

Diverse Measures Ensure Conservation Success

Water scarcity has cities seeking and implementing strict measures to promote conservation practices. Successful incentive initiatives offer insights on how water utilities can persuade the public to support these essential programs.

BY NAEEM QURESHI

NEARLY EVERY region of the United States has experienced water shortages in the last few years, and at least 36 states are anticipating local, state, and regional water shortages. Some parts of the country are experiencing unprecedented drought, particularly in California and other Western states. Water scarcity has led several cities to use intense measures to promote efficient use of available resources.

PUBLIC CONSERVATION STRATEGIES

Utilities facing water scarcity have encouraged customers to use less water. Demand-reduction measures seek to reduce water use through many methods, including plumbing fixture replacement; fixture leak detection and repair; water audits to reveal alternative ways of using water; improved landscape irrigation practices; and use restrictions specific to customer class. The following paragraphs

highlight how several areas in the country are handling water shortages.

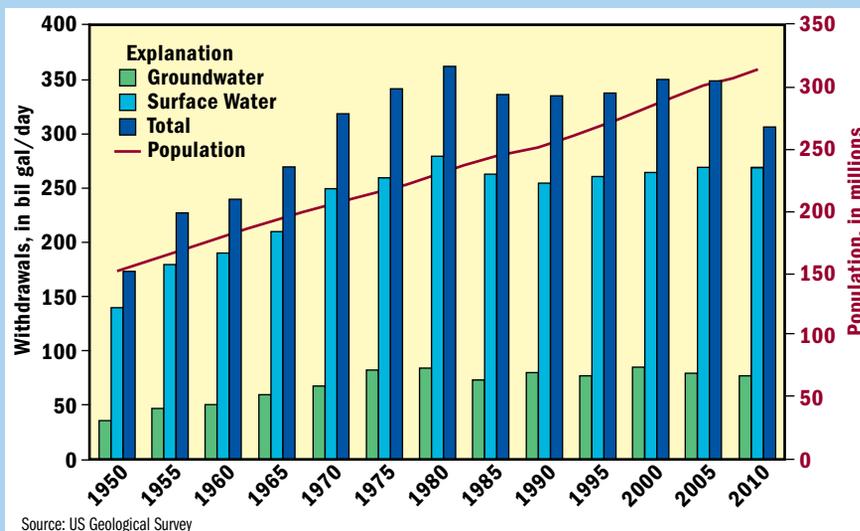
California. In January 2014, California Gov. Jerry Brown issued a state drought emergency, resulting in 25 percent state-wide mandatory water restrictions for the first time ever. As of September 2014, the city of San Diego offers a grass replacement rebate of \$2/ft² to residential and commercial customers who replace grass with water-wise landscape. Metropolitan Water District of Southern California offers a similar program, and customers in the city of San Diego may qualify for both. With each program offering up to \$2/ft² in rebates, applicants are eligible to receive a total of \$4/ft² if they qualify for both rebates.

Several cities, including Santa Monica, are enforcing a 20 percent mandatory reduction in water usage by residential and commercial customers over 2013 levels. Drought surcharges are enforced on customers exceeding the bimonthly allowances.

The city of Davis called for a 20 percent voluntary reduction in water use in February 2014, resulting in a 14 percent reduction in water use compared with the first six months of 2013. Considering the water shortage, the city went to stage 3 water shortage emergency, which calls for a 30 percent mandatory reduction

Trends in US Water Use, 1950–2010

Water use peaked in 1980 and has been fairly steady since then despite increasing population, indicating water conservation efforts have had a positive effect in the last 35 years.



Source: US Geological Survey



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Naeem Qureshi is with Progressive Consulting Engineers (www.pce.com), Minneapolis, Minn.

Washington Metro Watershed District will provide matching funds of between 50 percent and 100 percent for water conservation projects, with a maximum grant of \$2,500 for residential and \$100,000 for commercial or government projects. The South Washington Watershed District in central Woodbury will match 50 percent for eligible expenses. In northeast Woodbury, the Valley Branch Watershed District offers up to \$5,000/lb of phosphorus treated for residential projects.

Several Minnesota cities have enacted rebate programs to encourage residents to replace existing fixtures—mostly clothes washers and dishwashers—with more efficient ones to save water. As shown in the table below, savings in Rochester averaged about 10 mil gal annually from 2011 to 2013. Also, numerous cities have instituted odd-even watering restrictions to control water-use peaks.

Texas. Some Texas cities, such as Austin, have declared a stage 2 water shortage emergency. Water levels in Austin's Lakes Buchanan and Travis, the city's source waters, continue to fall. Stage 2 restrictions only allow watering one day a week.

