# Observations on Effective Water Efficiency Programs

Mary Ann Dickinson President and CEO Alliance for Water Efficiency May 26, 2015



A VOICE AND A PLATFORM PROMOTING THE EFFICIENT AND SUSTAINABLE USE OF WATER



Alliance for Water Efficiency



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

## http://drought.unl.edu/dm

Released Thursday, December 30, 2010 Author: David Miskus, NOAA/NWS/NCEP/CPC

National V Drught Mitigation Cente



# **MWD's History in Conservation**

- National leader in regional water conservation programs for over 3 decades (Conservation Credits, ICP etc.)
- First funder of seminal research in the field (e.g. ULFT field studies, PRSVs)
- Support for retail member agency programs an early model for the nation
- Regionalizing programs bring economies of scale, higher savings, and real-time management systems
- So.... what else is out there to do?



# **Observations on Water Efficiency**

- Indoor plumbing and appliance codes, standards, and labeling are saving water
- Outdoor water use remains a frontier for improvement
- Water loss reduction programs are rarely incentivized, despite significant benefits
- Explore the value of ordinances
- Motivate the consumer
- Provide appropriate levels of funding



# **Plumbing Product Trends**

## Water Consumption by Water-Using Plumbing Products and Appliances - 1980 to 2012

Water-using Fixture or Appliance	1980s Water Use	1990 Requirement	EPAct 1992 Requirement	2009 Baseline Plumbing Code	2012 'Green Code' Requirement	% Reduction in avg water use since 1980s
Residential Bathroom Lavatory Faucet	3.5+ gpm	2.5 gpm	2.2 gpm	2.2 gpm	1.5 gpm	57%
Showerhead	3.5+ gpm	3.5 gpm	2.5 gpm	2.5 gpm	2.0 gpm	43%
Toilet - Residential	5.0+ gpf	3.5 gpf	1.6 gpf	1.6 gpf	1.28 gpf	74%
Toilet - Commercial	5.0+ gpf	3.5 gpf	1.6 gpf	1.6 gpf	1.6 gpf <sup>1</sup>	68%
Urinal	1.5 to 3.0+ gpf	1.5 to 3.0 gpf	1.0 gpf	1.0 gpf	0.5 gpf	67%
Commercial Lavatory Faucet	3.5+ gpm	2.5 gpm	2.2 gpm	0.5 gpm	0.5 gpm	86%
Food Service Pre-rinse Spray Valve	5.0+ gpm	No requirement	1.6 gpm (EPAct 2005)	No requirement	1.3 gpm	74%
Residential Clothes Washer	51 gallons/load	No requirement	26 gallons/load (2012 standard)	No requirement	16 gallons/load	67%
Residental Dishwasher	14 gallons/ cycle	No requirement	6.5 gallons/cycle (2012 standard)	No requirement	5.0 gallons/cycle (ASHRAE S191P)	64%

gpm: gallons per minute gpf: gallons per flush

Annual Indoor Use	REUWS1		REUWS2 (N=763)		
Average (kgal/hh)	64.6		50.2 (22% decrease)		
Median (kgal/hh)	58.4		45.5		
$70 \\ 60 \\ 50 \\ 40 \\ 30 \\ 20 \\ 10 \\ 0 \\ 10 \\ 0 \\ 10 \\ 10 \\ 0 \\ 1 \\ 1$		REUW	This decrease is due to factors that are similar in all sites (e.g. # residents and types of fixtures). 7S2 It does represent a trend.		
Average	Median				

10/9/2014, Water Smart Innovations Conference, Las Vegas, NV





# **Observations on Water Efficiency**

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# **Curbing Outdoor Water Waste**

- Over 50% of residential water use is outdoor landscape watering, with most outdoor irrigation highly inefficient and largely wasted
- Adopting and aggressively enforcing local outdoor watering restriction and water waste ordinances are key to achieving needed reductions
- Important to minimize outdoor water waste both in irrigation systems AND landscape plant material choices
- Turf replacement programs becoming common across the country



# **Turf Replacement**

- AWE published in January a literature search on available outdoor water savings research
- Preliminary results show that significant water savings can be achieved through removal of traditional high water use landscape
  - "Florida-Friendly" landscape reduced outdoor use 50 - 75%
  - Turf removal in Las Vegas saved ~50% or more



# **Savings of Turf Replacement**

- Compared with other measures examined in the Phase 1 report, the water savings from landscape transformation appeared significantly larger than other outdoor programs
- AWE will likely study these programs in more detail in Phase 2
- Studies can be underway while the replacement programs are running
- To further guarantee water savings, ensure that the irrigation system is "transformed" at the same time as the landscape





