

Water Storage Investment Program Concept Paper Form

Please complete the questions below and return your completed concept paper by email to cwc@water.ca.gov by 5:00 p.m. on March 31, 2016. Completed concept papers should not exceed four pages.

Contact Information

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Agency/Organization Name: City of San Diego – Public Utilities
Agency Type (select one): <input type="checkbox"/> Public Agency <input type="checkbox"/> Nonprofit Organization <input checked="" type="checkbox"/> Public Utility <input type="checkbox"/> Tribe <input type="checkbox"/> Mutual Water Company <input type="checkbox"/> Local Joint Powers Authority <input type="checkbox"/> Other:

Project Information

Project Name: Pure Water San Diego
Project Type: <input type="checkbox"/> CALFED Surface Storage <input type="checkbox"/> Groundwater Storage <input type="checkbox"/> Groundwater Contamination Prevention or Remediation <input type="checkbox"/> Conjunctive Use <input type="checkbox"/> Reservoir Reoperation <input checked="" type="checkbox"/> Local Surface Storage <input type="checkbox"/> Regional Surface Storage <input checked="" type="checkbox"/> Other: Advanced Water Purification
Estimated Project Cost: \$3.2B
Estimated WSIP Funding Request: <i>To be determined</i>
Please describe your project, including location, water source, facilities, and operations: <div style="color: blue; font-size: small;"> <p>The City of San Diego (City) and its regional partners face significant issues with water supply and wastewater treatment. Water is critical to the health, safety, and quality of life of people living in the San Diego region. Currently ninety-five percent (95%) of the region’s water supply is imported. The region’s reliance on imported water causes our water supply to be vulnerable to impacts from shortages (including environmental pumping restrictions in the Delta) and susceptible to price increases beyond our control. As sources of local water supply are few, the City of San Diego is exploring non-potable and potable reuse opportunities. Water reuse is proven, safe, reliable, and is currently a significant part of water supply portfolios in other communities in the United States and around the world.</p> <p>The Pure Water Program is a significant water and wastewater Capital Improvement Program that will create 83 million gallons per day of locally controlled water by diverting wastewater flow from the Pt. Loma Wastewater Treatment Plant (PLWTP) and treating it to drinking water quality for potable reuse purposes. This will reduce the amount of total suspended solids currently discharged to the ocean, recycling a valuable and limited resource—water. The program will transport the highly-treated purified water to one of the City’s current drinking water reservoirs—either San Vicente or Miramar—where it will later be withdrawn and piped to one of the City’s existing drinking water plants for treatment and distribution to San Diego residents as potable water. Although the Pure Water</p> </div>

Program makes effective use of existing facilities and infrastructure as noted in order to expedite construction and bring the project online as soon as possible, this is a twenty-year program that will involve the planning, design, and construction of new advanced water treatment facilities, wastewater treatment facilities, pump stations, and pipelines. The Pure Water Program will also include property and easement acquisition, discretionary permitting, facility startup, testing, operation and maintenance of new facilities, and significant public education and community engagement. Phase One of the Pure Water Program is currently scheduled to come on-line in 2021, producing 30 million gallons per day of purified water for San Diegans. Phase Two of the Program is set to come online in 2035, adding an additional 53 million gallons per day of water supply, for a total of 83 million gallons per day at full project implementation.

The Program would use advanced water purification technology to produce potable water from recycled water and provide a safe, reliable and cost-effective drinking water supply for San Diego, while at the same time reducing the City's reliance on imported water from fragile ecosystems like the California Bay-Delta and the Colorado Rivers (conveyed via the California Aqueduct and the Colorado River Aqueduct, respectively). In addition, drought conditions further impact San Diego's water supply availability, such as the 5% State Water Project allocation in 2014. This forces water agencies to draw down water reserves, implement mandatory conservation measures, and search for new, dependable and environmentally sustainable sources of water.

Per Water Code section 79753, the Commission may only fund the public benefits of water storage projects. Further, ecosystem improvements must make up 50% of the funded public benefits (Water Code section 79756(b)). What public benefits does your project provide? (select all that apply):

- Ecosystem Improvements Water Quality Improvements Flood Control
 Emergency Response Recreation

Please describe the magnitude of the public benefits and how the project will be operated to provide the public benefits:

The Public benefits resulting from the Pure Water Projects are many and include the following:

- Provides up to 83 mgd of locally-controlled water source. This source of water is more reliable than other sources located thousands of miles away that are more susceptible to interruptions due to natural disasters, environmental limitations or pumping restrictions.
- Reduces reliance on imported water and will provide up to 33% of the projected estimated local usage that is locally-controlled.
- Pure Water San Diego is a drought-resistance source. This source of water is not affected by seasonal variations and can be maintained at all times.
- Requires less energy to produce Pure Water locally than conveying imported from the Bay Delta or Colorado River.
- Reduces flows to the Pt. Loma Wastewater Treatment Plant, reducing the Total Suspended Solids (TSS) discharged to the ocean.
- Provides potentially enhanced capture and beneficial reuse of biosolids.

