



March 1, 2017

Dr. Allan Bernstein,  
Chairman

Robert Sulnick,  
Executive Director

Association of California Cities -  
Orange County

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Chamber of Commerce

LA-OC Building and  
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Poseidon Water

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The Black Chamber of  
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Chairwoman Felicia Marcus  
California State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814

**Re: Public Comment of Climate Change Resolution No. 2017**

Dear Chairwoman Marcus:

*Orange County Water Independence Sustainability & Efficiency (OC WISE)*, a diverse non-partisan coalition supporting the development of all forms of new, local and drought-proof water for Orange County, is writing in support of the State Water Board's (Water Boards) *Draft Climate Change Resolution* and to request that it: include a legislative path forward for all water infrastructure projects (including desalination) securing renewable energy; and add desalination to paragraph 11 of the Draft Resolution<sup>1</sup>.

**Climate Change is Threatening Orange County's Water Supply.** Over the past five and a half years Orange County (OC) has suffered the effects of the worst climate change caused drought in its history with climate scientists agreeing that for our naturally semi-arid environment periodic drought will be the "new normal"<sup>2</sup>. Indeed, despite recent rains the County, which is 50% dependent upon two increasingly unreliable sources of imported water,<sup>3</sup> remains in a state of drought<sup>4</sup>.

<sup>1</sup> Paragraph 11 of the Draft Resolution references the California Water Action Plan 2016 Update (WAP). In addition to citing the measures set out in Paragraph 11 of the Draft Resolution (conservation...recycled water use et al) the WAP also includes desalination along with those measures: at page 8- "*Statewide standards were adopted for desalination in 2015 along with enhanced watershed, and streamlining of recycled water permitting...*" at page 6- "*[T]o recycle water for reuse, to capture and treat stormwater for groundwater recharge and reuse, and to remove salts...from brackish...water or from seawater.*"

<sup>2</sup> Both climate scientists at NASA and the Jet Propulsion Laboratory have predicted periodic drought as the new normal for Southern California, including Orange County.

<sup>3</sup> Orange County's 50% imported water comes from the State Water Project (SWP) and the Colorado River. Over the past 5 years of severe drought the SWP has been challenged both by lack of water and competition for the water between environmentalists, agriculture and jurisdictions. The Colorado River, the most contested river in the County, has been in a severe state of drought for the past 16 years.

<sup>4</sup> Orange County, a naturally semi-arid environment, according to the U.S. Drought monitor was in a state of moderate drought as of February 14, 2017.

A community coalition dedicated to the independence, sustainability and efficiency of Orange County's water supplies.





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However, we in Orange County, and Southern California, are not only drought prone but our water supplies are earthquake and infrastructure prone as well. At any given time, an earthquake could destroy the two aqueducts which transport water from the State Water Project and the Colorado River.

Moreover, climate change is not just about heat and drought; it is also about extreme weather fluctuations which include the kind of massive rain storms California is now experiencing<sup>5</sup>. The recent failure at Oroville Dam, and Northern California levee ruptures<sup>6</sup>, portends future disruptions of water deliveries to the South.

**Renewable Power for Water Infrastructure is Needed.** Water treatment facility's ability to acquire renewable energy would greatly assist California with its mandate to reduce greenhouse gas emissions (GHG). Amending the Draft Resolution to call for legislative action allowing water infrastructure projects increased and expedited access to renewable energy would, as the need for new and expanded water infrastructure increases, reduce GHG emissions.

In submitting these comments OC WISE is mindful of the following: the water sector in California is the largest user of electricity and natural gas<sup>7</sup> with water supplied to Southern California being roughly 50 times more energy intensive than water supplied to Northern California; and that State Water Project power plants constitute 98% of all Department of Water resources activities<sup>8</sup>.

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<sup>5</sup> One consequence of global warming is an increase in both ocean evaporation into the atmosphere, and the amount of water vapor the atmosphere can hold. High levels of water vapor in the atmosphere create conditions for heavier precipitation in the form of intense rain and snow storms. As the earth warms, the amount of rain falling in the heaviest one percent of storms has risen nearly 20% on average in the U.S.-almost three times the rate of increase in total precipitation between 1958 and 2007.

<sup>6</sup>Some Northern California levees are showing signs of strain as pronged heavy river flows push them back. Recently workers breached a levee along the Mokelumne River in the north Delta for fear of a flood prone breach, with crews working to patrol the levees which ring the Delta looking for cracks.

