensured homes achieved a minimum of 30% water savings over typical construction and met performance expectations.

As of May, 2021, over 32,000 different product models had been labeled, and WaterSense was considering the following additional water-saving product categories and service programs for specification development:

- Cation exchange water softeners
- Bath and shower diverters
- Pool covers

Benefits

The program emphasized the following benefits from WaterSense products and services (*Credible, Empowering Communications; Financial Incentives.*)

- Verified cost savings and performance improvements: independently certified to use less water and perform as well or better than standard models
- Energy savings when less hot water is used
- Low-maintenance and water-efficient landscapes without sacrificing curb appeal

Programs for Residential Consumers

Installation of WaterSense labeled products helped consumers save water, energy, and money directly. In addition, WaterSense influenced consumer behavior to achieve further water savings. Many of the program campaigns and communications focused on fostering an ethic of water efficiency.

Selected Residential Campaigns

- *Launch* (2006)
- *Fix a Leak Week* (annual campaign starting in 2009), often with featured races, giveaways (leak detection / repair kits), demonstrations, workshops, exhibits and festivals. In addition, WaterSense partners from different areas of the country took turns posting and sharing tips, facts, and images on finding and fixing leaks and events in their areas. Each leak detection kit contained toilet dye tablets, faucet aerator, shower bag to measure flows, drip gauge, and a household water efficiency guide.) Each leak repair kit included toilet dye tablets, assorted faucet washers, Teflon tape, a drip gauge, and a faucet aerator. *(Norm Appeals; Overcoming Specific Barriers; Vivid. Personalized, Credible, Empowering Communication)*

Fix a Leak promotion

- *Twitter campaigns* (started in 2010)
- *We're for Water*, a national outreach campaign to help consumers save water. The campaign kicked off with a cross-country road trip from Los Angeles to New York City. (2010)
- *Shower Better* (2014)
- Annual *Sprinkler Spruce-Up* helps homeowners make sure their watering systems are working properly before they ramp up their watering during the warmer months (launched in 2014)

By 2019, there were several primary residential campaigns a year. (*Building*

Motivation, Engagement and Habits Over Time)

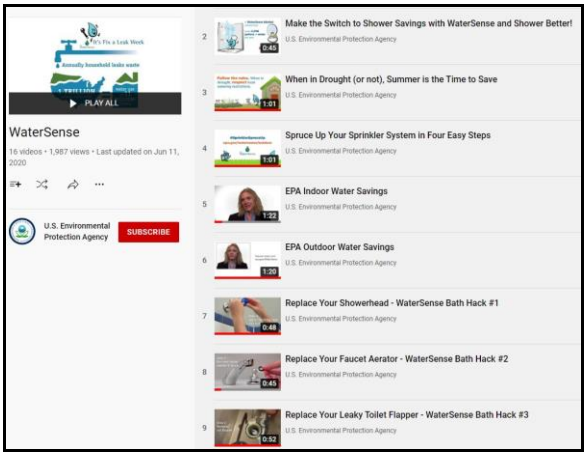
- January: Resolve to Save Water (Resolution Pledge)
- March: Fix a Leak Week
- May: Sprinkler Spruce-up
- July: Outdoor water use and drought
- September / October: Shower Better (showerheads)
- Other Campaigns: Mulch Madness, Your Better Yard, Your Better Bathroom, When in Drought; Save Water at Home

Challenges, Contests, Scorecards *(Norm Appeals)*

- State challenges (in 2008)
- Water-Smart Landscape Photo Contest (2013)
- #watersaving yard photo challenge (2015)
- EPA Water Score for Multifamily Housing (launched in 2017)

Communication Vehicles

- Animated YouTube videos, all under one minute, on how to find and fix leaks, spruce-up a sprinkler, face a drought or hot summer months, shower better, and bath hacks



YouTube playlist

- Bill stuffers
- Brochures
- Facebook Fan Page, Twitter campaigns e.g. relays (launched in 2010)
- Media outreach templates
- Radio PSAs
- Spanish language website (launched in 2019)
- Website (launched in 2006; website for children launched in 2008)

Program for Children and Schools

- Website for children (launched in 2008)
- Lessons for grades 3-5 focused on saving water through finding leaks. The free resources offer step-by-step instructions for teachers and include ready-made worksheets for students (launched in 2009)
- Flo, the WaterSense spokesperson was available to come to events to supports local efforts.

