

Water Efficiency: Issues and Opportunities

Mary Ann Dickinson
President and CEO

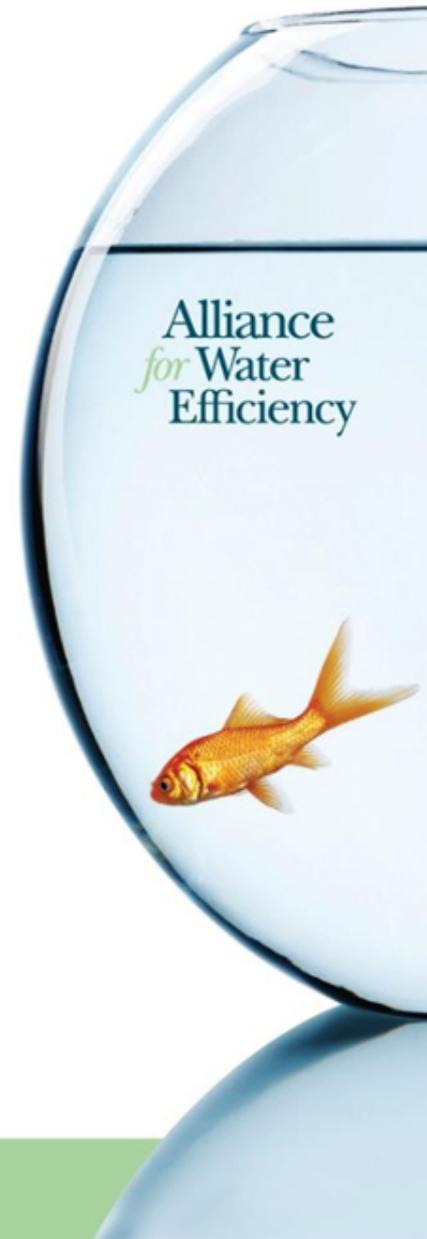
A VOICE AND
A PLATFORM
PROMOTING THE
EFFICIENT AND
SUSTAINABLE
USE OF WATER



Alliance *for* Water Efficiency

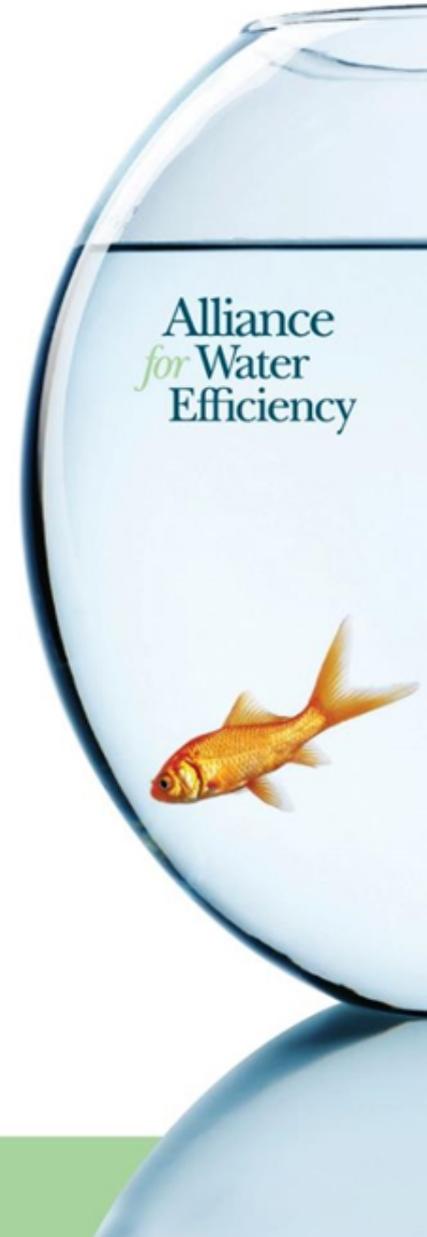
Issues and Opportunities

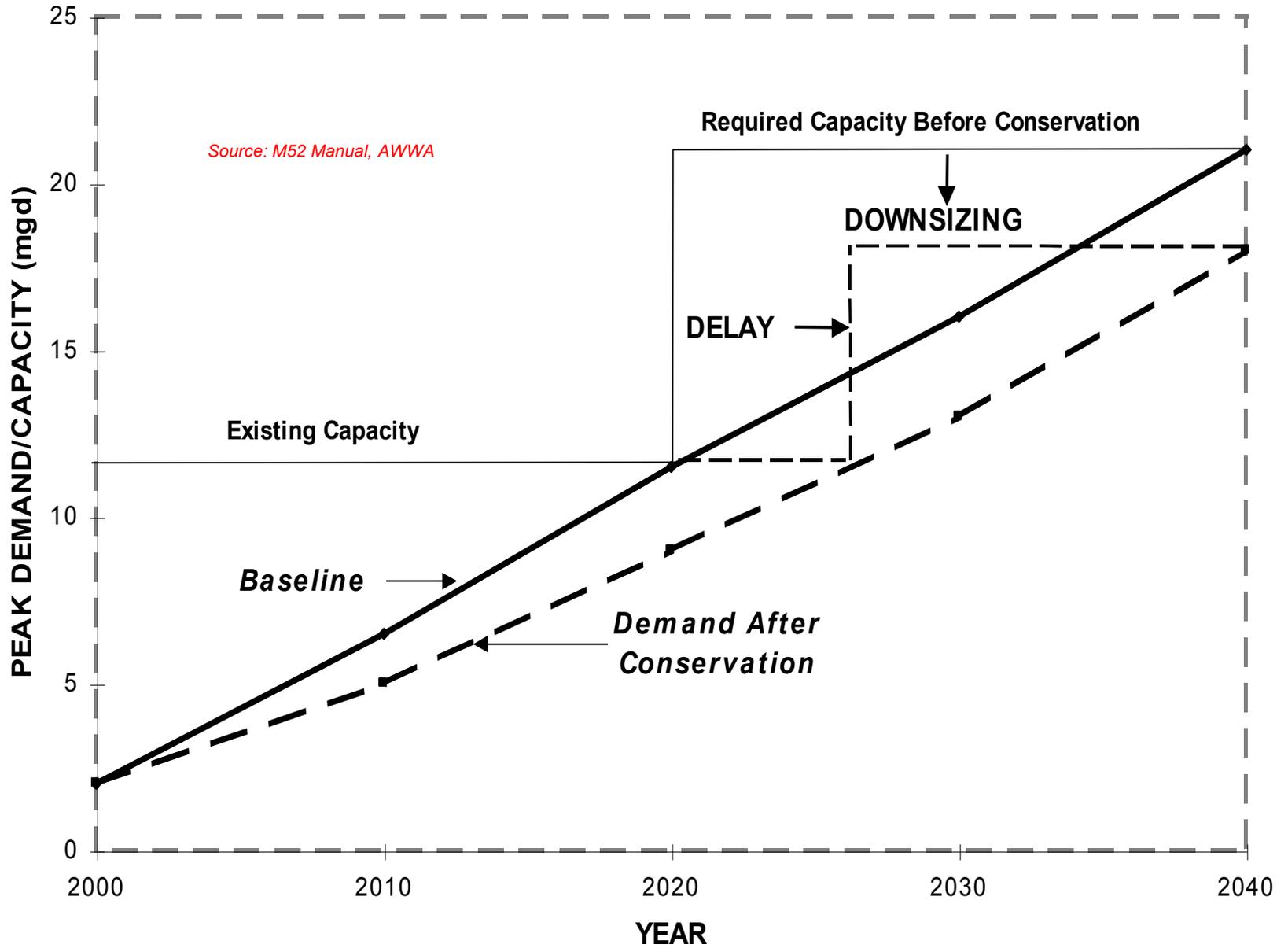
1. Water efficiency has multiple benefits
2. Water efficiency is cost effective but reduced water sales are helping rates rise
3. Water/Energy policy not connected
4. Water/Land Use not connected
5. Inconsistent public policy in general on water efficiency



