

Maureen Duffy
maureen.duffy@amwater.com
856.309.4546

Working with Customers to Reduce Water Usage during California Drought

Background

In 2015, California entered the fourth year of a severe drought, the driest it has been since record keeping began in the late 1800s.¹ This historic long-term drought is a problem for every American, regardless of where they live, because it has implications for the economy, society and environment.

On April 1, 2015 Governor Jerry Brown renewed his emergency declaration and imposed a mandatory 25 percent statewide water reduction and prohibited water uses. This means California needs to reduce its water use by 25 percent from 2013, the designated base year. In order to achieve this, a large push for limiting outdoor irrigation has been made with both incentives for lawn removal and penalties for improper irrigation.

Governor Brown's Executive Order made it clear the 25 percent goal would not apply equally to every community throughout the state. The Water Board released guidelines ranging from 8 - 36 percent for each of the 411 urban water suppliers in the state, using a formula based on populations served and water production in the summer of 2014, for how the 25 percent target should be applied. Communities with high gallons per capita per day (use per person) consumption were ordered to conserve the most, whereas communities that already have a low use per person were assigned smaller reduction targets.

In order to meet state required targets, California American Water, which serves about 630,000 people in 50 communities in service areas in the northern, central and southern parts of the state, activated a Water Shortage Contingency Plan. Although some changes were necessary to align with specific state requirements, the substance of the plan proved to be remarkably close to the state's vision of how water utilities should respond to the shortage.

Challenges

Meeting current water demand, while ensuring a sustainable water supply for future generations, is a significant challenge for the water industry. Water scarcity is not only an issue of critical importance in California, but throughout the world. Growing populations and changing weather patterns have exposed vulnerabilities in California's current water delivery infrastructure, while excessive groundwater pumping and stronger calls for environmental water have magnified the impact of the drought on all Californians. These issues raise important questions for water supplies in other parts of the west and throughout the nation.

¹ Public Policy Institute of California. "What if California's Drought Continues?"
http://www.ppic.org/content/pubs/other/815EHR_appendix.pdf

In addition, the current state of the nation's water and wastewater infrastructure is worsened by drought. Drought exacerbates the flaws in the pipes through contraction and expansion of the ground. This is the same circumstance with freeze/thaw conditions. Any weaknesses in the pipes are stressed, which causes increased breakage and leaks.

Approach

Water conservation stretches available supplies, protects the environment, reduces pressure on sewage treatment facilities, reduces energy demand for water pumping, heating and treatment and decreases costs for/ delays developing new sources of water supply. Water conservation is a fundamentally sound strategy to help ensure water supply sustainability and resiliency.

California American Water does have adequate water supplies in all of its districts throughout California, and they are monitoring their groundwater and purchased water supplies carefully. They are also working with the fire departments to make sure they have adequate fire flows to fight the wildfires that are ongoing out in California.

In order to meet state mandates, California American Water implemented an aggressive drought communications plan to encourage its customers to reduce water use during the drought by helping them understand how they use water and where they can reduce water use.

Tactics included:

- California American Water Website - www.californiaamwater.com/drought
- California Drought Update and Conservation/Rebate Link
- Monthly Bill Text Messages
- Press Releases
- Direct Mailers
 - Summer Conservation
 - Mandatory Conservation Measures
 - Drought Updates
- Drought Bill Inserts
 - Mandatory Conservation Measures
 - From the Tap
- Weekly Drought E-mail Updates with Constant Contact and Mail Chimp
- Social Media – Facebook, Next-door and Twitter
- Extended Turf Rebate Program
- Ventura County and San Diego County Media Tour
 - Hosted one-on-one meetings with local news outlets:
 - The Acorn
 - Ventura County Star,
 - San Diego Union Tribune
 - Coronado and Imperial Beach Eagle
- WaterSmart Behavioral Software Reports
 - Offered to all residential customers in our Los Angeles and Ventura County districts.
 - WaterSmart software is a part of behavioral water efficiency, which brings awareness to how much water one consumes.
 - Customers receive a home water report (HWR), which provide customer with details on their water use and compares their monthly water usage to similar households' water usage in their area.
 - Participating residents also have access to WaterSmart's web and mobile customer portal.
- Water Conservation Walk and Talk Program
 - Walk and Talks with California American Water customers are the first of their kind in Southern California
 - August – September Door-to-Door campaign to promote water conservation

