California
WATER COMMISSION

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

Contact Name: Robert Simpson	
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Agency/Organization Name: Citizens Water Plan	
Agency Type (select one):	☐ Public Agency **X Nonprofit Organization** ☐ Public Utility ☐ Tribe ☐ Mutual Water Company ☐ Local Joint Powers Authority ☐ Other:

Project Information

Project Name: Delta Tulare Plan	
Project Type:	**X CALFED Surface Storage X Groundwater Storage** ☐ Groundwater Contamination Prevention or Remediation **X Conjunctive Use** ☐ Reservoir Reoperation ☐ Local Surface Storage **X Regional Surface Storage** ☐Other:
Estimated Project Cost: $5 Billion for two reservoirs of about 4.9 million Acre Feet.	
Estimated WSIP Funding Request: $2.5 Billion	

Please describe your project, including location, water source, facilities, and operations:

The project will consist of two reservoirs designed to maximize the potential of storm water capture from the James Bypass on the kings river and the San Joaquin River at it's conjunction with Tuolomne River. Yes, this is a low cost per acre foot of storage and the net savings can only be achieved by constructing both at the same time. Soils and salts will be removed from the Tulare lake bed region to construct local levees to contain a restored Tulare lake, but will also be used to construct an earthen dam due west of the conjunction of the SJR and Tuolmne rivers. Existing rail lines will provide the primary means of moving dirt from Tulare to the area of the second lake west of the town of Grayson. Basaltic rock will be removed, crushed and sent back to Tulare lake for rock protection of the levees where it is required. The overall construction of the dam near Grayson will be nearly identical to that of San Luis. The Dam near Grayson will be taller than San Luis, but much shorter in length. The maximum levee height at Tulare Lake will be 45 feet and that will be one of the shorter sections.

Using 60 years of USGS "Streamflow" Data, an average of 186,000 acre feet of will resume its natural course into Tulare lake with little assistance and minimal infrastructure. This water will come in large quantities in wet years and dry years will provide no flows from this source. Thirty five (35) large environmental groups support this concept.

As both projects are in extreme proximity to the SWP and CVP aqueducts, additional water for both dams can be supplied from storm/flood water capture near the town of Grayson, CA or from the Delta

itself. Any capture from the delta should be limited in timing and scope.

Many existing plans fail to consider much of the newer research that has been conducted on the aquatic food web production within the Delta itself. For instance, Dr.'s; Carson A. Jeffres , Jeff J. Opperman and Peter B. Moyle, write in their paper titled: **Ephemeral floodplain habitats provide best growth conditions for juvenile Chinook salmon in a California river,** that:

"Growth of fish in the non-tidal river upstream of the floodplain varied with flow in the river. When flows were high, there was little growth and high mortality, but when the flows were low and clear, the fish grew rapidly. Fish displayed very poor growth in tidally influenced river habitat below the floodplain, a habitat type to which juveniles are commonly displaced during high flow events due to a lack of channel complexity in the mainstem river."

The full paper is available at this link:

http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/exhibits/usdoi/spprt_docs/doi_jeffres_2008.pdf

In short, oceanographers want large delta discharge events that, due to the unnatural and channelized system, may provide some delivery of delta silts into San Pablo bay. While some "flooding" is desirable, large flows can be highly destructive to the delta food web and its levees. It is the current cycle floods and drought in the delta, and the negative impact of this cycle that this project and a third non storage project intend to address. Essentially we are looking to optimize "in delta flows" to enhance food web production while reducing the negative aspects of too much water in a short period of time on the modern "channelized" structure of the Delta.

I will be in the Sacramento area to present our model at the CA Water and Environmental Modeling Forum from Aril 12th though 14th. At that time or at of time of your convenience, I would be happy to provide you with a copy of our larger model that compiles 60 years of USGS Streamflow **and** DAYFLOW data. This model shows how we can eliminate reverse flows and restore more natural flows, substantially increase water quality for both contaminants and temperature and hopefully restore a productive food web.