Water Efficiency Benefits

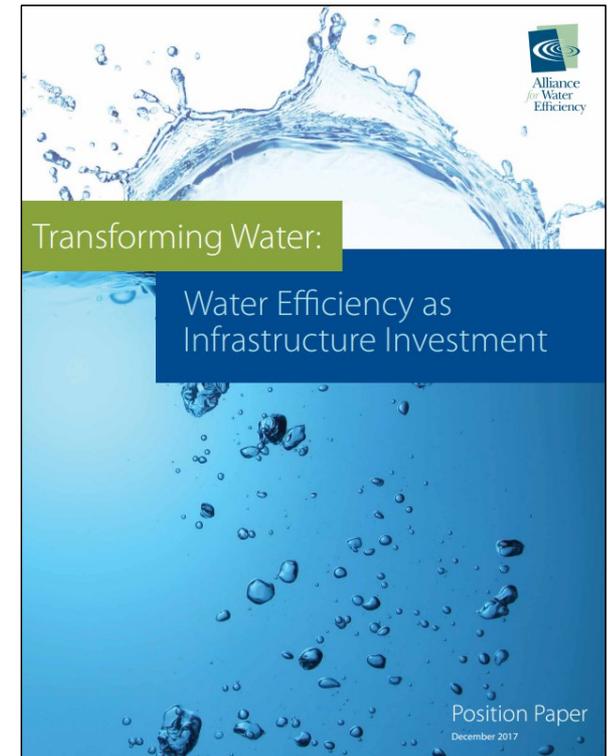
- **Drought:** immediate savings during scarcity.
- **Planning:** lessen gap between growing demand and dwindling water supply.
- **Environmental:** provide base flows for streams and wetlands, sustainable GW.
- **Energy:** reduce need for electricity with resulting reduction in greenhouse gases.
- **Economic:** avoid higher expenses for supply or treatment.
 - *A quarter trillion dollars by the year 2020*
 - *Deferral of facilities will save millions*





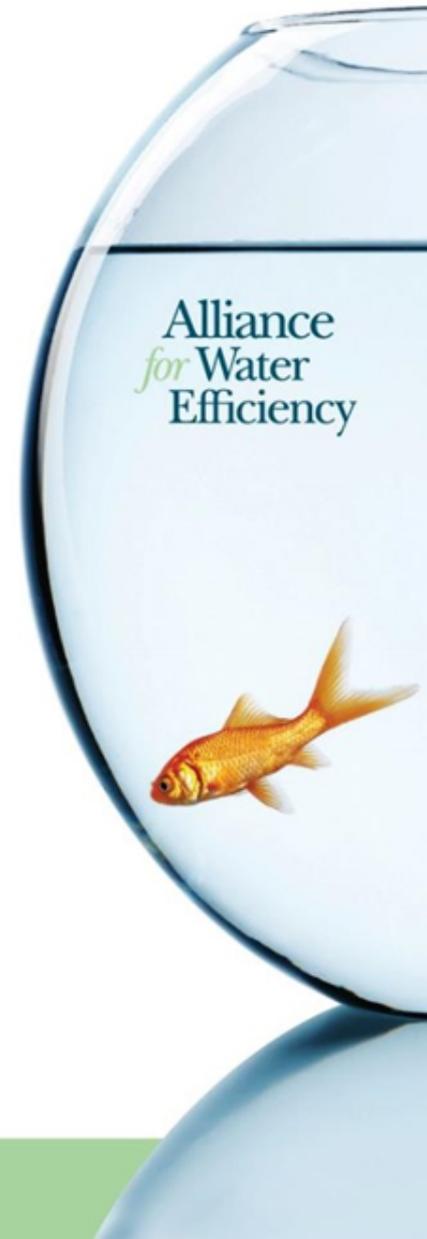
Transforming Water Report

- Evaluates the national economic benefit of water efficiency infrastructure investments
- Direct investment of \$10 billion in water efficiency programs can boost U.S. GDP by \$13 to \$15 billion and boost employment by 120,000 to 260,000 jobs
- Could save between 6.5 and 10 trillion gallons of water, with resulting energy reductions

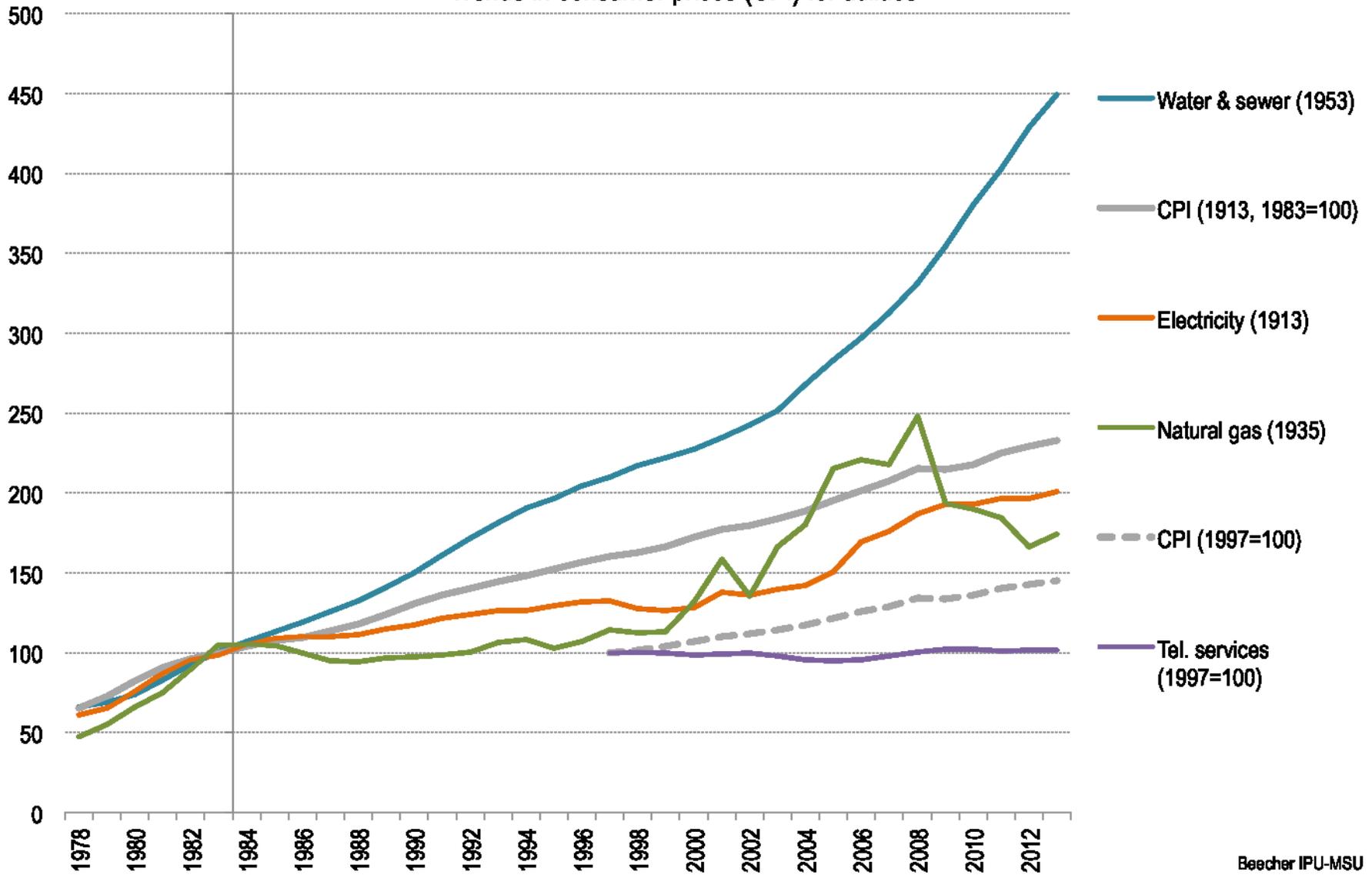


Issues and Opportunities

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Trends in consumer prices (CPI) for utilities



CONSERVATION DRIVING UP WATER RATES



Environmental concerns challenge bottom line at Louisville Water Co.

SUNDAY EXCLUSIVE

By James Bruggers

jbruggers@courier-journal.com
The Courier-Journal

Louisville Water Co. officials never talk about conservation — not that it has mattered. Water use has declined on its own.

While that may sound like a good, green development for a city seeking a more sustainable future, there's a downside to the declining consumption: It's helping to drive up customers' rates — raising them more than 80 percent since 1999.