- Approximately 12,000 homes in Los Angeles and Ventura County Districts; 4000 homes in Sacramento District
- Walkers provided customers free low-flow showerheads, hose nozzles that automatically stop spraying when not in use, leak detection kits for bathrooms and information about our rebate programs.
- Individual outreach to high water users
 - “Outliers” have largest potential for savings
 - Top 25 CII customers in each district
 - Top 100 residential customers in each district
 - Top 250 residential customers in Ventura had advanced metering technology installed

Additional Methods

For water utilities, detecting and repairing leaks is one of their main components for water conservation. With new automatic leak detection technologies in place, California American Water is making great strides in detecting, preventing and managing many major leaks before they happen.

Deteriorating infrastructure stressed by low or fluctuating water temperatures, soil movement, vibrations and water pressure changes contribute to water leakage. Considering approximately 7 billion gallons of treated drinking water is “lost” per day primarily due to leaks in drinking water pipelines throughout the U.S., a leak detection program is highly proactive, helping water utilities automate water systems, detecting problem areas earlier, giving customers tools to monitor water use, providing more accurate rates, and reducing demand.

Additionally, California American Water works with its customers to conserve water by offering rebates for turf removal and high efficiency appliances and plumbing fixtures, by providing water surveys, and by educating customers about smart irrigation schedules.

Results

California American Water’s 630,000 customers have successfully instituted conservation measures, which hopefully can help sustain rural and urban communities and protect habitat for wildlife by keeping water in the Colorado River and others.

California American Water District Percentage Savings around the State *(last updated 2/28/16)*

		Monthly Savings									Cumulative Savings	SWRCB Target
		June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
San Diego	1530	27%	33%	24%	28%	27%	23%	26%	26%	10%	26%	8%
LA	1550	30%	31%	30%	34%	31%	23%	18%	20%	13%	27.0%	26%
Ventura	1551	27.0%	30.8%	24.0%	31.8%	28.9%	16.2%	23.1%	30.9%	8.6%	25.6%	30%
Monterey	1540	20%	17%	16%	13%	16%	26%	24%	19%	10%	18%	8%
Sacramento	1560	38%	45%	37%	30%	30%	31%	27%	23%	26%	34%	17%
Larkfield	1561	27%	28%	28%	24%	24%	26%	18%	18%	13%	24%	N/A

Overall, Californians have reduced water use by 25.5 percent since emergency conservation regulations took effect in June². In December 2015, the statewide conservation rate was 18.3 percent, down from 20.4 percent in November, compared to the same months in 2013. A drop in the water conservation rate was expected during the cooler fall and winter months, when

² California Water Boards Media Release: “CALIFORNIA MEETS GOVERNOR’S CONSERVATION MANDATE FOR SEVENTH STRAIGHT MONTH”, 2/2/16, http://www.swrcb.ca.gov/water_issues/programs/conservation_portal/docs/2016feb/pr2216_dec_conser.pdf

Californians use less water and there is less opportunity to save on outdoor water use compared with the hot summer months³.

Turf Rebate Program

According to the California Department of Water Resources (CDWR), outdoor landscaping is the single largest use of water in the typical California home. In most yards, grass consumes the most water, so reducing or eliminating how much grass is in landscapes can make a significant impact on the state's water use.⁴

The Governor's directive number three directs the CDWR to "lead a statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes. The department shall provide funding to allow for lawn replacement programs in underserved communities, which will complement local programs already underway across the state."⁵

California American Water's turf rebate amounts vary by district and customer class. It's typical for residential customers to be eligible for \$2000-\$5000 turf replacement rebates and commercial industrial institutional accounts to be eligible for \$5000 to \$50,000 in rebates.

- Result:
 - Over 1.5 million square feet of turf has been replaced with rebate assistance from California American Water in 2015.

