

# New Water Future

## Do More with Less, Explore Alternative Sources, Boost Conservation



Desalination, Rain Barrel, Permeable Pavement and Wastewater Treatment

California is chronically short of water even in normal water years. Cyclical droughts and changing demands on water supplies have led to government-imposed mandatory conservation measures on water districts' urban water and agricultural water management plans. Combined with increased regulations that reduce the amount of water supplies available for human consumption, agriculture and business, it is imperative that alternative sources of water supplies be investigated, and additional conservation efforts be made. The new water future is defined as doing more with less.

### KEY POINTS

- During the 2012–2016 drought, Governor Edmund G. Brown Jr. imposed emergency mandatory conservation measures, now codified, that water districts have met.
- Legislation passed subsequently in 2018 requires water districts to develop long-term mandatory conservation and drought plans by 2023.

- Environmental and conservation regulations diminish available water supplies for business, farming and human consumption.
- Alternative sources of water are a small but important part of the overall water portfolio for the state. Although more expensive, alternative sources are more reliable.
- Business must engage with state entities in the regulatory process to ensure proposed performance measures stay within the bounds of the Commercial Institutional and Industrial (CII) Task Force Report, developed by business, water and environmental representatives, to provide those sectors with information on water-saving technologies and applicable best management practices.

### WATER REDUCTION

The persistent drought of 2012 through 2016 changed the water landscape in California. Governor Brown imposed emergency mandatory conservation measures in 2015 to reduce potable urban water usage and imposed curtailments of farmers' water rights. The goal was to reach a 25% reduction in water use from 2013 levels for the duration of the emergency proclamation. Most water districts were able to reach the 25% reduction goal.

Business, agriculture, water districts and residents stepped up and turned off the water spigot. Lawns turned brown, cars stayed dusty, new drought-resistant landscaping cropped up, businesses looked for innovative ways to reduce water usage, and farmers found ways to grow using less water.

# Agenda for California Recovery

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The emergency order was lifted in 2017 except for Fresno, Kings, Tulare and Tuolumne counties, although many of the conservation measures were adopted by executive order in late 2017. In 2018, the Legislature passed, and Governor Brown signed two bills, SB 606 (Hertzberg; D-Van Nuys; Chapter 14) and AB 1668 (Friedman; D-Glendale; Chapter 15), to establish long-term improvements in water conservation and drought planning to adapt to a drier climate.

The new laws imposed water use efficiency standards, data collection, monitoring requirements, enforcement guidelines, and penalties for urban and agricultural conservation plans developed by water districts. There was initial confusion regarding a 55 gallons per person, per day standard for indoor water use. That number was taken out of context by the media and was meant only as guidance for water districts' planning purposes. The recently adopted conservation regulations do not establish restrictions for individual water customers. The regulations are intended as guidance for water districts to use in developing their conservation targets.

#### ALTERNATIVE SOURCES OF WATER

• **Recycling Wastewater.** California's history of cyclical droughts and long-term water shortages also has led to innovative strategies to save and reuse water as much as possible. Water flushed down drains or toilets—once considered waste—is now being cleaned and recycled for reuse. After studying projects undertaken by water-scarce countries such as Israel and Australia, local water agencies are beginning to look at advanced treatment of wastewater as a possible source of drinking water.

Water recycling is usual for countries like Israel, Saudi Arabia, Australia and Singapore. Israel reclaims about 80% of its wastewater and uses it to irrigate agricultural lands and recharge aquifers. Singapore reclaims almost 100% and uses it for industrial purposes. California water districts are beginning to invest in water recycling to provide a locally controlled, drought-proof water supply.

Orange County Water District and the Orange County Sanitation District built a groundwater replenishment system, which is the world's largest advanced water purification system for potable reuse. The system takes highly treated wastewater that normally would have been discharged into the Pacific Ocean and purifies it. The plant produces up to 100 million gallons per day of high-quality water that exceeds state and federal drinking water standards.

In late 2019, Metropolitan Water District of Southern California and the Sanitation Districts of Los Angeles County launched a new water recycling demonstration plant that takes wastewater

and purifies it using innovative processes that could significantly improve efficiencies and reduce costs in water recycling. The 500,000-gallon-a-day demonstration facility has been undergoing intense testing to see if the process results in water that meets the highest quality standards. This testing could lead to a full-scale plant that could potentially produce up to 150 million gallons of purified water daily—enough to serve more than 500,000 homes and industrial facilities.