As Louisville's economy has shifted from a water-needy industrial base to a service-based one, and as water efficiency increasingly has become a national priority, the declining consumption has helped raise rates even faster than the rate of inflation.

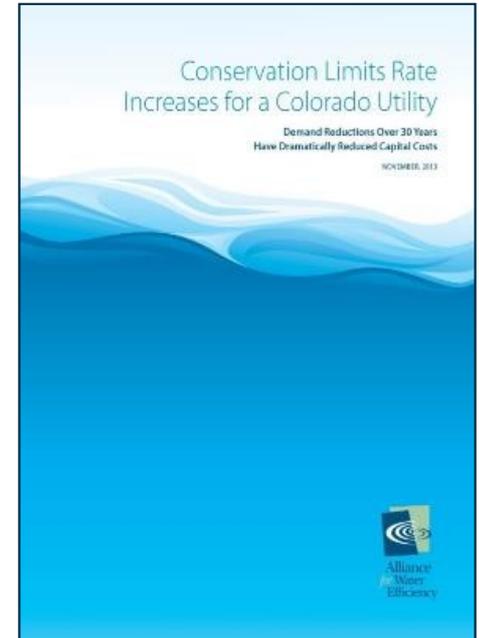


ONLINE

Watch a video of environmental reporter James Bruggers discussing Louisville's changing water picture at www.courier-journal.com/green.

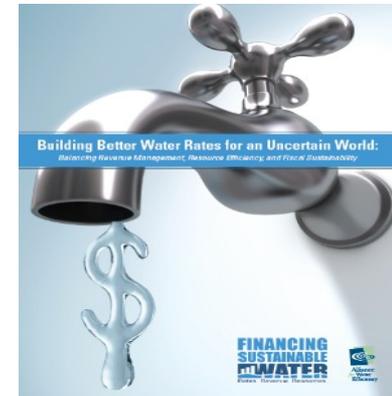
Westminster's Story

- Citizens complaining that they are being asked to conserve when rates just go up
- 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 **Financingsustainablewater.org**



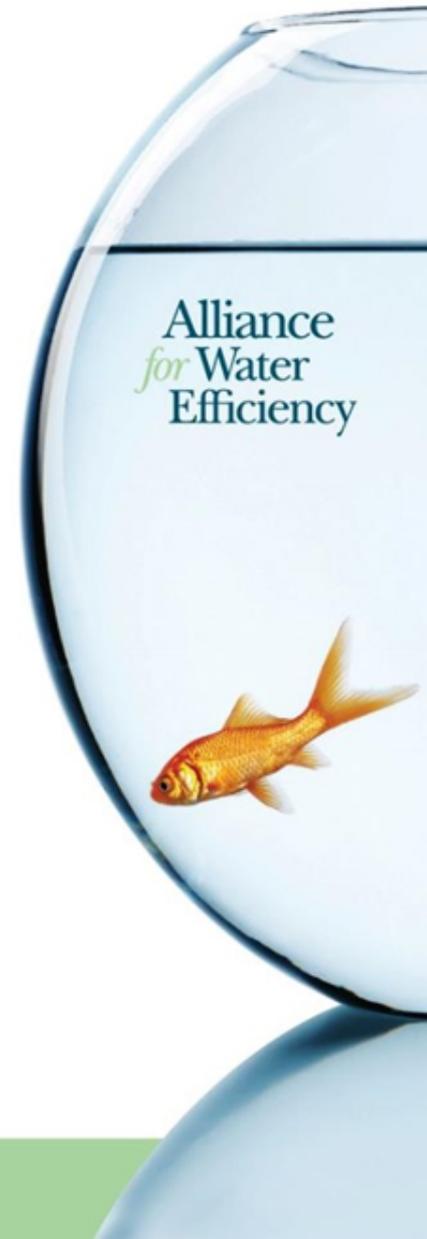
Financing Sustainable Water

- **Building Better Rates in an Uncertain World:** A Handbook to explain key concepts, provide case studies and implementation advice
- **AWE Sales Forecasting and Rate Model:** Innovative, user-friendly tool to model scenarios, solve for flaws, and incorporate uncertainty into rate making
- **FinancingSustainableWater.org:** Web-based resources to convene the latest research and information in one location

