

Climate Change and Water Supply in the Los Angeles Region

A Good News Story

by

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The consequences of this nation's leisurely response to global warming caused by greenhouse gas emissions are spelled out in grisly detail in the recently-released National Climate Assessment prepared by 13 federal agencies. The urgency to take action is dismissed by a President who refuses to hear the fire alarm as the building burns.

The bleak future of persistent drought and vulnerable water supply painted by the Assessment for much of the nation is already here in California, and has been for some time. Fortunately for Southern California generally and the Los Angeles region in particular, water agencies and the public have responded in ways that dramatically reduce the greenhouse gas emissions that result from supplying water to millions of people.

The Water Replenishment District of Southern California (WRD), where I serve as an elected Director, is a case in point. Created n 60 years ago, WRD is the largest groundwater management agency in the state. Its 420-square mile service area includes all of 42 cities and a portion of Los Angeles. Over 10% of the state's population resides here. Nearly 50% of the water supply is groundwater. WRD's job is to make up the difference between what Mother Nature puts into our groundwater aquifers and what the 100 or so municipal and water company pumpers take out.

Water supply is an extraordinarily energy-intensive business. More than 10 years ago, the State Energy Commission concluded that the conveyance, storage and treatment of water and wastewater consumed 19% of the state's electricity, 30% of its natural gas and 88 billion gallons of diesel fuel per year. Those numbers are dropping, and relatively recent actions by WRD and other Southern California water agencies and lower per capita water consumption by Southern Californians explain why.

The energy required to supply water can be reduced in three ways --- by using less water, by capturing more storm water, and by developing recycled water as an alternative to imported supply.

With respect to water use by the public, here's a shocker: total water use by the 4 million people in WRD's service area was less in 2019 than it was with only 2.5 million people in 1960. In fact, that has been the case in each of the last four years. While it is true that in 1960 Los

Angeles County was the water-intensive industrial underbelly as well as dairy capital of the state, the continuing decline in total water use is a testament to water conservation habits embedded during our last protracted drought emergency.

With respect to storm water capture, in conjunction with the Los Angeles County Department of Public Works, WRD in the past 15 years has invested in rubber dams on the San Gabriel River, an expanded water conservation pool behind the Whittier Narrows Dam, and interconnection pipelines connecting our two main spreading basins. These investments have increased storm water capture for groundwater replenishment by nearly 5 billion gallons in years of “normal” precipitation.

Nonetheless, nearly 85 billion gallons of storm water is still lost to the ocean in a normal year from the Los Angeles and San Gabriel Rivers, enough water to meet the annual water needs of more than 2 million people. To the immense credit of the voters, the County-sponsored Measure W approved in 2018 will provide \$300 million annually for projects to clean up storm water and to enhance groundwater supply.

And finally with respect to developing recycled water as an alternative to imported supply, the greenhouse gas difference between the two is striking. It takes nearly three times more energy to import water from Northern California as it does to produce advanced treated recycled water locally. Imported water from the Colorado River takes twice as much.

In 1962, to replenish our groundwater basins, WRD used 22% of all Colorado River water supplied by the Metropolitan Water District in its entire service area. The energy required to deliver that water would meet the annual energy needs of 61,000 households. Next year, to culminate the Water Independence Now (WIN) objective we launched 15 years ago, WRD will not use any imported water for replenishment and rely solely on locally renewable water resources for that purpose.

In the coming months, WRD will begin operating its second advanced treated recycled water plant. Located in Pico Rivera, the Albert Robles Center will annually produce 3.3 billion gallons of high quality water to recharge our basins. Commissioned in 2002 and recently expanded, our Leo J Vander Lans Advanced Water Treatment Facility in Long Beach produces 2.9 billion gallons annually for injection into the Alamitos Seawater Barrier. That’s 6.2 billion gallons of imported water we will not have to buy, with a resulting 2/3rds reduction in energy. That 6.2 billion gallons, by the way, is the amount required to meet the annual needs of 57,000 households.

By virtue of our two recycled water facilities, the storm water capture projects with the County, and the recycled water purchase agreements we have with the County Sanitation Districts, the West Basin Municipal Water District, and the City of Los Angeles, WRD will be entirely independent of imported supply to meet our replenishment needs. Combined with the

conservation practices of the public we serve, our carbon footprint will be dramatically less next year than it was when we were founded nearly 60 years ago.

WRD is by no means alone. Water agencies throughout Southern California have undertaken local supply projects that reduce the greenhouse gas emissions impacts of their sources of supply. Many additional projects are in the works.

The bleak future painted by the National Climate Assessment and the President's refusal to face the facts notwithstanding, Southern California and the Los Angeles region in particular are adapting, at least in the water sector, to the realities of climate change in a way that also assures future supply.