

## Twenty-three Million for ¼ of a Desal Plant / Is It Worth the Cost



### Conceptual image of the SouthCoast Desal Plant

On August 15, 2024, the Board of Directors of the Laguna Beach County Water District (LBCWD) voted 4-1 to approve spending 2.3 million dollars as our share to fund the first phase of a desalination project. Leading the charge on this was Mr. Bob Whalen who acted as the City Council liaison for the project for the last two years. I opposed the expenditure for reasons I will explain below.

**What is Desal:** Desalination is the process of removing salt and other minerals from sea water to make it suitable for drinking, irrigation, or industrial use.

As of 2022, there were approximately 130 desalination plants in operation in the USA with a total combined capacity of producing 479 million gallons of water per day. It's a proven technology but has high cost, uses lots of energy, and has environmental impacts.

**Why Invest in Desal:** The justification for investing 2.3 million along with 3 other partners contributing an equal amount was that this desal plant would provide an

emergency supply of water for Laguna Beach of one million gallons a day. Sounds good on paper, right?

We would not actually get any water delivered unless there was an emergency as all of the water would be used by the Southcoast Water and Sewer District. That too comes at some extra cost as we would need to upgrade some infrastructure to the tune of 300 to 600 thousand to ensure delivery.

The emergency scenario asked what if our supply line from LA Metropolitan Water District, (MWD, who provides us with all our water) were to break in an earthquake or some other disaster. How would we be able to secure an emergency supply of water before our 22 water tanks ran out? It makes sense to have back up supplies of water and desal is one of the options.

**Emergency Supply Agreement:** We already have a mutual aid agreement that provides emergency supplies of water to Laguna Beach from many OC Water Districts including Irvine Ranch Water District (IRWD, which serves 600 thousand Orange County residents). IRWD could supply Laguna with one million gallons a day for 30-60 days, which at my recommendation, we are doing now.

**The Back Story:** Although we now get all of our water from MWD, we have historic rights to pump water from the Orange County Basin, an aquifer that is extremely healthy. We could get up to 80% of our water from the Basin at low cost once we have a well location in place. LBCWD is doing that now, and we expect to develop more than one pumping site. I cannot emphasize how important this is for Laguna as the water we now buy costs 50% more than what we would pay if we had our own pumping sites in the basin. For comparison, the Southcoast desal plant's water is expected to cost more than twice that of the OC Basin water.

I believe that to be a low estimate. For example, the desal plant in Carlsbad produces 30 million gallons a day and that water costs \$3,500 per acre foot. For comparison OC basin water would cost us \$1,100 an acre foot, while the Southcoast desal water would start at \$2,400 an acre foot.

**Back to the Money:** The 2.3 Million investment pays for Phase 1 which give us a 60% build/design proposal. With that the total cost for the desal plant can be estimated with some assurance. The current estimate is 130 million. With grant funding Laguna would pay 23 million. That tidy sum would need to be bonded, and ratepayer would see an immediate increase in rates to provide water in an emergency.

**Environmental Impacts:** Desal is environmentally challenging since it requires processing large amounts of sea water to get purified drinking water. This project would be located next to San Juan Creek and extract ocean water from one-thousand-foot-long slant pipes drilled under the seabed. Slant pipe technology for extraction and return of briny water are more environmentally friendly but still largely untested. The very saline water left over then has to be mixed with non-potable water and returned to the ocean. Energy use for desal is extremely high and although the site sits on 15 acres no amount of solar will offset the energy used to operate the plant.

**Summary:** My limited common sense told me that this is not a great deal for us. Perhaps it is for Southcoast and other South OC cities as they do not have OC Basin water rights. With some luck, in a few years, we will be getting 80% of our water from the OC Basin at low cost. We can supplement that with 20% from MWD, and exercise our current emergency water supply agreements while working on a separate one between us and IRWD. In addition, we could start reclaiming the 2-3 million gallons a day that go into our ocean. Why invest in desal when we have other more environmentally friendly lower cost options?