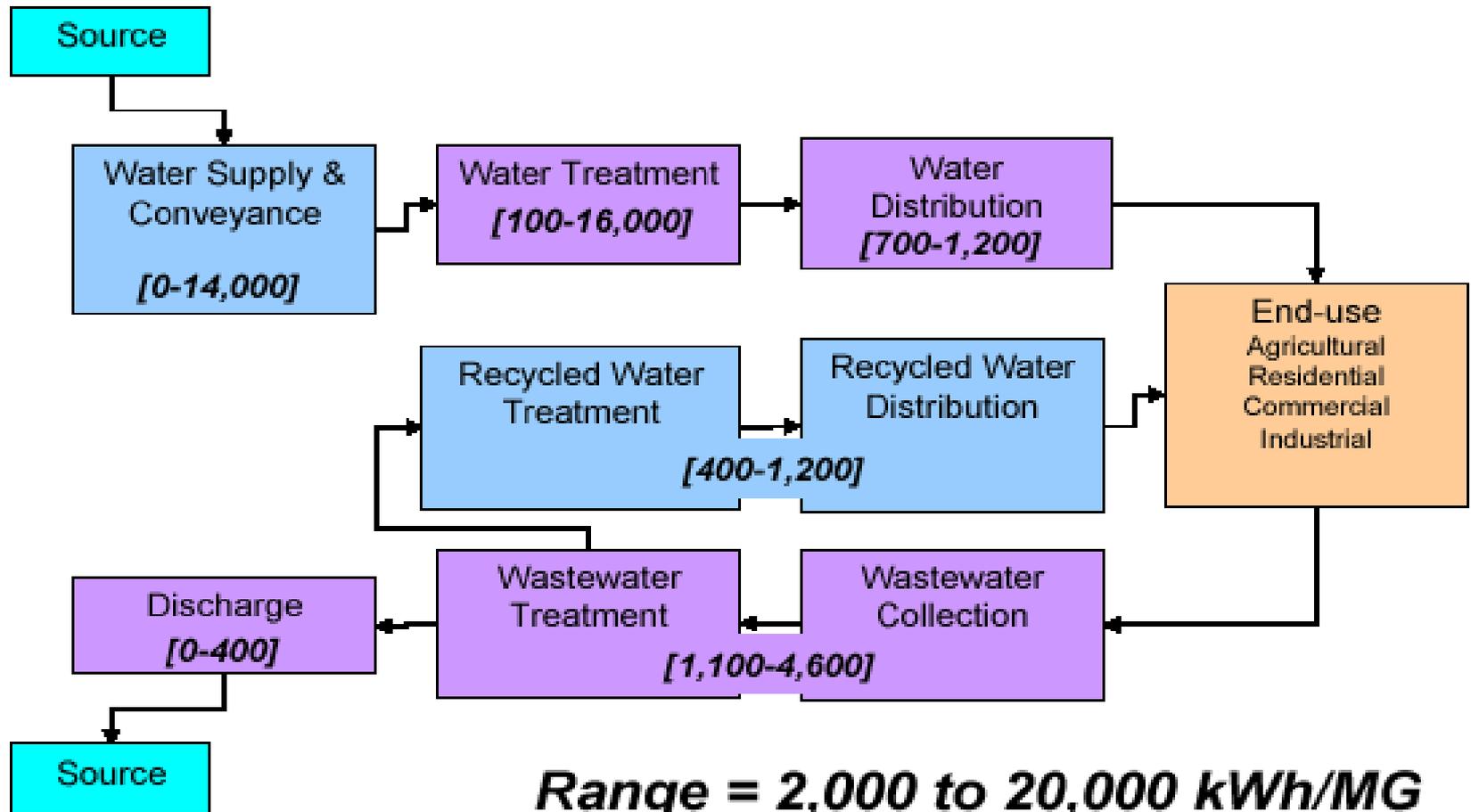


Issues and Opportunities

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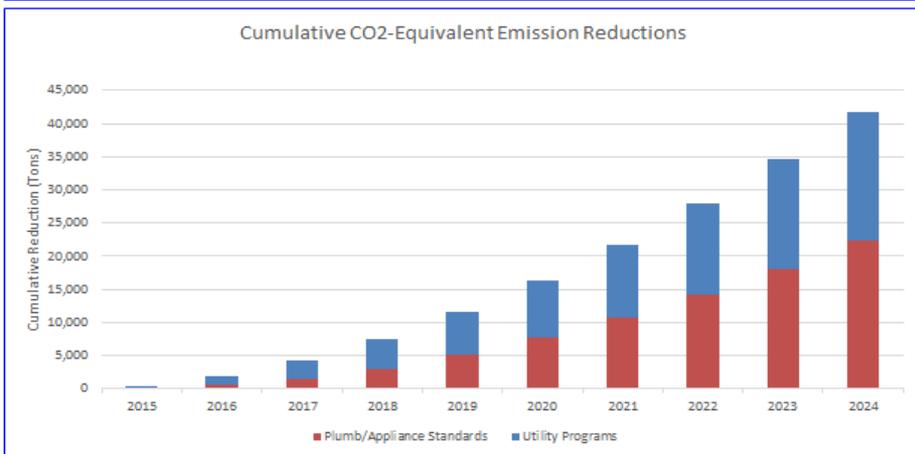
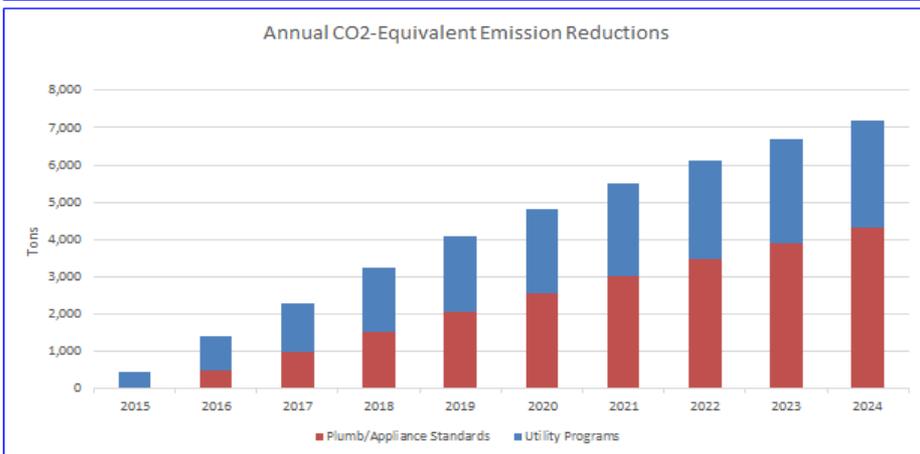
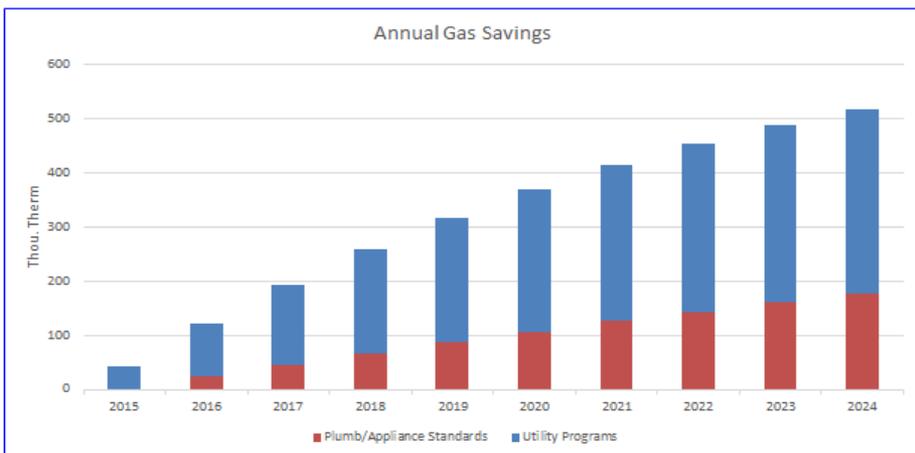
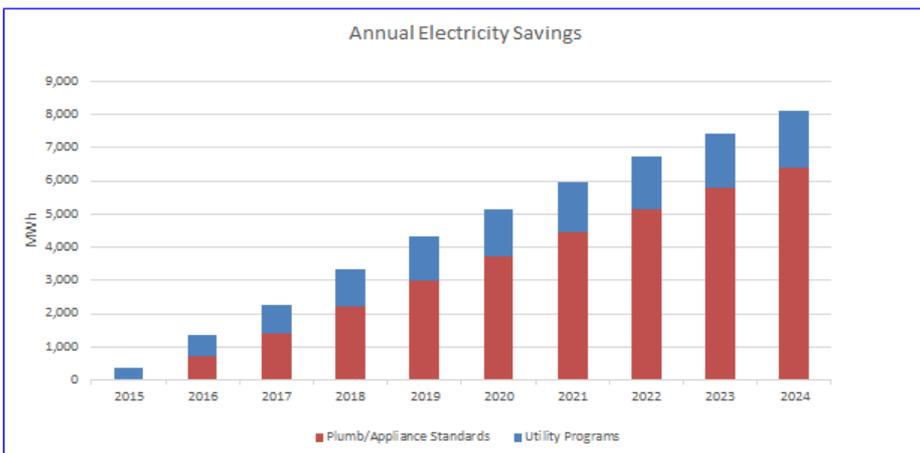
Water Energy Intensities (CEC-2005)



AWE CONSERVATION TRACKING TOOL: GHG REDUCTION BENEFITS WORKSHEET

GHG reduction: This worksheet summarizes the calculated reduction in CO₂-equivalent emissions due to plumbing/appliance standards and planned conservation. Below the charts are tables that summarize the results in five-year and annual increments.

Years to Display:



Summary Calculated Energy Savings

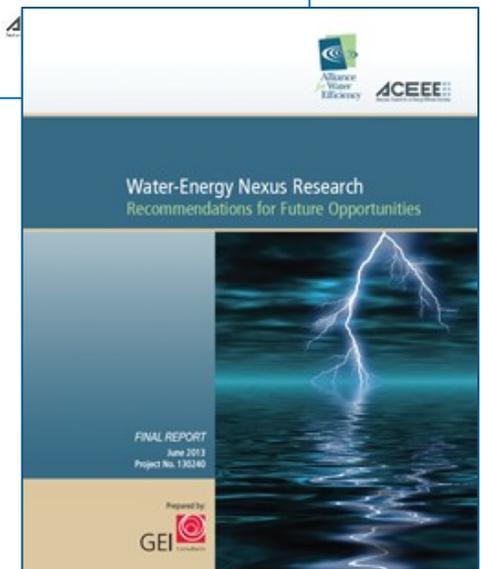
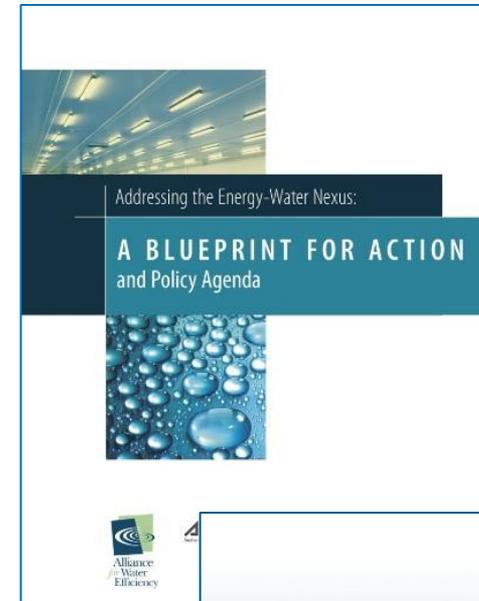
Total Annual Energy Savings	Units	2015	2020	2025	2030	2035	2040	2045	2050
Electricity	MWh	374	5,163	8,713	11,541	12,506	13,490	14,526	15,191
Natural Gas	Thou. Therm	43	370	548	673	522	451	411	378