Water Efficient Appliance/Device Rebate Program

Another directive calls for a short-term, statewide rebate program for water-efficient appliances and devices, including a clothes washer residential rebate program and a targeted disadvantaged community direct install program. The programs will help residents capture water and energy savings while reducing greenhouse gas emissions.

California American Water offers one of the most comprehensive and generous rebate programs for commercial, industrial and large landscape customers.

- Results from California American Water:
 - Over 2,390 rotating nozzle rebates issued in 2015.
 - Over 1,500 toilet rebates issued in 2015.
 - Over 340 high efficiency dishwasher rebates issued in 2015.
 - Over 230 rain barrel rebates issued in 2015.
 - Over 200 pool cover rebates issued in 2015.
 - Over 3,140 water waste complaints collected.

Case Study: Regional Water Efficiency in Sacramento

California American Water is tops in regional water efficiency in Sacramento. California American Water customers had the lowest per capita water usage in the region going into the fourth year of the drought.

Policy

- The CPUC adopted the Water Action Plan in 2005 and prioritized water efficiency and conservation.

³ California Water Boards Media Release: "CALIFORNIA MEETS GOVERNOR'S CONSERVATION MANDATE FOR SEVENTH STRAIGHT MONTH", 2/2/16,

http://www.swrcb.ca.gov/water_issues/programs/conservation_portal/docs/2016feb/pr2216_dec_conser.pdf

⁴ California Department of Water Resources, <http://www.water.ca.gov/turf/>

⁵ California Drought Executive Order B-29-15, Directive #3, April 1, 2015

- The plan allowed rates to be decoupled from revenue requirements, which allowed CPUC regulated utilities like California American Water to promote water efficiency with a variety of tools including rate design, programs and rebates.
- California American Water was authorized by the CPUC to invest \$40 million to install more than 47,000 water meters for customers historically paying a flat rate for unlimited water use and replace hard-to-service, leaky water mains between 2005 and 2013.
- The CPUC has authorized robust conservation budgets to help us provide customers with the tools and knowledge necessary to reduce water use.

Action

- California American Water was one of the first water utilities around the Sacramento region to be completely metered.
- California American Water's rate structure incentivizes conservation with a smaller fixed meter charge and a higher variable consumption-based volumetric rate.
- California American Water's conservation team has been given approval to fund programs, services and rebates that help customers use water more efficiently.
- California American Water was the second utility in the region to offer turf replacement rebates and funded the removal of about 100,000 square feet of lawns in the last two years.
- The conservation team has provided customers with more than 45,000 water-saving devices and funded the installation of more than 2,300 low-flow toilets in the last five years.
- California American Water is talking to customers online, through social media, and also face to face – through community events and by going door to door to nearly 4,000 homes.

Results

- California American Water's 60,000 customers have the lowest gallons per capita daily water usage of any water district in the Sacramento region.
- The Sacramento District is the only water utility in the region required to reduce water use by only 20 percent. Other Sacramento water utilities will be required to reduce usage by 28 to 36 percent.
- Customers have reduced water use by 42 percent since new measures went into effect in June.

Conclusion

The historic drought in California is certainly a challenging situation for the water industry, as it deals not only with that state specifically but uses it as a primer for potential future challenges in all parts of the country. The report on freshwater supply from the Government Accountability Office (GAO) states that 40 of 50 state water managers expected shortages in some portion of their states under average conditions in the next 10 years⁶.

We need to work together to explore collaborative water management opportunities that will best serve the long-term sustainability of water resources across the west, and protect our environment and our way of life. As President Obama said about the drought, "Everyone is in this together and we all need to be doing our part."⁷

Collaboration between federal, state and local partners is critical to long-term drought resilience.

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⁶ U.S. Government Accountability Office, <http://www.gao.gov/products/GAO-14-430>

⁷ Welch, Craig. "Exclusive: Obama Tells Us What's to Come on Climate, Drought." *National Geographic*, (2015). <http://news.nationalgeographic.com/2015/04/150423-barack-obama-environment-drilling-oil-science-oceans/>.