

Submitted by Kim Adamson
at 8/17/15 Board Meeting
Item 9

Monterey Bay Regional Water Project Summary

DeepWater Desal LLC (DWD) is developing the Monterey Bay Regional Water Project (MBRWP or the Project) at Moss Landing, California. The MBRWP will consist of a seawater reverse osmosis (SWRO) desalination facility and co-located seawater-cooled computer data centers. The Project will be capable of producing up to 25,000 acre-feet of high quality potable water annually. Seawater desalination has been recognized as an important component of the overall regional approach to addressing water supply for the Monterey Bay region. The volume of water produced at the facility, and its central location within the region, make it an ideal solution to augment potable water supplies available in the region. The Project is intended to make a new supply of potable water available north to Santa Cruz, east to Salinas and south to the Monterey Peninsula.

The proposed SWRO facility will be co-located with a 150-megawatt (MW) data center campus. Sea water will be used to provide cooling for the data center buildings prior to desalination. The seawater will capture waste heat from the buildings, thereby eliminating the need for energy-intensive chillers and evaporative cooling systems. Seawater cooling of the data centers will make them among the most energy efficient data centers in the world. Seawater warmed by waste heat taken from the data center will reduce the energy required to operate the SWRO desalination facility. The reduction in Green House Gas (GHG) emissions for the co-located facilities is significant in comparison to standalone alternatives.

The MBRWP will be located on a 110-acre site historically used to store heavy fuel oil used for generation of electrical power at the Moss Landing Power Plant. The site is designated for heavy industrial use in the Monterey County Local Coastal Plan. The site is located on the north side of Dolan Road, approximately 1.5 miles east of State Highway 1 at Moss Landing in Monterey County, California. The location of the Project affords access to seawater from the Monterey submarine canyon.

The desalination facility component of the MBRWP will address the urgent demand for additional supplies of potable water throughout the region with significantly lower impact on the area's fragile environment than the cumulative impacts of multiple desalination facilities scattered around Monterey Bay. The data center component of the MBRWP will significantly reduce the environmental impact and result in lower operating costs compared to a stand alone desalination facility while serving currently unmet needs for data storage and transmission capability throughout the Central Coast region.

Frequently Asked Questions / Regulatory Implications Of California Drought

Is there current interest in the Project from local water agencies?

As of June 1, 2015 the following have expressed annual need and entered into Memorandums with DeepWater Desal, LLC expressing need for the following amounts of water from DWD's Monterey Regional Water Supply Project:

- City of Salinas/California Water Services 10,000+ Acre Feet
- Monterey Peninsula Water Management District (Alternate to Cal Am Project) 9,000 Acre Feet
- Soquel Creek Water District 1,500 Acre Feet
- Castroville Community Services District 1,000 Acre Feet

When will water be delivered?

We are eager to take the next steps in our desalination project, bringing quality water to residents of Santa Cruz and Monterey Counties. In our projected timeline, we estimate to have water delivered by mid 2017.

Is your Project competing with the Regional Project proposed by CalAm?

No. The Monterey Peninsula Water Management District has deemed that DeepWater Desal is the alternate to Cal Am's project should Cal Am's project not be viable. We are working to bring affordable, potable water to surrounding communities in Monterey and Santa Cruz counties. DeepWater Desal is utilizing research data from the leading marine science institutions on Monterey Bay to provide a low risk environmental solution for the region.

Aren't there organisms in the deep water too?

Primary production (photosynthesis) occurs near surface or shore of the ocean where sunlight is abundant (called the photic zone), resulting in 90 percent of biological productivity near the surface. Though there are organisms in deep water, there are significantly fewer resulting in less 1% entrainment and impingement. The intake pipes will be screened with 1 millimeter openings greatly reducing any probability of environmental impacts.



The Monterey Submarine Canyon

What experience does your management team have?

We have a highly experienced and diverse team, headed by Brent Constantz Ph.D. who is trained in geological sciences and aquatic biology. He invented high performance novel cements and is the inventor on over 80 issued US patents. Dr. Constantz is a Consulting Professor at Stanford University and serves on the board of Directors of the Stanford Environmental Molecular Science Institute. The marine science communities in the Monterey Bay Region have honored his contributions to marine science with the Global Ocean Hero Award in 1999. He received BA, MS and Ph.D. degrees at the University of California, was a post doc at the USGS and a Fulbright Scholar at the Weizmann Institute before launching his first of three successful medical device companies. Most recently, he was the Chief Executive Officer of Calera Corporation, a company that sequesters carbon dioxide from power plant emissions into cement materials, both removing the emitted carbon dioxide and displacing the carbon dioxide that cement production would have generated. Full team profiles are available on the DWD website; see About Us - DWD Management page.

Is your Project endorsed by the Monterey Bay Aquarium Research Institute?

We have collaborated with scientists and engineers at Monterey Bay Aquarium Research Institute (MBARI) and Moss Landing Marine Laboratories, evaluating their deep canyon ocean data to assure an environmentally sound approach to desalination. MBARI has a policy of not endorsing projects.

