CALIFORNIA WATER COMMISSION
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May 25, 2018

Sylvie Lee, Manager of Planning & Environmental Resources
Chino Basin Conjunctive Use Environmental Water Storage/Exchange Program
slee@ieua.org

Dear Ms. Lee:

Attached please find the Water Storage Investment Program technical review for the Chino Basin Conjunctive Use Environmental Water Storage/Exchange Program. The technical review contains the preliminary application scores and related reviewer comment. Additional documents including California Department of Fish and Wildlife and State Water Board Relative Environmental Value reviews and public benefit findings of the Department of Fish and Wildlife, Department of Water Resources, and State Water Resources Control Board, as appropriate, can be found at the following link: https://cwc.ca.gov/Pages/WSIP/ChinoTech.aspx

Additionally, staff is finalizing summaries of information related to Commission determinations. We will transmit and post this information no later than 5:00 p.m. on June 4.

Staff from the Commission, Department of Fish and Wildlife, Department of Water Resources, and State Water Resources Control Board look forward to engaging with applicants and stakeholders at the scheduled meetings on June 6 and 7. These meetings are intended to focus on the preliminary scores and determination information. Any issues of clarification identified at the June 6 and 7 meetings will be reported by staff to the Commission at the June 27-29 meeting for its consideration in making final application scores and project determinations.

We look forward to your continued engagement in the Water Storage Investment Program.

Sincerely,

Joe Yun
Executive Officer
California Water Commission

California WATER COMMISSION

Water Storage Investment Program Technical Review

Chino Basin Conjunctive Use Environmental Water Storage/Exchange Program

Inland Empire Utilities Agency

The Chino Basin Conjunctive Use Environmental Water Storage/Exchange Program (CBEWP) would construct an advanced water treatment facility (AWTF) and distribution facilities that would store up to 15 thousand acre-feet (TAF) per year of treated wastewater in the Chino Basin Water Bank (CBWB). During the first 25 years of operation of the proposed CBEWP, the CBWB, an existing water bank, would be operated in a way that dedicates blocks of water of up to 50 TAF per each dry and critical year, for up to three consecutive dry and critical years, to enhance instream flows in the Feather River below Lake Oroville. This would require agreements with one or more State Water Project (SWP) partners to forego SWP delivery in exchange for receiving CBWB water, and agreements with the Department of Water Resources (DWR) and the California Department of Fish and Wildlife (CDFW) to re-operate Oroville Dam and manage the water to provide an ecosystem benefit. After the initial 25 years of operation, ecosystem benefits would cease, and the water stored in the CBWB would be extracted for local, non-public water supply.

Component Scores

The Water Storage Investment Program (WSIP) scoring components were reviewed and scored in accordance with the WSIP regulations section 6007 and 6009[1]. The scores are recommendations to the Commission and the Commission will assign final scores at the June meeting.

The raw scores for Public Benefit Ratio (PBR), Relative Environmental Value (REV), and Implementation Risk component scores are in a different number scale than the regulation component score scale. The raw scores are normalized to the regulation scoring scale using the formula contained in section 6009(c)(1) of the regulations. The result is the highest raw score receives the maximum points for the scoring component and all other raw scores are assigned point values relative to where they fall in relation to the highest raw score.

Table 1 contains the staff recommended normalized scores for the various component items and the total score for the project.

Table 1. Preliminary Component Scores

Component	Max Value	
Public Benefit Ratio and Non-Monetized Benefits	33	23
Relative Environmental Value	27	24
Resiliency*	25	12
Implementation Risk	15	10
Preliminary Expected Return for Public Investment Score		**69**

* Resiliency score is a non-normalized component score.

[1] All references to WSIP regulations refer to California Code of Regulations, title 23, section 6000 et. seq.

Public Benefit Ratio and Non-Monetized Benefits

The Commission determined the monetized value of public benefits at its May 1-3, 2018 meeting. At that meeting, the Commission afforded the applicant an opportunity to modify its funding request prior to final calculation of the PBR. The applicant altered its funding request that was contained in its February 2018 PBR Review. The PBR was calculated by dividing the total public benefits provided by the project by the applicant's funding request and then normalized. The maximum points possible for this category is 33. The monetized public benefits accepted by the Commission for this project are:

- Ecosystem Improvement—Increased juvenile Chinook emigration
- Water Quality—Groundwater protection
- Emergency Response

Where applicable, Non-Monetized Benefit (NMB) scores were added to the PBR score, if the normalized PBR score was less than 33. NMB scores are solely for recreation, emergency response, or flood control benefits. Ecosystem and water quality benefits that were not monetized were scored in the REV process. The applicant included NMBs in its application.