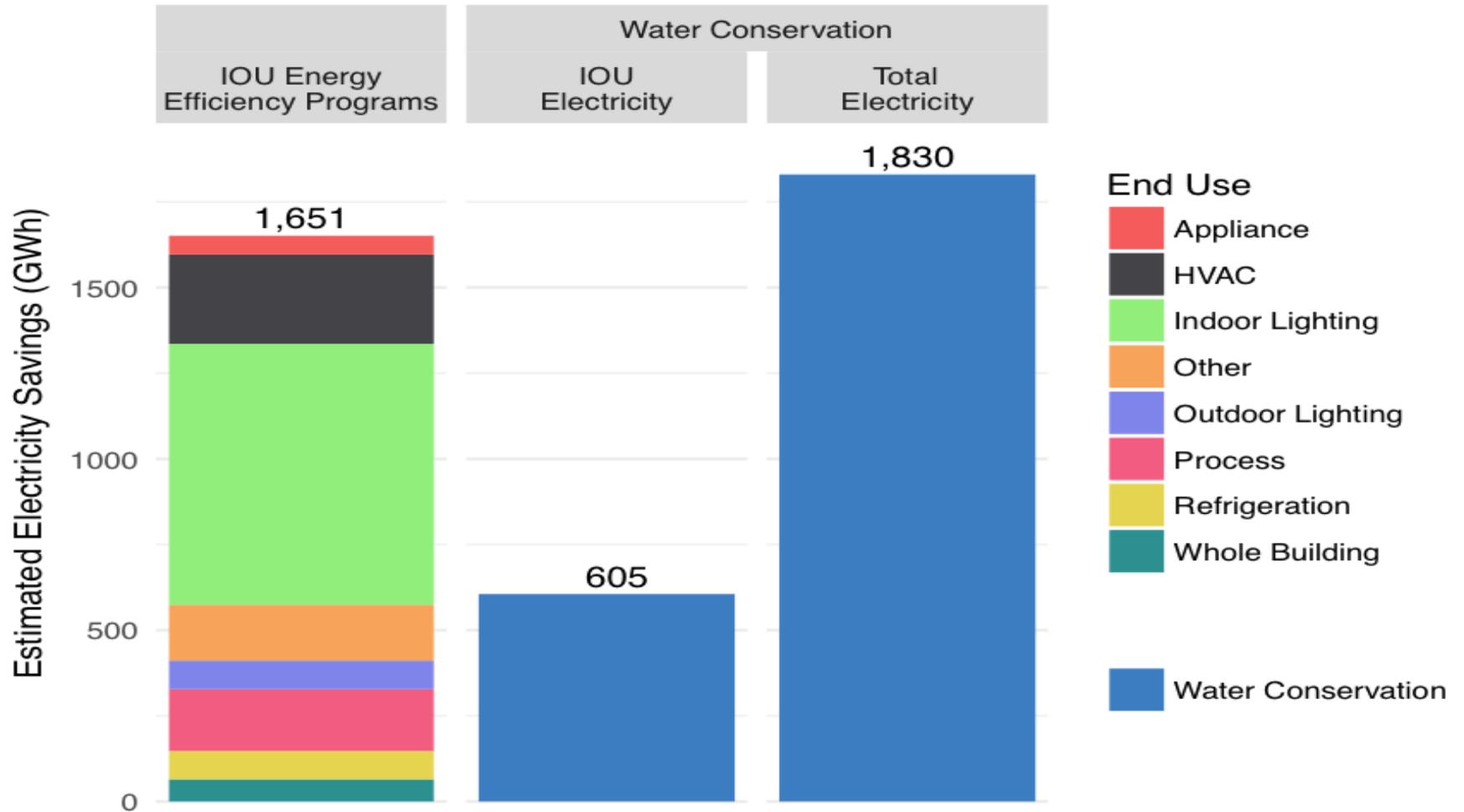
Cumulative Energy Savings Since 2015	Units	2015	2020	2025	2030	2035	2040	2045	2050
Electricity	MWh	374	16,841	53,768	106,105	166,587	232,144	302,784	377,469
Natural Gas	Thou. Therm	43	1,304	3,724	6,854	9,730	12,104	14,235	16,190

Value of Annual Energy Savings	Units	2015	2020	2025	2030	2035	2040	2045	2050
Electricity	Thou. 2014	\$56	\$784	\$1,340	\$1,797	\$1,972	\$2,154	\$2,348	\$2,487
Natural Gas	Thou. 2014	\$63	\$559	\$836	\$1,041	\$818	\$715	\$660	\$614

Water and Energy

- Blueprint document issued with over 50 recommendations from the stakeholder workshop
- Research Report and recommendations published by AWE and ACEEE
- No State has yet acted on any of them, nor has the federal government
- Reports posted at a4we.org

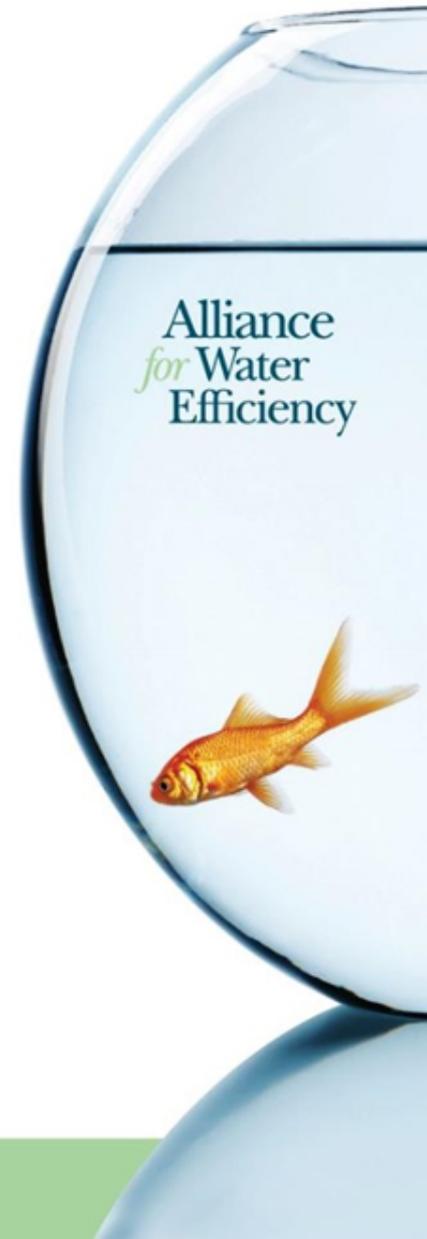




Source: UC Davis Center for Water-Energy Efficiency
 Electricity savings from IOU EE program savings (July 2015 – June 2016) by end use vs. estimated electricity savings (IOU & total) from statewide water conservation

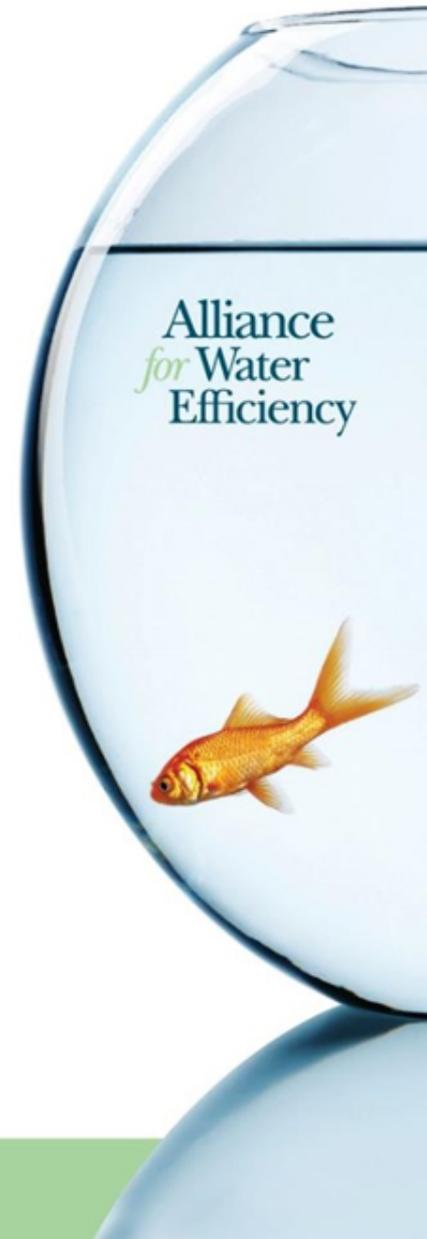
Policy Messages

- Need to fund cold water conservation, not just hot water conservation.
- Funding for the saved energy should go to water utilities -- not energy utilities -- if they funded it.
- GHG reduction credit for the saved energy should go to water utilities -- not energy utilities -- if they funded it.