San Diego approved an environmental impact report for the first phase of a recycling program in early 2018. It is a multi-year program that will provide one-third of San Diego's water supply locally by 2035. The first phase is scheduled to come online in 2021 and will expand San Diego's potable water production capacity by 30 million gallons per day, replacing the use of imported water. The city started accepting construction bids and other ancillary support bids in 2020. Overall, the project is expected to provide 1,000 green jobs, according to the mayor. Eventually, the program will recycle up to 83 million gallons of wastewater per day into high-quality drinking water.

• **Desalination of Water.** Desalination of ocean and brackish groundwater is rapidly becoming a reality in California. According to the Department of Water Resources, 26 desalination plants were operating in California in 2013. Twenty of the plants desalt brackish groundwater and six plants desalt seawater. The largest ocean desalination plant in North America went online in Carlsbad, California in December 2015. The plant supplies 50 million gallons of drinking water to San Diego daily. Another large desalination plant designed by Poseidon was to come online in Huntington Beach in 2019 but has been delayed by the State Water Resources Control Board. It is expected to produce 50 million gallons of drinking water to augment Orange County's drinking water supplies.

These plants have taken close to 20 years to make it through the permitting process, including environmental impact reports. During the last drought, coastal areas began to seriously investigate the possibilities of siting desalination plants to augment diminishing water supplies.

• **Capturing Stormwater Runoff.** Capturing stormwater runoff from impervious surfaces in urban and suburban areas like streets, sidewalks, rooftops and parking lots is another way to increase water supply. Stormwater treated to reduce pollutants can be used to replenish groundwater aquifers or recycled for use in landscaping.

New building techniques incorporate the use of low-impact designs that keep stormwater runoff rates and volumes as close to predevelopment rates as possible. Examples include the use of

natural or manmade swales or green belts to allow stormwater to percolate into the ground; the use of permeable paving for streets, pedestrian pathways and driveways that allows for infiltration of fluids in the ground; and designs that incorporate rooftop systems to capture rainwater for landscaping.

In general, alternative water supplies are more expensive. Developing those supplies may be less expensive than building new surface or groundwater storage, but more expensive per unit of water produced. Along with the initial cost of construction, recycling and desalination processes can have significant ongoing energy costs. The benefit of alternative sources of water, however, is reliability.

### IMPACT ON BUSINESS

A coalition of businesses was able to get language amended into AB 1668, a water management bill signed in 2018, to require the state to conduct necessary studies and investigations to develop recommendations on performance measures for commercial, institutional and industrial (CII) sectors. The bill requires public participation from stakeholders and other interested parties before adoption related to the following provisions:

- CII water use classification system.
- Minimum size thresholds for converting mixed CII meters to dedicated irrigation meters.
- Technologies that could be used in lieu of requiring dedicated irrigation meters.
- Best management practices, including water audits and water management plans for CII customers above a certain size, volume of use, or other threshold.

The recommendations must be consistent with the October 21, 2013 Department of Water Resources document developed by the CII Task Force, “Water Use Best Management Practices,” including the technical and financial feasibility recommendations, and shall support the economic productivity of CII sectors. The task force was convened to identify specific best management practices and water-saving actions to support the commercial, institutional and industrial sector’s efforts to improve water use efficiency and support California’s water supply sustainability.

Alternative water sources like recycled wastewater, urban stormwater, and desalination plants now provide 2% to 3% of the state’s urban and farm water supply. Recycled water use has

more than doubled to 700,000 acre-feet a year. Desalination plants now generate 200,000 acre-feet of water a year.

Business and agriculture benefit from increased water supply reliability. Desalination and recycling plants provide a secure water supply during dry years and droughts. Although more expensive, reliability is an important component of business management decisions made for current practices and for long-term planning.

### ANTICIPATED ACTIONS IN 2021

Standards and guidance documents continue to be drafted by the State Water Resources Control Board. There are a variety of timelines for Board adoption of the standards. There will be several opportunities to participate and work with regulators to ensure that CII performance measures stay within the parameters of the CII Task Force report.

The state also is developing regulations for storing recycled water in surface reservoirs, integrating recycled water directly into drinking water systems, and on-site wastewater or stormwater reuse programs.

Business should comment on draft regulatory proposals and attend workshops to ensure reasonable and practical rules. New technology is developed, not by government, but by innovative research, often funded by business entrepreneurs.

### CALCHAMBER POSITION

The California Chamber of Commerce supports a balanced approach to securing a safe and reliable supply of water for all Californians. Conservation, desalination, recycling, reuse, water use efficiency, conveyance and storage should be pursued vigorously to help increase water supply. Permit streamlining amongst the various agencies should be undertaken to expedite the approval process.

Companies must participate at every opportunity in the regulatory process to educate regulators about business practices—especially compliance requirements imposed by other state, local and federal entities. Business productivity and cost containment should be foremost considerations in business comments.



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