PROMOTING WATER CONSERVATION

Most US cities use bill stuffers to encourage water conservation. These and other public outreach efforts in the past show promising results of reduced water consumption nationwide.

One of the best ways to lessen the demand for water is to begin water-conservation measures, including planting more water-efficient plants in yards.

in water consumption. The East Bay Municipal Utility District, which provides drinking water for Alameda and Contra Costa counties, is asking customers for a 15 percent reduction in water use from 2013 levels.

Minnesota. Minnesota is blessed with abundant water, but the state's southwestern region and some parts

of the Minneapolis–Saint Paul area are experiencing water shortages. Cities in the southwestern region are banking on the Lewis & Clark Regional Water System pipeline providing treated Missouri River water to alleviate water shortages.

Woodbury, which is east of Saint Paul, has several conservation measures in place. In northwest Woodbury, the Ramsey–

Successful Conservation Measures

Rochester Public Utilities (Minn.) has tried several water conservation measures in recent years, saving nearly 33 mil gal from 2011 to 2013.

	Rebate	No. Units Rebated			Total Rebates	\$ Expended	Gal/Yr Saved per Rebate	Total Gal/Year Saved 2011–2013
		2011	2012	2013				
Clothes Washers	\$ 25	1,110	1,119	1,179	3,408	\$85,200	7,549	25,726,992
Dishwashers	\$ 25	848	787	846	2,481	\$62,025	555	1,376,955
1.28 gpf Toilets	\$ 50	159	334	375	868	\$43,400	5,291	4,592,588
Rain Barrels	\$ 10	111	176	119	406	\$4,060	2,805	1,138,830
Totals						\$194,685	16,200	32,835,365

CONSUMER BEHAVIOR

VIEWING REBATES AS BONUSES

Most water utilities have a water conservation program, and many have embarked on a rebate program to encourage the use of more efficient fixtures to reduce water use. However, as Melanie K. Goetz explains in *Communicating Water's Value*, the psychology of spending plays into how effective a rebate program will be.

A rebate is perceived as money owed and coming back to the consumer, but a bonus subjectively represents a positive change. Bonuses, gift certificates, and lottery winnings are viewed as extra money. Rebates, refunds, or account credits usually languish unspent. It's important to understand the psychological effects these terms have on consumers to better understand why rebates are less likely to be redeemed

and bonus checks are almost immediately spent.

Fortunately, it's possible to provide conservation incentives in a way that's more enthusiastically perceived by recipients as an instant gratification rather than a rebate. The San Antonio Water System (SAWS) Water Saver Landscape Coupon pilot programs framed the incentive as a bonus by providing \$100 coupons.

To encourage San Antonio Water System customers to replace lawn with water-wise plants and mulch, the utility offered \$100 coupons for use as cash at approved nurseries. To redeem the coupon, the customers filled out a form certifying they were removing 150–250 ft² of grass and mulching and capping any automatic sprinklers to

the area. As a result, 1,500 home owners redeemed 2,000 coupons in only 60 days—a much higher response compared with previous rebate programs. Coupons provide instant gratification, so consumers enthusiastically embrace them.

Also, a coupon program is typically much simpler to administer than rebates. In SAWS's case, the seven approved companies submitted monthly invoices for reimbursement.

Utilities throughout the country can learn from SAWS's experience. By just terming the rebate presently being offered as a bonus, a utility can achieve much better results in promoting methods for more efficient water use, including fixture replacement and xeriscaping.

For the first time since 1950, when the US Geological Survey began reporting its findings, national withdrawals for public water supply have declined, as shown in the figure on page 20. Withdrawals

decreased by 5 percent between 2005 and 2010, despite a 4 percent increase in the nation's total population. Also, public supply per capita use declined from 100 gpd in 2005 to 89 gpd in 2010.

In short, water consumption has decreased or remained fairly steady in most use categories during the last few decades, as shown in the figure at left. This trend will have an increasingly profound effect on water utility operations, as many utility rate models are focused on water demand to sustain revenue. A detailed understanding of current water use and an accurate forecast of future water demand is essential for making decisions about the nature and scope of a water conservation program. This is a key component of overall water resources planning.

A common public perception is that water conservation means restricting or curtailing customer use as a temporary response to drought. Water use restrictions are a short-term drought management tool. However, most utility-sponsored water conservation programs emphasize long-term improvements in water use efficiency while maintaining quality of life standards. Water conservation entails doing more with less, not doing without.

Trends in US Total Water Withdrawals by Category, 1950–2010

The nation's ever-increasing population demands ever-increasing water supplies.