(Schools Programs that Influence the Home)

Program for Commercial and Institutional Customers

This program developed tailored approaches, introductions, fact sheets, guides, worksheets, case studies, and webinars for each of the following priority audiences.

- Commercial and Institutional Sector
- Office Buildings
- Hospitals
- Hotels: The ongoing WaterSense H2Otel Challenge encourages hotels to evaluate their water use and adopt water-saving products and best management practices. (began in 2014)
- Multi-family housing
- Restaurants
- Educational Facilities
- Industrial

Communication Tools: Case Studies, Monthly Tips, Assessment Tools, Worksheets and Checklists

- Assessment Tools and worksheets helped commercial and institutional customers calculate associated implementation savings
- Case studies of successful implementations helped decision-makers

visualize and have more confidence in proposed projects
- Checklists and monthly tips provided guidance and helped keep the program top-of-mind

Newsletters
- A quarterly public/consumer newsletter, the "WaterSense Current" provided program news and highlighted partner efforts (began in 2009)
- A quarterly newsletter called "Blueprint" was dedicated to news and events related to WaterSense labeled homes (2014-2016)

Partnerships

The first partners eligible to join WaterSense were certified landscape irrigation professionals, professional certifying organizations, and promotional partners. By 2019 the program was working with the following different types of organizations.

Organization Type	Partner Type	Partner Role
Builders	Builder	Build new homes in accordance with the WaterSense New Home Specification.
Distributors	Retailers & Distributors	Distribute WaterSense labeled products.
Home Certification Organizations	Home Certification Organizations	Meet the requirements of the WaterSense Home Certification System to oversee certification decisions for homes to earn the WaterSense label.
Manufacturers	Manufacturer	Manufacture products eligible to earn the WaterSense label.
Nonprofit Organizations	Promotional	Promote WaterSense and water efficiency.
Professional Certifying Organizations	Professional Certifying Organizations	Meet the requirements of the WaterSense Professional Certification Program Labeling System and sponsor or adopts a professional program that meets WaterSense specifications for certification programs.
Retailers	Retailers & Distributors	Sell WaterSense labeled products.
Trade Associations	Promotional	Support members that are eligible to join as a WaterSense partner.
Utilities / Water Districts / Government Agencies (state, federal, and local agencies)	Promotional	Promote WaterSense and water efficiency. Include environmental departments, municipal programs, local governments, water agencies, water districts, wholesalers, public utilities, private utilities, wastewater treatment facilities, water boards, and public utility commissions.

- Partner Communications
  - Quarterly "Partner Pipeline" newsletters for partners

- "WaterSense for Partners" website
- Quarterly webinars

- Partner Support: WaterSense helped partners carry out their water conservation and efficiency programming by providing them with a wide range of resources.

- Partner Recognition: Each year WaterSense recognized leading utilities, manufacturers and builders that reduce water waste. The winners were announced at a Partner of the Year awards event at the annual WaterSmart Innovations Conference and Exposition in Las Vegas, Nevada. The award categories include the following.
  - Sustained Excellence Award Winners
  - Promotional Partners of the Year
  - Excellence Awards
    - Strategic collaboration
    - Program growth
    - Education and outreach
    - Education and public relations
    - Labeled products in the marketplace

Barriers

The following table summarizes the key barriers to action and how each was addressed.

Barrier	How it was addressed
Water conserving products were hard to find / not conveniently available	• Rewarded those who offered these products • Made the products and their suppliers more visible • Over time, developed water conservation standards
Lack of trust in manufacturer / builder claims	• Third party verification
Didn't think of it (e.g. for leaks)	• Annual reminders like Fix a Leak Week, Sprinkler Spruce-up, and Switch and Save (for showerheads)
	• Animated videos, school programs and a wide range of other communication vehicles, selected for priority audience segments

Measuring Achievements

The purchase and installation of WaterSense labeled products have provided sustained annual savings of water and energy. This has benefitted both consumers (who saved on utility bills) and water providers (which were better meet water demand.) Program achievements were estimated with controls in place.

Water Savings

Achievements were estimated based on sales and shipping data for certified products. Supporting documentation was NOT received for 10% of the product shipments each year and the program did not report those sales. The savings for each product was based on models developed for various end-use sectors, including residential, commercial, institutional, and outdoor uses, that compared the water used in the absence of the WaterSense program with the water used with the program in place. Several factors were considered in assessing water use for each product type. For example, the residential model incorporated the marginal price of water, household size, household income, and product efficiency to determine the amount of water used by toilets.