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):

X Ecosystem Improvements X Water Quality Improvements X Flood Control
☐ Emergency Response **X Recreation**

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

Draining Tulare Lake was the largest environmental disaster in U.S. history that is yet to be mitigated. This caused the extinction of several species, adversely impacted the Pacific Flyway, changed the land surface/atmosphere energy budget, altered weather patterns and eventually contributed to the regional ground water defecate that has led to land subsidence in the area. Regional wetlands in and surrounding Tulare lake were so vast that they added phrases to CA vernacular. Have you ever heard the phrase "getting lost in the Tulles"? How about "Tulle Fog"?

The original Tulare Lake held 25 million acre feet of water. A partial restoration of Tulare lake would provide about 3.65 million acre feet of surface storage. The lake would also provide a means of conveyance of water between the CA aqueduct and the Friant Kern Canal. Excess winter flows into the lake would pump into the Friant Kern canal and feed into new and existing (Managed Aquifer Recharge) facilities along the Fiant Kern canal. This general concept is supported by 35 major environmental groups.

It is extremely important to understand that capturing floodwaters from the James Bypass at an average rate of 186,000 acre feet per year and having the ability to move some of these waters into the Friant Kern canal will help meet the demand for Friant Dam water in summer. This will more than compensate for the waters planned to be use for the San Joaquin River restoration project and these waters will help water quality in the southern portion of the Delta during the summer.

The addition of a second lake West of the town of Grayson, CA would allow for more winter storm water capture from the SJR and provide additional storage south of the delta of about 1.25 million acre feet. Storm water capture at this point would provide an additional 490,000 acre feet of water on average. Here, it is important to understand that the average input to the delta from the SJR is about 5 million acre feet per year. **We will only be capturing water during above average years!** During these periods the Delta inputs defined as EAST inputs (SJR inputs are the largest component of EAST inputs) reached a high in 1983 of 21.6 million acre feet and typically reach inputs of 10-13 million acre feet per year. Storm water capture during these periods will reduce the risk of floods in the delta and the risk of the privately maintained levees of the southern delta from failing as they have done so often throughout history. Reduction of flood waters flowing into the delta will also improve the production of the environment.

To be more precise about how the timing of the water capture, it would be helpful if I could provide you with copy of the model.

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:

While the Ca Water fix focuses on Northern storage and conveyance though the Delta, this project focuses on harmful floodwaters that threaten levees, lives and the ecosystem within the delta. A third project, with a much smaller "in delta footprint" is planed to move Sacramento flood waters from Sherman island to the pumps at the Southern end of the delta. Again, this system is designed to capture high flow events. In doing this, the system will provide enough water moving South to eliminate the groundwater defecate in the southern half of the central valley. **Under the conditions of the model, no CVP or SWP pumping will be conducted until "OUT" to sea flows passed Sherman Island exceed 10,000 cfs. Under today's pumping criteria, pumping still occurs when flows drop below 2,000 cfs. This is Killing the delta ecosystem!**

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:

Prior to allocating any water for CVP or SWP use, the project model provides about 90,000 additional acre feet of water per year for local use. This is in addition to maintaining flows out of the delta at or about 10,000 cfs. The 90,000 acre feet is intended to meet the future demands of the Contra Costa, EBMUD and other local water districts. It may however be use for environmental purposes as well.

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

While most current water plans under any form of serious consideration include great consideration for the "in Delta" environment, most fail to consider the larger environmental impacts that our water system and water use has on the larger environment. We know that our current water defecate in the southern half of the central valley is about 800,000 acre feet per year. If we intend to "conserve" our way out of this shortage by fallowing fields and reducing the evapotranspiration (ET) from farming we can expect summer temperatures to rise throughout the Southern region of the U.S. by about 2 degrees Celsius during the summer months. We can also expect a reduction of monsoonal rain in the 4 corners region through the pan handle of OK & TX of about 850,000 acre feet per year.

A simple calculation using the only the latent heat of water evaporation shows that this practice would add about 532,308 kilotons of heat energy to the southern half of the central valley alone. This is the equivalent heat energy released by 35,487 Hiroshima sized bombs exploding in this area and would be concentrated in the summer months.

While we must protect the delta environment, I believe that fighting global warming and protecting the environment of the Southwest U.S. should also be considered a "co-equal" goal.