

January 21, 2022

Tom Luster, Senior Environmental Scientist
California Coastal Commission
455 Market Street, Suite 300
San Francisco, CA 94105

Sent via email: Tom.Luster@coastal.ca.gov

Re: Expert Reports– Energy Use and Emissions at the Poseidon – Huntington Beach Desalination Plant

Dear Mr. Luster,

On behalf of the environmental coalition, we appreciate your consideration of the attached expert reports and the State Lands Commission (SLC) 2017 hearing transcript and their inclusion into the administrative record. Poseidon has submitted application materials asserting that energy use and emissions from the Poseidon plant are negligible and will be fully mitigated. The expert reports enclosed within are evidence to be considered as part of the administrative record and demonstrate that Poseidon will use a large amount of energy and that their proposed greenhouse gas mitigation plan is grossly inadequate.

The enclosed expert reports offer a third-party independent analysis of the legal, economic, and technical accuracy of Poseidon's application materials.

- **Bill Powers: Assessment of Energy Intensity and Greenhouse Emissions of Proposed Poseidon Huntington Beach Desalination Plant – 2022 Update Report.** This report is a major update to the 2016 analysis and reviews: 1) the energy intensity and greenhouse gas (GHG) emissions associated with the grid power demand of the proposed Poseidon Huntington Beach desalination plant and water supply alternatives, including the purification of recycled water and conservation, to assure local water reliability, 2) the electric “grid reliability” impacts of the desalination plant are assessed in the context of electricity supply limitations in the Los Angeles Basin, and, 3) the effectiveness of Poseidon's proposed ‘carbon neutral’ strategy. Finally, recommendations are provided for an alternative mitigation approach that would rely on local solar power and battery storage to fully address the local grid reliability and GHG impacts of the desalination plant.

Major findings of this report are:

- Water demand in Orange County Water District service territory has declined 20 percent, about 100,000 acre-feet per year, since 1998 when Poseidon first proposed a desalination plant for Huntington Beach and 2020. This is about two times the 56,000 acre-feet per year potable water production of the proposed desalination plant.
- OCWD's production of purified recycled water to recharge the groundwater basin, via the Groundwater Replenishment System indirect potable reuse project, has increased from zero in 1998 to 112,000 acre feet per year (100 million gallons per day) in 2015.
- OCWD anticipates expanding production of purified recycle water to 145,000 acre-feet per year (130 million gallons per day) in 2023.
- The energy intensity of ocean water desalination is more than four times greater than that

of purified recycled water.

- As a result, the carbon footprint of ocean water desalination is more than four times greater than that of purified recycled water.
 - The proposed desalination plant will emit about 68,745 metric tons per year (75,620 tons per year) of carbon dioxide in the first year of operation.
 - The approach Poseidon has proposed to achieve carbon neutrality, the purchase of offset credits, will not address the local grid reliability impacts of adding the continuous 30.34 MW of load of the desalination plant in the Los Angeles Basin.
 - The cost of carbon credits is likely to be substantially higher than the \$10 metric ton price that is assumed by Poseidon as an economically reasonable offset cost ceiling. By way of comparison, the California Air Resources Board cap-and-trade allowance cost ceiling for 2022 is \$72.29 per metric ton.
 - Battery storage is now a primary grid reliability resource in California. Southern California Edison, the utility serving Huntington Beach, projects that it will have at least 2,800 MW of battery storage under contract by 2023.
 - 30 MW of battery storage should be developed by Poseidon in Huntington Beach to offset the grid reliability impacts of the desalination plant.
 - 150 MW of local solar power should be developed by Poseidon in Huntington Beach on commercial and industrial rooftops and parking lots to fully mitigate the carbon footprint of desalination plant operations.
 - The annualized cost of 30 MW of battery storage and 150 MW of rooftop and parking lot solar in Huntington Beach will be less than 3 percent of Poseidon's projected gross annual income of about \$160 million per year.
- **[The Future of California's Water-Energy- Climate Nexus by the Pacific Institute.](#)** In this analysis, the report authors evaluated the combined impact of emerging trends on California's water (including population growth, climate change, and policies to promote water efficiency and alternative water supplies) and electricity (including generation decarbonization) on the state's water-related energy and GHG footprints from 2015 to 2035. The latest available (2015) water demand and supply data from water suppliers and state water agencies were used to develop various scenarios of future water resources and to estimate associated energy and GHG emissions out to 2035. This updated Pacific Institute report shows that long term demand reduction, decoupled from population growth, has positive impacts on GHG emissions - the opposite of the proposed ocean desalination project.
- **State Lands Commission Transcript References on GHG Plan.** In October 2017, the State Lands Commission heard the Poseidon Huntington Beach Project as part of their lease amendment. Included in that hearing was a discussion of the Poseidon Desalination Plant GHG Minimization Plan. During that hearing, Controller Yee, supported by then Lt. Governor Gavin Newsom, expressed both concerns with the GHG plan and her insistence that it be truly carbon neutral. As the Commissioners and staff worked to craft a motion, Yee pointed out that she was

concerned that by the time the plant was built that it would be out of date with the State's Climate goals. Given this, she pointed to ongoing discussions between Edison, Poseidon and others, called on Poseidon to go further by developing either a new technology or other tools to help them meet their obligation to be 100 percent GHG emission free and indicated that she was waiting for an update on that progression. Controller Yee stated that she believed there were additional options out there to strengthen the plan and that she wanted to see "movement" from Poseidon in this arena. She was very clear that she did not want Poseidon to just write a check to fulfill their obligations. (The full discussion on the GHG plan can be found starting on page 316 line 15 of the Transcript.)

It has been over four years since the SLC hearing and the only thing that has changed in Poseidon's GHG plan is the title which Poseidon is now calling the Climate Change Action Plan. Instead of revising the plan as Yee instructed, Poseidon submitted the same plan to the Santa Ana Regional Water Quality Control Board in 2019 and to the Coastal Commission in July of 2021. As demonstrated by the expert reports above, this plan is outdated and insufficient to meet California's climate goals and must be revised and strengthened.

We respectfully request these expert reports and the State Lands Commission 2017 Hearing Transcript be considered by the Coastal Commission as part of the administrative record. These submitted reports show both the lack of need for the project as well as the real and local GHG mitigation that would have to be required to make the project truly carbon neutral.

Sincerely,

A handwritten signature in black ink that reads "Raymond F. Hiemstra". The signature is written in a cursive style with a large initial 'R'.

Raymond Hiemstra
Associate Director of Programs
Orange County Coastkeeper