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CONSERVATION

#### Main

**Drought Restrictions** 

Residential Outdoor Programs & Rebates WaterSaver Landscape Coupon Irrigation Design Rebate WaterSaver Irrigation Consultation 7 Steps to Xeriscaping Dressed for Success Pool Filter Rebate Rain Harvesting Watering Efficiently WaterSaver Lane WaterSaver Landscape Care Guide **Drought-Tolerant Grass** Varieties **Residential Indoor Programs** & Rebates **Commercial Programs &** Rebates Your Role in Conservation

Ordinance

**Conservation Case Studies** 

Calendar of Events

### **Residential Irrigation Design Rebate**

#### Cash in when you kick the irrigation habit with our bigger and better rebates!

GardenStyleSA-friendly landscapes come in all shapes and sizes for every taste and budget. They can be neat and subdued, dominated by orderly evergreen shrubs lined up in a row, or wild and woolly with colors exploding from various corners of the yard. They may have a knockout patio, an herb garden, a focus on butterflies, or colorful pots and wacky yard art throughout. But the one thing they do have in common is the ability to live primarily on rainfall and maybe an extra shot of water on occasion.

SAWS has assembled all the programs and information you need to have the landscape you want without the high water bill. Between our personalized Irrigation Consultation, Garden Tips found on GardenStyleSA.com, landscape and patio coupons and numerous workshops and events throughout the year with our partners, we can help you achieve your landscape goals without relying on an irrigation system.

That's why SAWS wants to pay you cash to kick the irrigation habit! But it all starts with an Irrigation Consultation with one of our Conservation consultants. Â So whether you're ready to get rid of your system completely or make target changes like capping a spray zone you no longer need, schedule your Irrigation Consultation today to find out what rebates are available to you.

#### **Maximize the Rebate**

The rebate is available to San Antonio Water System (SAWS) water customers ready to make permanent structural changes to their irrigation systems that result in permanent water savings. Ditch the entire system and receive more of a rebate. Here's why SAWS is doing this:

In San Antonio, customers that have irrigation systems on average use 70 percent more water in the summer and 50 percent more on an annual basis than those customers that do not have irrigation systems. Most of this irrigation is unnecessary for the plants and results in higher water bills for customers and higher infrastructure costs for SAWS to meet higher peak water demands.

#### Let's Get Started

You can kick the irrigation habit completely by permanently disabling your irrigation system

#### QUICK LINKS Watering Efficiently



tips and techniques to take the guesswork out of landscaping.

GardenstylesA.com



#### Aquifer Level 654.6 | Stage 2: Water On Your Day

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Q Restriction Details | Report Water Waste Infrastructure Education Environment Jobs **Business Center** Who We Are Your Water Conservation Service



HOME > CONSERVATION > OUTDOOR PROGRAMS & REBATES > MAIN

#### CONSERVATION

#### **Residential Outdoor Programs & Rebates**

READ MORE

READ MORE

Main

#### Drought Restrictions

Residential Outdoor Programs & Rebates

> WaterSaver Patioscape Coupon WaterSaver Landscape Coupon

Irrigation Design Rebate

WaterSaver Irrigation Consultation

7 Steps to Xeriscaping Dressed for Success Pool Filter Rebate

Rain Harvesting Watering Efficiently

WaterSaver Lane WaterSaver Landscape Care Guide

WaterSaver Plant List WaterSaver Newsletter Drought-Tolerant Grass Varieties

Garden Style San Antonio

Residential Indoor Programs & Rebates

Commercial Programs & Rebates

Your Role in Conservation

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Calendar of Events

#### WaterSaver Patioscape Coupon

WaterSaver Landscape Coupon

Irrigation Design Rebate

Through outdoor conservation programs such as our WaterSaver Landscape coupon and

educational programs that reach out to all San Antonians, we want to encourage residents to

conserve, saving you money on your water bill while preserving our precious water supplies.

The Patioscape Coupon provides residential water customers another way to replace parts of their traditional lawns with a more permanent water-saving solution - a new patio. READ MORE

This seasonal program encourages residential water customers to transform portions of their traditional lawns by removing grass and

creating garden beds made up of hardy, drought-tolerant plants.

Through our Residential Irrigation Design Rebate you can identify





#### WaterSaver Irrigation Consultation

design flaws that can result in healthier landscapes.

Did you know your irrigation system can use more water in a week than your family uses for all its other needs in a month? Together, let's find out how much water and money you can save! READ MORE





#### Swimming Pool Filter Rebate

Replacing your sand or D.E. filter with a high-efficiency cartridge filter system can reduce your water consumption by as much as 20,000 gallons per year. READ MORE

Indoor Programs & Rebates



GardenstylesA.com

**OUICK LINKS** 

Commercial Programs & Rebates

Ordinance

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Thursday, May 21, 2015



## Water Loss

The amount of water lost due to leakage in the distribution system of the State's water suppliers is not well known. This is largely due to the fact that not all water suppliers perform regular water loss audits. If water audits are not conducted, it is difficult for a water agency to know the extent of its losses and unlikely that the agency will implement practices to reduce these losses.