For Emergency Response, the applicant provided sufficient justification why this benefit could not be monetized. Staff agrees with the applicant's statement that increased water supply reliability for fire-fighting and critical services for public health and safety would result in potentially large avoided costs. The project, as currently designed, would provide a significant public benefit to public health and safety as well as reduce economic losses due to a disruption of services and help reduce potential damages to residential, commercial, and industrial property. However, the qualitative description of the importance of the benefit was insufficient.

Table 2 presents the PBR and associated normalized score, along with the NMB and the staff recommended scores.

Table 2. Public Benefit Ratio and Non-Monetized Benefits

Public Benefit Ratio, as determined by Commission	Normalized PBR Score	Non-Monetized Benefit Score	Preliminary Component Score
1.78	20	3	23

Relative Environmental Value

There are two types of REVs: ecosystem and water quality provided by CDFW and the State Water Board (SWB), respectively. Each application indicated the CDFW or SWB priorities the project would address. A score was assigned by the degree to which ecosystem and/or water quality improvements associated with each claimed priority would be provided by a project.

An explanation of the REV percentage and how it was calculated can be found in the CDFW and SWB REV analysis documents located on the Commission website. For applications with both ecosystem and water quality priorities, the score was split 70% ecosystem and 30% water quality. The score was then normalized to a maximum of 27 points. For applications that had only ecosystem priorities, the score is based solely on the ecosystem REV.

Table 3 presents the REV scores, as determined by the CDFW, for ecosystem benefits, and the SWB, for water quality benefits.

Table 3 - Relative Environmental Value		
Component	Comment	Score
Ecosystem	The CBEWP would provide up to 100 TAF of storage capacity for water dedicated to ecosystem benefits, with an additional 100 TAF of borrowing capacity of previously stored water to provide ecosystem benefits prior to completion of the project. CBEWP's claimed ecosystem benefits would be realized through water transfers with the SWP, whereby a SWP Contractor would use water from the proposed project in lieu of SWP water. This would allow water stored in Oroville Reservoir to be dedicated to providing instream flow benefits. The CBEWP proposes providing up to 50 TAF of water per year, in the spring of dry and critically dry years, to act as pulse flows on the Feather River. The ecosystem priorities identified by the applicant are: • Priority 2 – Provide flows to improve habitat conditions for in-river rearing and downstream migration of juvenile salmonids. • Priority 6 – Increase attraction flows during upstream migration to reduce straying of anadromous species into non-natal tributaries.	60.40
Water Quality	The proposed CBEWP would construct an AWTF and distribution facilities that would store up to 15 TAF per year of unused new local water supply in the Chino Basin Water Bank. The bank would be operated in a way that dedicates blocks of water of up to 50 TAF per year towards ecosystem benefits north of the Delta. The SWB only evaluated the benefit of the Chino Basin Water Bank. The ecological benefits associated with the dedicated blocks of water were evaluated by the CDFW. Inland Empire Utilities Agency claimed that the proposed program would address one SWB water quality priority: • Priority 6: Protect, clean up, or restore groundwater resources in high- and medium-priority basins designated by DWR.	92.50

Table 4 shows the calculation combining the Ecosystem score and the Water Quality score to determine the total REV score.

Table 4. Combined Relative Environmental Value Calculation												
Ecosystem Score Calculation					Water Quality Score Calculation							
Eco Score				Eco Portion Score	WQ Score				WQ Portion Score	Eco Score		WQ Score		Total REV Raw Score
60.40	x	0.7	=	42.28	92.50	x	0.3	=	27.75	42.28	+	27.75	=	70.03

Table 5 shows the normalization calculation for the REV component score.