<sup>7</sup> The California Energy Commission (CEC) estimates that capturing, transporting and treating water and wastewater uses approximately 5% of the electrical energy and 1% of the natural gas consumed in the state (CEC (2005).

<sup>8</sup> California Department of Water Resources: Climate Action Plan Phase1: Greenhouse Gas Emissions Reduction Plan: emitting between 1.2 million and 4.1 million mtCO<sub>2</sub>e per year.

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As Southern California, with its population base of more than 22 million people<sup>9</sup>, increasingly develops sources of new, local, drought, earthquake and water delivery infrastructure proof water it will correspondingly develop the opportunity to power these sources with renewable energy. The Draft Resolution provides the Board with the opportunity to spell out a legislative path forward for direct access to renewable energy for these projects. These projects should include: wastewater recycling and recharge, storm water capture and desalination.

**Desalination is Part of California's Water Infrastructure.** Desalination is no longer hypothetical in California. The Claude "Bud" Lewis 50 million gallon-a-day (50 MGD) plant in Carlsbad is providing San Diego with approximately 10% of its water thereby reducing the region's dependence on imported water from between 90%-95% to 80%<sup>10</sup>. Santa Barbara will have its desalination facility on line in March of this year. Six other jurisdictions throughout Southern California are either considering, planning or trying to permit desalination plants with the one in Huntington Beach (HB), Orange County, at 50 MGD, being the most prominent<sup>11</sup>. It has become clear that seawater desalination will increasingly become part of Southern California's water infrastructure.

**Poseidon Water has Developed Protocols for its Proposed Huntington Beach Plant.** Poseidon Water (Poseidon) is a member of our coalition. Poseidon has developed a voluntary greenhouse gas (GHG) elimination plan for its proposed Huntington Beach seawater desalination plant which should be included as a model for the industry in the Draft Resolution.

While the reverse osmosis process used by seawater desalination plants does not emit GHGs<sup>12</sup>, non-renewable energy purchased from the grid incurs a

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<sup>9</sup> Southern California contains 22,422,614 people as of this writing. California is expected to increase its population to 50 million by 2045, with most of the increase coming in Southern California, which is the third most populated megalopolis in the United States after the Great Lakes and Northeastern Megalopolis. According to State predictions, Orange County will increase its population by 300,000 by 2020.

<sup>10</sup> The Carlsbad Plant produces approximately 50 million gallons of drinking water a day, enough for approximately 4000,000 people reducing the San Diego region's vulnerability to drought and interruptions of imported water due to earthquake, dam failures or other unexpected events

<sup>11</sup> Dana Point, Huntington Beach, El Segundo, Avalon, Oxnard/Ventura, and Luis Obispo.

<sup>12</sup> The desalination process does not involve heating and vaporization of the source seawater and thus does not create emissions of water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF<sub>6</sub>).

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carbon footprint. The Protocols which Poseidon has developed for identifying, securing, monitoring and updating measures to eliminate GHG impacts from seawater desalination facilities include: quantification of direct Project GHG emissions associated with project construction and operational vehicles<sup>13</sup>; pressure exchanger energy recovery systems<sup>14</sup>, seawater desalination powered by renewable energy, and purchasing offsets to ensure 100% carbon neutral operation. Including these in the Draft Resolution would provide a model for eliminating GHG reductions for seawater desalination plants. Including a path forward for legislative action ensuring direct access to renewable energy for water infrastructure projects would reduce GHG emissions in this growing water sector.

**Reliable, Affordable Water, Climate Change and Desalination.** OC WISE commends the Water Boards including affordable drinking water in its Draft Resolution and points out that members of the Environmental Justice community see desalination as affordable, safe drinking water.

Recently, two of our members, League of United Latin American Citizens (LULAC) and the William C Velasquez Institute (WCVI), submitted comments in response to the Water Board's Affordable, Safe Drinking Water Initiative requesting that the State Water Board include seawater desalination in its analysis of affordable drinking water for disadvantaged communities<sup>15</sup>. In the process of submitting these comments LULAC & WCVI pointed out that under California law all citizens have a statutory right to safe, affordable

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<sup>13</sup> The number of fleet vehicles associated with building the HB plant along with construction emissions would create GHG emissions that make-up less than 5% of the Project's annual carbon footprint.