# **Reduce Water Agency Leakage**

- It is difficult to ask consumers to conserve when water agency distribution systems are leaking 15% or more water
- Recovering leaks is cost-effective
- Checking for meter errors improves the accuracy of revenue collection from customers, thus helping with agency revenue loss issues
- Leakage recovery usually not incentivized because it is perceived as the necessary "cost of doing business" and good management, not conservation



# **Benchmark Examples (in AF)**

San Francisco PUC	\$439
Nashville Water Works	\$318
Los Angeles DWP	\$347
California Grant Program	\$658
Las Vegas WD	\$464
Large Western US Utility	\$318
Orange County Utilities, FL	\$463
Average	\$430
Maximum	\$658
Minimum	\$318

Source: Julian Thornton and Reinhard Sturm

Alliance for Water Efficiency

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# **Ordinances Are Useful Tools**

- Can shape customer behavior (e.g. outdoor watering restrictions)
- Can shape new development (e.g. AWE's Net Blue Water Offset Ordinance)
- Can transform the market (e.g. local green codes)

## BUT

- Ordinances MUST be enforced to be effective, which costs significant resources
- Without steady budgetary support for enforcement, ordinances are useless



# **Water-Neutral Growth Ordinance**

- Net Blue: A 3-year project to promote sustainable communities
- Model ordinance communities can tailor to create a water demand offset approach
- Partners: Environmental Law Institute and River Network
- Challenge grant to support pilot opportunity



# **Non-Potable Water Ordinance**

- San Francisco Dept. of Public Health adopted regulations on operating alternate water source systems
- SFPUC's headquarters is a "Living Machine"
- Santa Monica, New York City, and San Francisco all provide financial incentives for buildings with onsite water systems that reduce potable water demand



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# **Customer Still Clueless**

- All surveys and interviews show that the average customer thinks they use about 25 gallons per day per household – including outdoor water use
- They have no idea where the water is actually consumed, and assume that the largest water use is the shower
- A significant investment in an extensive media campaign is money well spent to educate them on needed actions
- Denver Water's campaign is one of the most effective in the nation











## Explore Water Conservation With Our Water Use Calculator

Want to conserve water? Not sure where to start? Our Water Calculator quickly estimates how much water your household uses and compares it to a similar average and a highly efficient home.

The Water Calculator also shows you where to begin your home water conservation efforts. Throughout Home Water Works, you'll find useful tips and resources for saving water and money without sacrificing comfort or convenience.

## Does Your Landscape Have a Drinking Problem?

Read about outdoor water conservation for helpful information on how to keep your landscape looking beautiful while staying water efficient.

# How much water do you use?

#### Quick & Easy Tips For Saving Water at Home and Work

Looking for quick and easy ways to save water? Read our <u>water conservation and</u> <u>saving tips</u> to see how easy it can be to conserve water at home and in the workplace!

Join our Never Waste

Campaign. Click Here

Get the bottle that will

CHANGE THE WAY

you think about

WATER.

# How much water do you use?

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### Let's Get Started!

Click an area on the home to input how much water you use, and learn how you can conserve water there. Answer for yourself only, and assume you are in your home for a 24-hour cycle.

My Daily Usage Roll over for results

and the second second

Percent Complete

Areas to Complete Roll over for number of questions

Carbon Footprint:

(lbs. CO2 /year)

# How much water do you use?

### Choose another area

Click an area on the home to input how much water you use, and learn how you can conserve water there.

My Results	Where I Use Water Energy In My	Water Ho	w Do I Compare?	My Answers My Wat	er Efficiency Plan
	Category	My House	Average House	Water-Wise House	<b>^</b>
	Toilet use	14590	21170	12210	
	Clothes washer use	8860	18350	8860	
	Shower use	8810	14450	8810	
	Faucetuse	10500	12540	10500	
	Leaks	8240	10300	8240	E
	Other/Miscellaneous use	3490	3490	1000	
	Bathtub use	5980	1490	5400	
	Dishwasher use	1330	1250	1330	
	INDOOR WATER USE	61790	83040	45340	
	HOT WATER USE	18410	24750	13510	
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Facebook 🗧

Twitter Learn about how the Water Calculator works here.