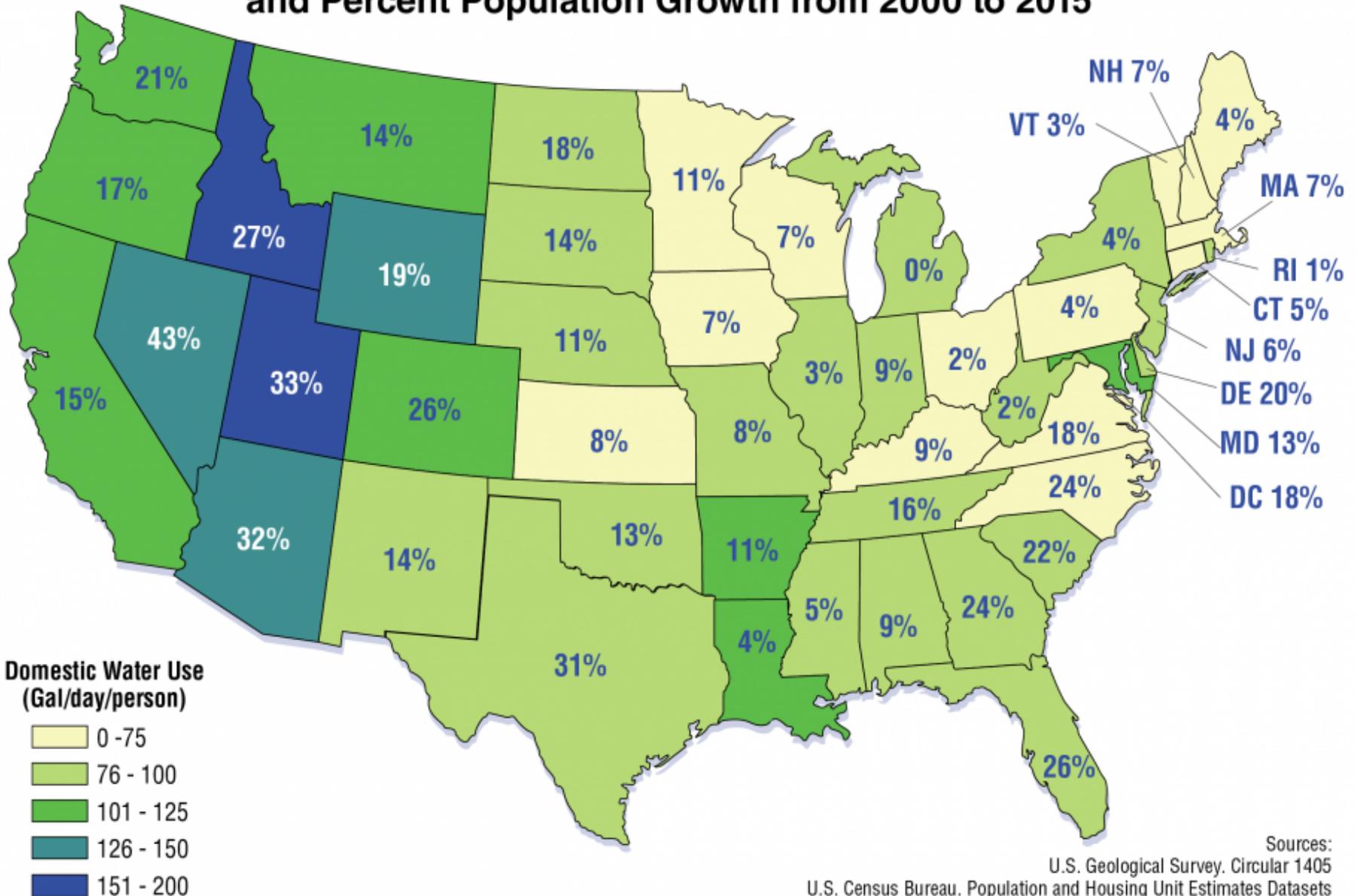


Issues and Opportunities

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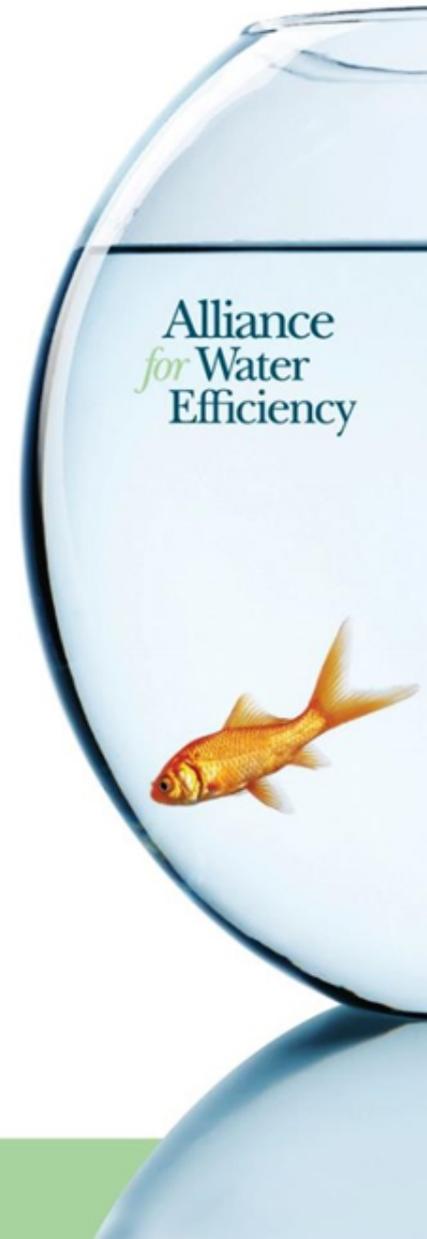
Domestic Water Use in Gallons per Day per Person and Percent Population Growth from 2000 to 2015



Sources:
 U.S. Geological Survey, Circular 1405
 U.S. Census Bureau, Population and Housing Unit Estimates Datasets

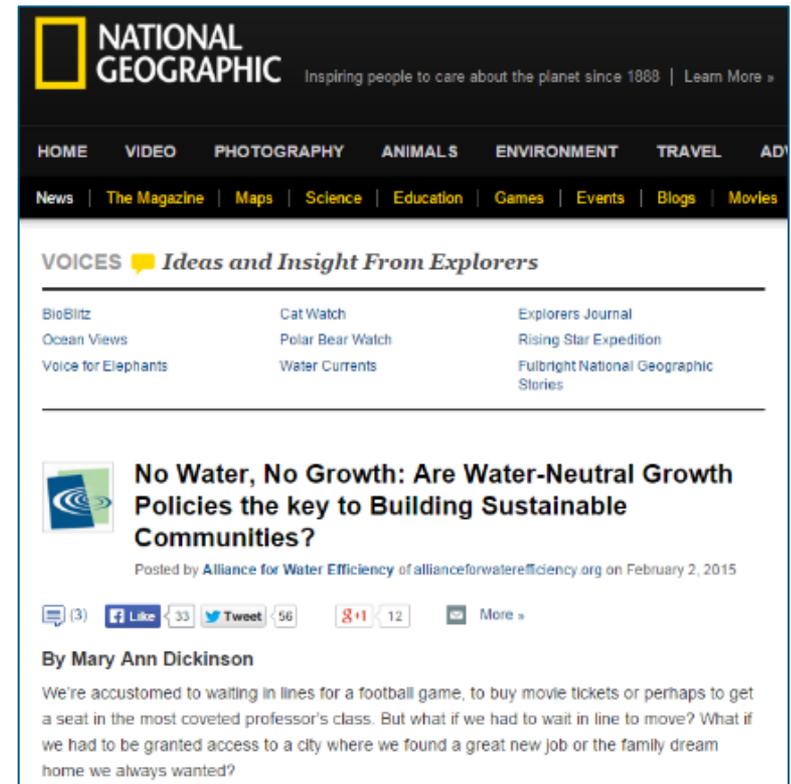
The Problem

- Many cities already challenged to meet customer demands for water
- Growing population and certain economic growth will place even more pressure in arid and water-short areas
- Water suppliers reluctant to be involved in land use planning
- Customers concerned about new development under restrictions