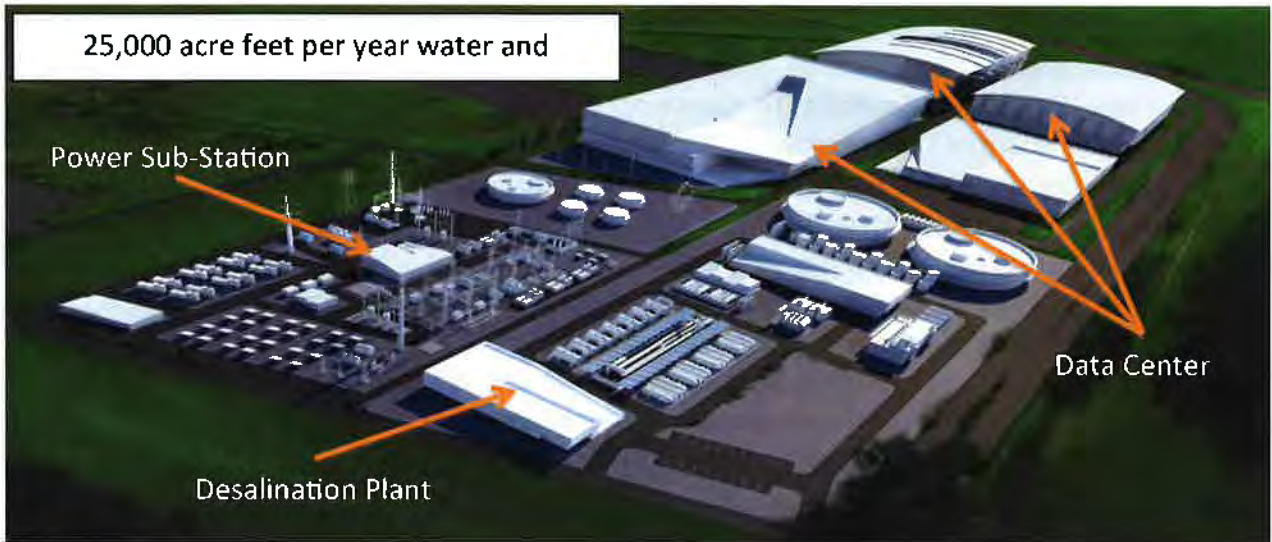
How do recent regulatory changes positively/negatively impact our project timeline?

DeepWater Desal proposes to take feedwater for its Monterey Regional Water Supply Project directly from the water column offshore at Moss Landing, California. The intake will be located deep in the water column on the edge of the Monterey Bay Marine Canyon to minimize impacts on marine resources. The California Coastal Commission expressed a preference for subsurface feedwater intakes over a decade ago. The preference was based on the assumption that a subsurface feedwater intake would have no effect on marine resources. Notwithstanding that expressed preference, the Coastal Commission approved the Carlsbad desalination project which uses an open water intake. The California State Water Resources Control Board recently adopted a formal policy favoring subsurface feedwater intakes, if the subsurface intake proves to be feasible. The new policy sets forth standards for determining the feasibility of subsurface feedwater intakes. Research conducted by DeepWater Desal concludes that a subsurface feedwater intake is not feasible for the Monterey Regional Water Supply Project.

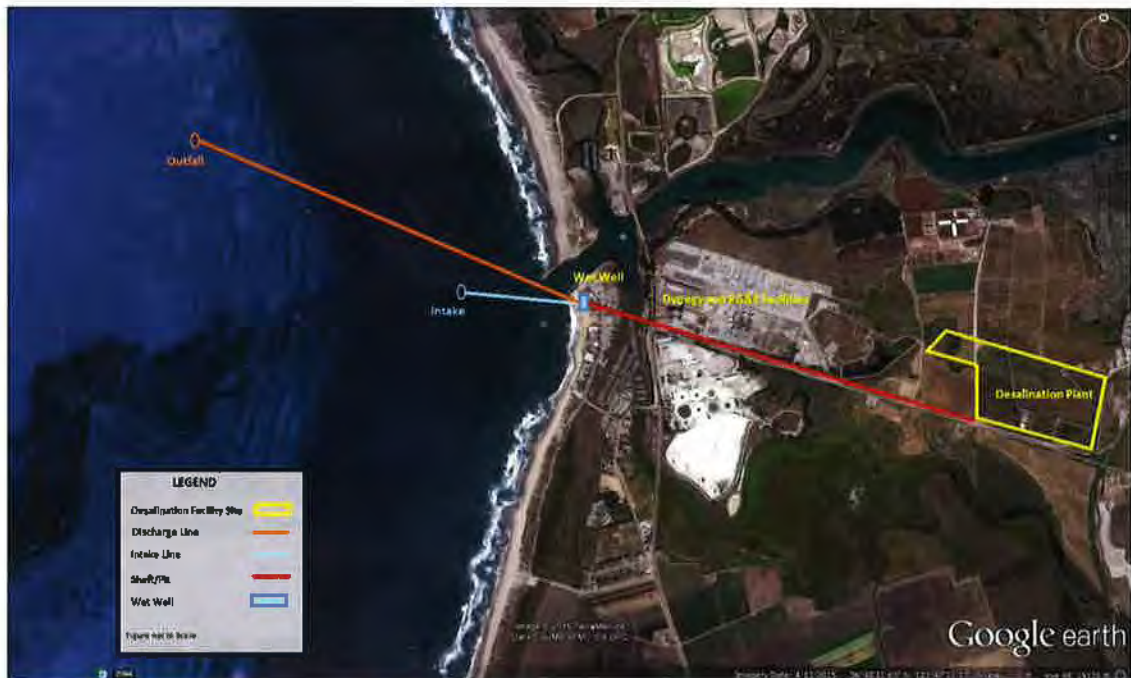
A Data Center and Desalination facility require a lot of energy, how will that affect the cost of water?

DWD's design and cost synergies create a sustainable opportunity unlike any existing or currently designed project in the world. Because the Data Center will be seawater cooled the electricity demand will be reduced by 45% and the heat from the servers will be captured and the seawater will be heated thus reducing the electricity demand for the desalinating process.

DeepWater's First Project: Monterey Bay Regional Water Project



Moss Landing Overhead



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