- Provides potentially increased capture and beneficial reuse of biogas/methane, as well as potentially enhanced renewable energy production through cogeneration.

Water Code section 79752 requires that funded projects provide measurable improvements to the Delta ecosystem or to the tributaries of the Delta. Please describe how your project provides ecosystem improvements in the Delta or tributaries to the Delta:

Implementation of the Pure Water Program will allow San Diego to reduce its reliance on water imported from the Delta. Also, as San Diego and California continue to experience drought conditions, vulnerability to climate change threatens imported water supplies. The City's 2012 Long-Range Water Resources Plan (LRWRP) identified climate change impacts to water supplies and demands in which a 10,000 to 50,000 AFY shortfall in water supply in 2035 was identified as having a probability of 20% in an unmitigated situation. The Pure Water Program could also assist in statewide climate change adaptation as sea-level rise impacts water quality and salinity in the Delta, by providing a reliable local source of water that will reduce San Diego's dependence on imported supplies.

Reducing the City's reliance on imported water through the Pure Water Program will help to contribute to the protection of endangered species in the Bay Delta region due to the effects of drought.

The Pure Water Program will reduce flows to the Pt. Loma Wastewater Treatment Plant, reducing the Total Suspended Solids (TSS) discharged to the ocean.

Water Code sections 79755 and 79757 require the Commission to make a finding that a project will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses in the Delta prior to allocating funding for a project. Please describe how your project could help advance the long-term objectives of restoring ecological health and improving water management for beneficial uses in the Delta:

The Pure Water Program's production of purified potable reuse water will establish local control over the water supply and address the City of San Diego's water supply concerns such as rising population, lack of local rainfall and limited underground aquifers, raising water cost due to heightened competition for limited supplies, and vulnerability to climate change.

It is anticipated that the cost of imported water will continue to rise drastically, with demand growing as a result of expected population increases of 25% in San Diego County. With the use of advanced water purification technology to produce potable water from recycled water, the Pure Water Program would provide a safe, reliable and cost-effective drinking water supply for San Diego, while at the same time reducing the City's reliance on imported water.

Continued drought within San Diego and the western United States threatens imported water supplies, and water available from the State Water project and the Colorado River Basin will be less reliable. The City's 2012 Long-Range Water Resources Plan (LRWRP) identified Climate Change Impacts to Water Supplies and demands in which a 10,000 to 50,000 AFY shortfall in water supply in 2035 was identified as having a probability of 20% in an un-mitigated situation. To mitigate the risk, LRWRP identified a Hybrid 2 approach, which includes 93,000 AFY of indirect potable reuse (Pure Water Program) as its primary source of water supply with an additional 37,300 AFY coming from

conservation and groundwater extraction. This approach reduces the shortfall in water supply to 0 AFY with a probability of 20%.

The Pure Water Program will reduce the need to import water from the Bay-Delta and Colorado River. Placing less demand on imported water will help to preserve and improve the habitat for threatened or endangered species of these regions.

Please describe any other benefits provided by your project, such as water supply reliability benefits, and the potential beneficiaries:

The Pure Water Program will ultimately result in 93,000 AFY of the anticipated 298,860 AFY of the City's water supply by 2035 or approximately 30%. Phase 1 & 2 of the program (North City) is scheduled to be completed in 2021 and will result in 30 mgd (33,600 AFY) of water suitable for potable reuse. These water supplies will benefit all water users in the City of San Diego's jurisdiction, 1.3 million residents counting on the City for their water supply needs. Moreover, the City's Public Utilities Department also provides wastewater services for both the City and surrounding region, to a total of 2.2 million residents. Residents will also benefit from the wastewater system improvements that are a direct result of the Pure Water Program, including significant reductions in ocean discharges. Moreover, implementation of the Pure Water Program may increase the City's recovery and beneficial reuse of biosolids, as well as enhanced biogas/methane capture and beneficial reuse, which could decrease emissions of this greenhouse gas and also generate renewable energy. These benefits have led to significant support for the project from a wide range of environmental advocacy organizations.

The Pure Water Program produces a new source of supply for the production of potable water for San Diego, increases the amount of reclaimed water, and diverts wastewater flows from ocean outfalls. The result is a sustainable, resilient water supply that reduces the need for imported water while protecting the ocean and the Delta watershed. The Pure Water Program:

- Uses proven technology to produce safe, high-quality drinking water
- Provides a reliable, sustainable, locally controlled water supply
- Offers a cost effective investment for San Diego's water needs

The Pure Water Program benefits the region and state as a whole as it provides a safe, reliable, drought proof, locally controlled drinking water supply for the San Diego region while reducing the demand from imported water supplies, and thereby resulting in improved ecological health and water management in the Delta region.