

# **Ocean desalination plant capable of fresh water daily**

December 17 2015, by Nancy Owano

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A desalination plant in Carlsbad, California, has started regular operations. The desalination plant conducted test runs leading up to the scheduled start of normal operations.

The plant has attracted attention, considered as an important event for the arid San Diego County, with a portion of its water supply coming from the sea. The Voice of America noted that Southern California has suffered severe drought conditions for the past four years. *Dscovrd* said this is the Western Hemisphere's largest water [desalination plant](#).

The plant will produce approximately 50 million gallons of [drinking](#) water per day, said the Voice of America. Those gallons are for roughly 400,000 people in San Diego County.

The Carlsbad plant is the result of a 30-year Water Purchase Agreement between the plant's developer and owner, Poseidon Water, and the San Diego County Water Authority for the production of up to 56,000 acre-feet of water per year, said the official release from the plant's website.

Danny Clemens in *Dscovrd* wrote Tuesday that this is a \$1 [billion](#) venture. *The San Diego Union-Tribune* described the business plan: Poseidon will sell the fresh water to the San Diego County Water Authority, which is the main provider for the region. The latter will resell the water to (1) retail districts, (2) schools and (3) [businesses](#).

Outside the Carlsbad plant project, a group expressed concern over the environment impact of the project. Those who question whether or not this is a good idea ask at what price, in rates and environmental risks, are citizens to get the water?

A statement from the Surfrider Foundation, issued on December 10, was titled "Carlsbad Desalination Plant Opening: The Wrong Solution at the Wrong Time."

The group are coastal defenders and they are focused on ocean, waves and beaches. "The [Pacific](#) is not a limitless resource," they said, and "furthermore the staggering energy requirements and GHG emissions of this water supply option make it the worst option in light of climate change."

They said the cost of the water produced by the plant will be higher than freshwater imported from Northern California and the Colorado River.

Meanwhile, the Voice of America said on Wednesday that "The company estimates households in the [region](#) will pay an additional \$5 per month on their water bill to help offset the cost of the plant."

How does the desalination process work? Danny Clemmens wrote about the process:

"Each day, approximately 100 million gallons of water from the adjacent Agua Hedionda Lagoon enter the plant through a 72-inch seawater pipe. During the pretreatment process, the seawater [cycles](#) through a multi-layer tank that utilizes anthracite, sand and gravel to remove algae and other large impurities. A second pretreatment then removes smaller particles."

In order to remove dissolved salt from the water, "reverse osmosis" technology is relied on; over 2,000 pressure vessels have semi-permeable membranes, behaving as strainers, through which the seawater passes.

The microscopic strainers allow only water molecules to pass through, leaving behind the salt, minerals and bacteria and viruses. Select



minerals are reintroduced to the potable water and disinfected with chlorine. Brine is reintroduced back into the ocean.

These are more details coming from the Carlsbad desalination [project page](#):

"The Carlsbad plant uses reverse osmosis to produce approximately 10 percent of the region's water supply; it is a core supply regardless of weather conditions, and it is blended with water from other sources for regional distribution. It costs less than 0.5 cents to produce a gallon of [drinking water](#) at the plant. Desalinated [water](#) will cost typical homeowners in the region about an additional \$5 per month, in line with the low end of projections when the project was launched in late 2012. The costs are already factored into the Water Authority's 2016 rates."

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