Carbon Footprint:

(lbs. CO2 /year)

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# **Westminster's Story**

- Citizen complaints on being asked to conserve when rates just go up anyway
- Westminster reviewed marginal costs for future infrastructure if conservation had not been done
- Since 1980 conservation has saved residents and businesses 80% in tap fees and 91% in rates compared to what they would have been without conservation
- Report posted at

www.financingsustainablewater.org





#### **RECENT NEWS**

- Water or Water Service? »
- Demand Forecasting 101 »

#### FEATURED RESOURCES

- <u>Case Study</u> Budget-based Rates
- <u>Case Study Hover Example</u> New case study title here



#### MEDIA

Get key facts on today's water challenges

Website Designed by ePageCity.com

WATER MANAGERS

Sustainable financial

management guidance

Rates, Revenue, Resources,

information and assistance on water conservation efforts. Learn More

Financing Sustainable Water is an initiative of the Alliance for Water Efficiency that was created to provide

practical information to guide utilities from development through implementation of rate structures that balance revenue management, resource efficiency and fiscal sustainability. Headquartered in Chicago, the

ELECTED OFFICIALS

Set your water utility up

for success

Alliance serves as a North American advocate for water efficient products and programs, and provides

CONCERNED CITIZENS

Learn how you can help create

a sustainable water future

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# **Funding is Key to Success**

- Consider conservation an investment; without adequate \$, there will be no significant savings
- Increase funding for the Innovative Conservation Program (ICP); it is a transformative program
- Link Water and Energy incentives; partner with the CEC (e.g. Water and Energy Technology Program) and CPUC (e.g. energy portfolio funding)
- Texas has allocated \$400 million of state funds for conservation and recycling; its water utilities are leaders in retail agency funding



<u>Agency</u>	<u>Budget Year</u>	<u>Total Budget</u>	<u>Conservation</u> <u>Budget</u>	Population served	<u>Conservation</u> <u>\$ per Capita</u>
City of Austin, Texas	2014-2015	\$260,350,403	\$3,401,203	946,587	\$14.45
San Antonio Water System, Texas	2015	\$572,900,000	\$66,873,000	1,600,000	\$41.80
Denver Water, Colorado	2015	\$344,018,621	\$2,557,766	1,300,000	\$1.97
Southern Nevada Water Authority, Nevada	2015	\$428,400,000	\$8,800,000	1,945,277	\$5.71
Seattle Public Utilities, Washington	2014	\$258,563,931	\$8,212,072	1,300,000	\$6.32
City of Tucson, Arizona	2015	\$218,085,060	\$3,050,000	712,700	\$4.28
City of San Diego, California	2011	\$537,331,327	\$5,343,063	1,320,000	\$4.05
San Diego County Water Authority, California	2014-2015	\$1,494,595,000	\$7,707,144	3,200,000	\$2.41
East Bay Municipal Utility District, California	2014	\$713,567,000	\$2,615,000	1,300,000	\$2.01
Metropolitan Water District of Southern California	2014-2015	\$1,890,000,000	\$40,000,000	18,400,000	\$2.17



#### AWE Exemplary Programs Webinar on Innovative CII Water Efficiency Programs

The second webinar in the series showcasing exemplary programs of AWE's members will feature the internationally recognized commercial programs of City West Water in Melbourne, Australia. The webinar will



offer practical advice on how to set up these innovative programs in your service area. Learn more here.

#### AWE Wins 2014 U.S. Water Prize

The Alliance for Water Efficiency has won the 2014 U.S. Water Prize in the non-profit category. The prestigious award is given annually by the U.S. Water Alliance to organizations that



engage in sustainable solutions and advance holistic, watershedbased approaches to water quality and quantity challenges. The prize was presented to AWE on April 7 at the National Geographic Society Headquarters in Washington, D.C. Learn more here.

### AWE in Time Square!

AWE's Never Waste ad is now running on the CBS "Super Screen" strategically positioned at 42nd St. between 7th and 8th Ave. in the heart of the Times Square Plaza. Our 10 second ad can be seen below.



Calend	dar of Events
4/23/2014	International Emerging Technology Symposium
5/6/2014	2nd Annual Smart Water Leadership Summit
5/6/20 <mark>1</mark> 4	AWE Webinar - Exemplary Programs Series: Innovative CII Water Efficiency Programs
5/20/2014	2014 Energy Efficiency Global Forum
5/30/2014	River Rally 2014

#### How Much Water Do You Use?

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Important Information Water Efficiency Watch Newsletter -March 2014 a AWE Webinar Page ANSI/AWWA G480-13 Standard E Colorado River Basin Water Supply & 1 Demand Study Released JOBS, INTERNSHIPS, AND RFP/RFQ BOARD a AWE Water Conservation Tracking Tool Water Conservation Program **Operations Standard** AWE-ACEEE Water and Energy Research Work Group ISAWWA Water Utility Survey Report March 2012 FedCenter.gov Announces New Water Efficiency Program Area



A VOICE AND A PLATFORM PROMOTING THE EFFICIENT AND SUSTAINABLE USE OF WATER



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