Net Blue: Water-Neutral Growth

- National model template ordinance that can be tailored to create a customized water demand offset approach
- Worked with 7 partner cities across the country to develop approach
- Free Net Blue Toolkit



The image is a screenshot of a National Geographic website article. At the top, the National Geographic logo is visible with the tagline "Inspiring people to care about the planet since 1888". Below the logo is a navigation bar with links for HOME, VIDEO, PHOTOGRAPHY, ANIMALS, ENVIRONMENT, TRAVEL, and AD. A secondary navigation bar includes links for News, The Magazine, Maps, Science, Education, Games, Events, Blogs, and Movies. The main content area features a "VOICES" section with the subtitle "Ideas and Insight From Explorers". Under this section, there are three columns of links: BioBlitz, Ocean Views, Voice for Elephants; Cat Watch, Polar Bear Watch, Water Currents; and Explorers Journal, Rising Star Expedition, Fulbright National Geographic Stories. Below this is a featured article with a blue and white icon of a globe and water. The article title is "No Water, No Growth: Are Water-Neutral Growth Policies the key to Building Sustainable Communities?". It is attributed to the Alliance for Water Efficiency and dated February 2, 2015. Social media sharing options are shown for comments (3), Facebook Like (33), Tweet (56), and Google+ (12). The author is identified as Mary Ann Dickinson. The article text begins with "We're accustomed to waiting in lines for a football game, to buy movie tickets or perhaps to get a seat in the most coveted professor's class. But what if we had to wait in line to move? What if we had to be granted access to a city where we found a great new job or the family dream home we always wanted?"

Net Blue Toolkit

- Model Ordinance
- Model Ordinance User Guide
- Three Ordinance Examples
- Offset Methodology Workbook
- Offset Methodology User Guide
- Three Offset Examples matching the ordinance examples
- Outreach Materials
- Posted at www.net-blue.org



Offset Strategy Worksheet

This worksheet can be used to evaluate and select a suite of measures to offset the demand of new or expanded water use. It contains example offset strategies related to indoor water fixture and appliance replacements and retrofits. Cooling tower retrofits are also included. Additionally, the user can enter custom measures. Example savings estimates are provided for the included offsets, but the user is encouraged to evaluate savings of offset strategies in relation to their service area.

User inputs and selections are required in cells with a white background: User Input Green cells do not require any input or selection.

Selecting "Yes" in 'Column J' will include the offset measure in the *Selected Offsets* worksheet as long as 'Column D' is populated with a savings estimate value.



NET BLUE

WATER
NEUTRAL
GROWTH

Step 1: Enter Information about New or Expanded Water Use

Projected Water Demand of New or Expanded Use	450,000.00	Gallons per Year	Select Gallons, Million Gallons, or Acre-Feet per Year
Percent of New or Expanded Use that Must be Offset	200%		
Total Offset Requirement for New or Expanded Water Use	900,000.00	Gallons per Year	

Step 2: Enter Persons Per Household for the Service Area (used to generate savings for toilet replacements)

Service Area Average Persons Per Household Single-Family	2.5
Service Area Average Persons Per Household Multifamily	2

Step 3: Define and Select Water Demand Offset Strategies

Offset Strategy	Example Savings Estimate Per Replacement/Retrofit in Gallons Per Year*	User Specified Savings Estimate Per Replacement/Retrofit in Gallons Per Year	Approximate Number of Replacements/Retrofits to Meet Offset if Sole Strategy?	Related Plumbing Code?	Useful Life	Seasonality of Water Savings	Percent of Total Offset Requirement per Replacement/Retrofit	Include in Selected Offset Table?
Single-Family High-Efficiency Toilet Replacements	9,541	9,500	189	Yes	Theoretically Permanent	Even throughout year	1%	Yes
Multifamily High-Efficiency Toilet Replacements	16,472	16,000	113	Yes	Theoretically Permanent	Even throughout year	2%	Yes
Showerhead Replacement Single-Family	2,062	2,062	873	Yes	Theoretically Permanent	Even throughout year	0%	No
Showerhead Replacement Multifamily	1,898	1,898	948	Yes	Theoretically Permanent	Even throughout year	0%	No
Single-Family Clothes Washer Replacement	7,043	7,043	256	Yes	Theoretically Permanent	Even throughout year	1%	Yes
Multifamily Clothes Washer Replacement	25,310	25,310	71	Yes	Theoretically Permanent	Even throughout year	3%	Yes
CII Urinal Replacements or Retrofits	6,206	6,206	290	Yes	Theoretically Permanent	Even throughout year	1%	No
CII High-Efficiency Toilet Replacements	13,020	13,020	138	Yes	Theoretically Permanent	Even throughout year	1%	Yes
Laundromat Clothes Washer Replacements	31,435	31,435	57	Yes	Theoretically Permanent	Even throughout year	3%	Yes
Commercial Dishwasher Replacements	57,757	57,757	31	No	20 Years	Even throughout year	6%	No
Pre-Rinse Spray Valve Replacements	28,285	28,285	64	Yes	Theoretically Permanent	Even throughout year	3%	Yes
Commercial Food Steamer Installation	81,500	81,500	22	No	10 Years	Even throughout year	9%	Yes
Cooling Tower Retrofits	209,880	209,880	8.58	No	5 Years	Higher during peak season	23%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No
Custom Offset (to be entered by user)	N/A	-	-				0%	No

Selected Offset Table

Selected Offsets

This worksheet contains an auto-populating table based on user selections made in the *Offset Strategies* worksheet. The table can be populated using the "Update Selected Offsets Table" button to the right of the Net Blue logo. The user manually enters the implementation value (e.g., number of toilet replacements) in 'Column D.' The 'Percent of Total Offset Requirement' column is automatically calculated after the user specifies implementation. If changes are made in the *Offset Strategies* worksheet, the user must update the selected offsets table using the "Update Selected Offsets Table" button.

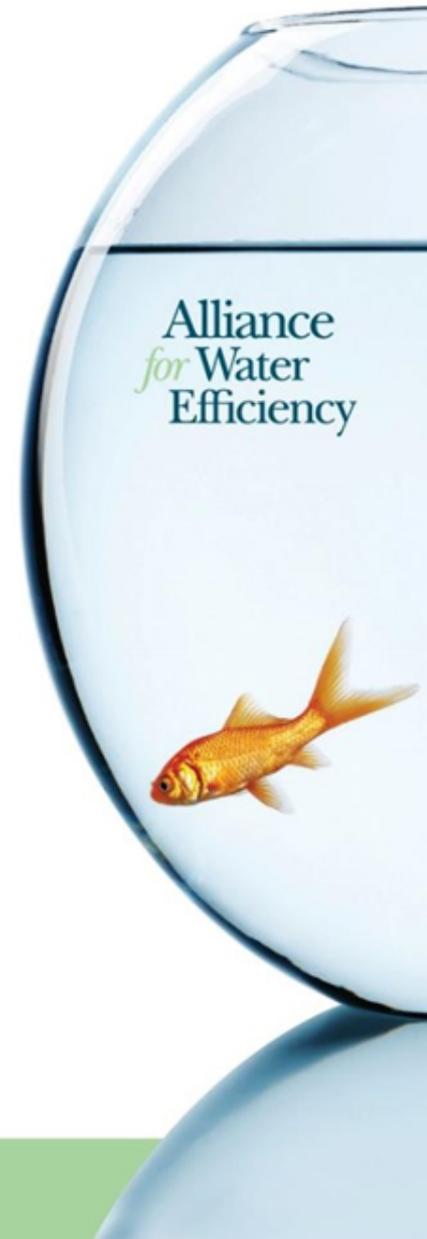
Offset Strategy	Gallons Saved per Unit	Number to be Implemented	Percent of Total Offset Requirement
Single-Family High-Efficiency Toilet Replacements	9,500	5	5%
Multifamily High-Efficiency Toilet Replacements	16,000	5	9%
Single-Family Clothes Washer Replacement	7,043	5	4%
Multifamily Clothes Washer Replacement	25,310	5	14%
CII High-Efficiency Toilet Replacements	13,020	7	10%
Laundromat Clothes Washer Replacements	31,435	5	17%
Pre-Rinse Spray Valve Replacements	28,285	10	31%
Commercial Food Steamer Installation	81,500	1	9%
Total			100%