Energy and Cost Savings

Municipal energy savings were calculated for pumping, treating, and heating water for use, as well as treating wastewater for disposal. However, only the water heating costs were used to determine the program's monetary savings. In addition, consumers saved money on their water, sewer, and energy bills.

Financing the Program

Until 2018, the EPA funded the WaterSense program through discretionary appropriations, which peaked in FY2011 at $3.6 million after being $3.1 million in FY2017. The budget was split into three roughly equal parts. Roughly 1/3 went to developing the technical specifications, approving and auditing certifying bodies, and consumer marketing. Another third went to developing partnerships, label use surveillance, and administration (e.g., website, helpline). The final third covered the salaries of eight full-time employees.

During this time, the program was adopted more formally in several contexts.

- Some states (e.g., California, Colorado, Georgia, New York, and Texas) incorporated WaterSense into aspects of their minimum product standards.
- Some states (e.g., Georgia, Pennsylvania, Texas, and Virginia) provided tax holidays or other incentives for purchasing WaterSense products.

In 2018, America's Water Infrastructure Act was signed into law, transitioning the WaterSense from a "discretionary" program to a formally authorized federal program.

Results

Per Household

In 2020 alone, the program saved 80,000,000,000 kWh of electricity per year and the USA had 128,450,000 households. That would equate to 622 kWh per household if all of the reductions were from households, but the program also reduced non-residential water use so the actual reduction per household would be under 622 kWh.
A 2017 report on an evaluation of the program by the EPA Office of Inspector General (OIG) estimated that consumers saved $1,100, 51,000 gallons of water and 6,600 kWh of electricity for every federal dollar spent on the program.

Overall Impact

Through to the end of 2020, WaterSense helped Americans save a cumulative 5.3 trillion gallons of water and more than $108 billion in water and energy bills. Additionally, the use of WaterSense labeled products saved 603 billion kWh of electricity.

In 2020 alone, the program saved 80,000,000,000 kWh of electricity per year.

Additional Benefits

In addition, the program engaged over 2,000 organizational partners and over 3,000 individual certified landscape irrigation professionals. It also contributed value to the plumbing industry by providing a unified labeling system that consumers could understand, and by providing product specifications that focused not only on water efficiency but also on product performance.

After offering a WaterSense label for efficient, high-performing pre-rinse spray valves for several years, WaterSense had successfully transformed the marketplace for commercial kitchen pre-rinse spray valves. The U.S. Department of Energy (DOE) now requires all pre-rinse spray valves to meet or exceed the efficiency criteria established by WaterSense.

Notes

- The program successfully drove new product and service innovations that reduce energy and associated greenhouse gas emissions, which is critical for climate change mitigation. These innovations also reduce water use, which is critical for climate change adaptation.
- The approach has enabled the EPA to transform markets through voluntary mechanisms, then make those changes permanent by setting requirements (e.g. pre-rinse spray valves) and/or shift to even more efficient products.

Landmark Designation

The program described in this case study was designated in 2021.

Designation as a Landmark (best practice) case study through our peer selection process recognizes programs and social marketing approaches considered to be among the most successful in the world. They are nominated both by our peer-selection panels and by Tools of Change staff and are then scored by the selection panels based on impact, innovation, replicability and adaptability.

The panel that designated this program consisted of:

- Arien Korteland, BC Hydro
- Kathy Kuntz, Dane County Office of Energy & Climate Change, Wisconsin
- Doug McKenzie-Mohr, McKenzie-Mohr Associates
- Sea Rotmann, Sustainable Energy Advice Ltd.
- Lester Sapitula, Pacific Gas and Electric Company
- Marsha Walton, New York Energy Research and Development Authority

For More Information

https://www.epa.gov/watersense

@EPAwatersense (Facebook and Twitter)

2017 program evaluation:
https://www.epa.gov/sites/production/files/2017-08/documents/_epaoig_20170801-17-p-0352.pdf

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For step-by step instructions in using each of the tools noted above, to review our FULL collection of over 185 social marketing case studies, or to suggest a new case study, go to www.toolsofchange.com

This case study is also available online at http://www.toolsofchange.com/en/case-studies/detail/747

It was compiled in 2021 by Jay Kassirer based on information provided in the above reports.

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