<sup>14</sup> State-of art pressure exchanger-based energy recovery systems that allow recovery and reuse of more than 40% of the energy associated with the RO process are available to the desalination industry. For example, use of this technology at Poseidon's proposed Huntington Beach 50 MGD desalination plant would recover approximately 2,100 tons of CO2 annually from the RO purification process and reuse that CO2 during the post-treatment process.

<sup>15</sup> Comments pointed out that the Carlsbad desalination plant's water rate increase for providing 50 MGD of safe reliable drinking water was only \$4.75. AB 401 (Dodd) projects water bills across the state necessarily rising (or have risen) from between \$4-\$13, with the PUC granting increases of between 10%-24%.

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drinking water<sup>16</sup>, which in the context of climate change and water unreliability for Southern California requires the inclusion of desalinated water in the Water Boards analysis. Accordingly, we are supportive of the Water Board having linked the right to safe affordable water with a reduction in greenhouse gas (GHG) emissions<sup>17</sup>, and reiterate our members' request to include desalination in the Water Boards analysis and Resolution.

**Desalination Mitigation Can Ensure Ecosystem Survival.** Having listed aquatic ecosystems and loss of habitats as one of the Water Boards concerns, the Draft Resolution should consider the ecosystem saving impact mitigation from the construction of desalination plants can have on coastal wetlands. California has already lost 91 percent of its wetlands. A prime example of how desalination mitigation can save wetlands is the 1,500 *Bolsa Chica* Wetlands in Orange County. When the inlet was dredged in 2006, to allow a free-flow of ocean water for the first time in more than a century, the wetlands were rejuvenated. It is now home to more than 65 different fish species. It is a nursery for halibut and white sea bass, improves our water quality, recharges our groundwater and protects our shoreline by increasing resistance to erosion. It is also one of the largest and most important stops for birds on their migration pattern. The wetlands receive more than 30,000 visitors annually. Its vitality is now challenged by lack of funding.

Mitigation funds from the Ports of LA and Long Beach in 2006 provided \$15 million, which was enough to sustain the wetlands for a decade. But now according to a State Lands Commission report no replacement funds are available from the state to maintain this ecological resource. Without additional funding, the sandbars at the inlet will build up and prevent the needed circulation of water from the ocean. Cut off from that seawater flow, the habitat that has enjoyed a renewal over the past decade could again be lost. Indeed, this is a common problem for remaining Southern California wetlands including the Ormond Wetlands in Ventura County.

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<sup>16</sup> AB 685 (2012) ensures universal access to water by declaring "every human being has the right to safe, clean, affordable, and accessible water..."

<sup>17</sup> Draft Resolution (DR) P 7 states: "Draft Resolution P 7 states: *AB 32 mitigation measures target reducing energy requirements associated with providing reliable water supplies (water use efficiency, water recycling, reuse of urban runoff)...*" Draft Resolution P 9 states: *"A principle of the state's adaptation strategy...is to prioritize actions that not only mitigate greenhouse gas (GHG) emissions, but also help the state prepare for climate change impacts."* Draft Resolution 10 states *"prioritize actions that both build climate preparedness and reduce GHG emissions"...prepare for uncertain climate impacts, protect the state's most vulnerable populations..."*

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As new seawater desalination projects come on line, California wetlands could receive an essential life-line in the form of mitigation funding. Indeed, such is the case regarding the proposed HB plant and the *Bolsa Chica Wetlands*<sup>18</sup>.

**Climate Change, All Forms of Water Infrastructure and Southern California are Inextricably Linked.** OC WISE sees Climate Change as one of the most pressing environmental problems facing California and Orange County; in particular so in relationship to our imported water dependence. Accordingly, our membership fully supports the language in paragraph 4 of the Draft Resolution which states: "*The most effective way to reduce greenhouse gas concentrations in the atmosphere is to reduce emission sources.*" Having the Water Boards take a leadership role in working with the legislature to ensure renewable energy for all water infrastructure projects including desalination would be a significant step in that direction.

Respectfully submitted,

Robert H. Sulnick  
Executive Director

CC:  
Frances Spivy-Weber  
Tam M. Doduc  
Steven Moore  
Dorene D'Adamo

<sup>18</sup> In proposing a desalination plant for Huntington Beach Poseidon has also proposed a mitigation plan to maintain the inlet at *Bolsa Chica* as mitigation for its project. This mitigation would provide environmental sustainability for the Wetlands for years to come.

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