Update Selected Offsets Table

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THE POWER OF PLUMBING + POLICY

CELEBRATING 20 YEARS OF WATER EFFICIENT TOILETS

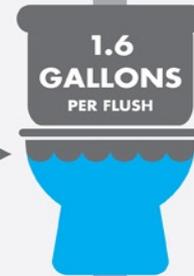
54% LESS
WATER USED BY
EVERY TOILET
INSTALLED
AFTER 1994



BEFORE

&

AFTER



SAVED FROM MORE EFFICIENT
TOILETS MANDATED BY THE
ENERGY POLICY ACT OF 1992

ENOUGH WATER SAVED TO SUPPLY



NEW YORK CITY

+

CHICAGO

+

LOS ANGELES

FOR **20 YEARS***



Alliance for Water Efficiency
300 W. Adams Street, Suite 601
Chicago, Illinois 60606
www.allianceforwaterefficiency.org

*BASED ON CURRENT WATER USE

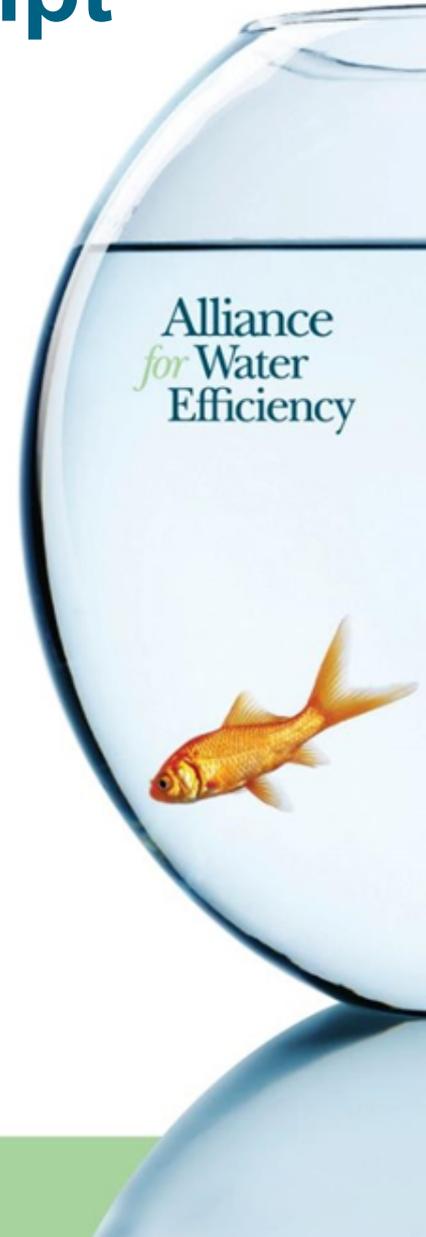
Saving WaterSense

- FY18 zero funding
- FY19 zero funding
- \$2 million/year
- Discretionary EPA funding only
- Congressional authorization necessary
- Best option is S 1137: The Clean Safe Reliable Water Infrastructure Act (re-authorization of WRDA)



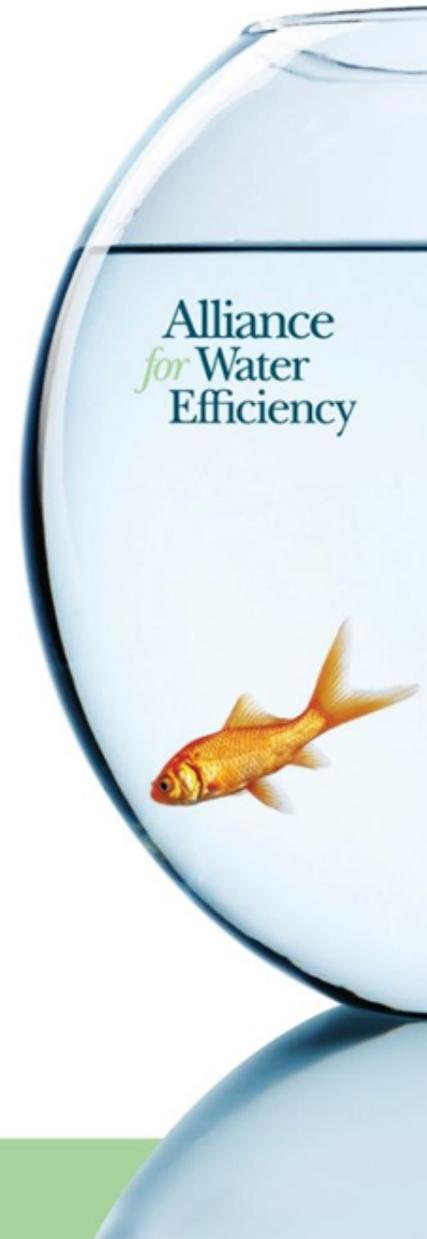
Water Efficiency Not Tax-Exempt

- Water efficiency **not** federally tax-exempt
- Income from water conservation rebates is federally taxable to the consumer, unlike energy efficiency rebates
- Some states made conservation tax-exempt at the state level (e.g. California)
- Utility programs are affected by this
- All rebate income totaling \$600 or more in a calendar year must be sent in a 1099 at the end of the tax year



Why Is This a Problem Now?

- Landscape transformation rebates (often known as “cash for grass” rebates) are popular, particularly in the arid West
- Many individual consumers now receiving much more than \$600 a year
- Water utilities now realizing federal tax obligations to mail 1099s to consumers
- Consumer reaction has been **very** negative
- A disincentive to customer participation





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SUBMIT A TIP

Water-Conservation Rebate Recipients Surprised To Learn Rebates Are Taxable

By Laura Northrup [@lnorthrup](#) January 28, 2016



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U.S. tax policy undercuts CA water conservation push

27 Jan, 2016
Chris Reed

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Even before the current marathon drought, turf replacement subsidies have long been touted by the state government as a powerful way to get California homeowners to stop having water-guzzling lawns. But the federal government sees these subsidies as taxable income. This is from a recent Los Angeles Times report:

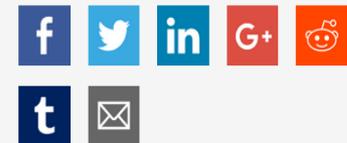


Southern Californians who received cash rebates for replacing their lawns with drought-tolerant landscaping will soon get a federal tax form in the mail reporting the amount, but water officials said Thursday it is still not clear whether the reimbursement will be taxable.

Officials from the Metropolitan Water District of Southern California — which funded a \$340 million incentive program — say they are sending 1099 forms to turf rebate recipients of \$600 or more and leaving reporting up to participants and their tax advisers.

“We’re doing what we believe is our obligation, which is sending the 1099s,” said Deven Upadhyay, an MWD manager. Recipients “would have to work with their own tax adviser in terms of the way that they might characterize it in terms of the way they file their own taxes.”

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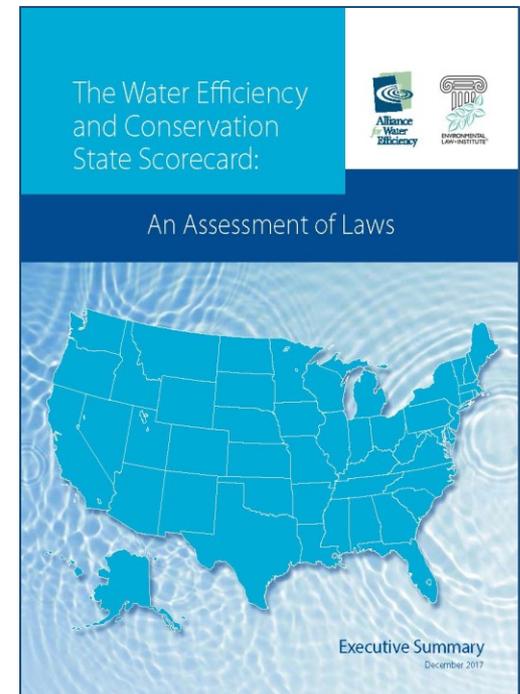
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2017 State Scorecard

- Water Efficiency and Conservation Scorecard
- Exec Summary and Full Report
- California and Texas the two top scorers!
- Posted at www.a4we.org
- Additional resources online:
 - ✓ State summary pages
 - ✓ Factsheets
 - ✓ Maps





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