Table 5. Normalized Relative Environmental Value Calculation						
Total REV Score		Max REV Score		Max Possible Score		Preliminary Component Score
70.03	÷	77.91	x	27	=	24

Resiliency Score

The resiliency score (total of 25 points) is made up of two pieces: the project's integration and flexibility (10 points) and its response to an uncertain future (15 points). Applications that demonstrated a high quality of analysis and high level of integration and system flexibility scored higher than those that demonstrated a low quality of analysis or low levels of integration and added system flexibility. Applications with a good quality of analysis, and that demonstrated their project would perform well in future climate conditions including demonstrating water would be available during a drought, scored higher than those that demonstrated a low quality of analysis, public benefits reduced, or low performance during a drought.

Table 6 is the staff recommended score for Resiliency and the evaluation of the two component: a) Integration and Flexibility and b) Uncertainty.

Table 6. Resiliency		
Component	Comment	Score
Integration and Flexibility	The applicant described a high level of integration of the proposed CBEWP with the SWP as well as regional and local water agencies. The proposed project would recharge up to 15 TAF per year of treated wastewater. The proposed CBEWP would also be integrated into the applicant's existing Chino Basin Water Bank. The applicant stated that the proposed project components are consistent with the applicant's 2015 Integrated Water Resources Plan. The applicant did not describe the inclusion of the proposed project in other integrated planning documents. The CBEWP would produce new supplies to add flexibility to the state water system. The proposed CBEWP would be integrated into the SWP by providing an alternative supply source to meet SWP water delivery obligations and allowing the SWP to reduce Delta exports while maintaining an equivalent level of water supply reliability for SWP customers south of the Delta. SWP supplies that would have otherwise been delivered to southern California would be stored and released from Oroville to provide ecosystem benefits in dry and critical years. The proposed project would provide infrastructure for improved water supply reliability after a 25-year commitment to provide environmental water supplies. In addition, it would reduce dependence on imported water within	8

Table 6. Resiliency		
Component	Comment	Score
	the applicant's service area by maximizing the use of a locally generated water supply. The CBEWP would increase operational flexibility by producing new water supplies; reducing Delta exports providing flexibility to work within regulatory constraints; providing additional conveyance capacity for cross-Delta voluntary water transfers and water markets; and infrastructure connections between Chino Basin Water Bank and Metropolitan Water District of Southern California for southern California water managers.	
Uncertainty	The applicant did not analyze, as required by section 6004(a)(8)(A) of the regulations, how the expected public physical benefits would change under the two extreme 2070 climate scenarios (2070 Wetter/Moderate-Warming and 2070 Drier/Extreme-Warming) and how the proposed project operations could be adapted to sustain the public benefits. Instead the applicant evaluated changes in surface water flows, total Delta exports and outflows, reservoir storage levels, and Delta salinity under the 2030 and 2070 climate conditions. The applicant did not analyze, as required by section 6004(a)(8)(B) of the regulations, how the expected public physical benefits would change with future projects and water management actions and how the proposed project operations could be adapted to sustain the public benefits. Analysis of other sources of uncertainty consisted of public benefit impacts from constrained storage capacity. The analysis indicated that if dedicated storage capacity is reduced from 100 TAF to 50 TAF, the project's ability to accumulate water is much more limited and the project's ability to exchange blocks of water for ecosystem flows in dry and critical years is severely limited. If the project's storage capacity is constrained to 50 TAF, the project's ability to accumulate water to provide ecosystem flows in dry and critical years is severely limited. The analysis concluded that dedicated storage is an important operational parameter for the project to provide the ecosystem benefits. The applicant did not describe alternative operational strategies or adaptations that could sustain the public benefits. The applicant did not describe, as required by section 6004(a)(8)(D) of the regulations, the project performance during a 5-year drought and did not quantify the amount of water stored in the water system due to the project that could be used for public benefits at the beginning and end of a five-year drought.	4
	Preliminary Component Score	**12**

Implementation Risk

The implementation risk score is the total of the technical, environmental, economic and financial feasibility scores. One to five points, per category, were assigned depending on whether the information provided in the application showed a high or low risk of the project being built or operated in the timeframes provided, as well as whether the information was or was not well supported. The points total, maximum of 20, was then normalized for a maximum of 15 points.

Table 7 is the staff recommended score for Implementation Risk and the evaluation of the four component factors: Technical Feasibility, Financial Feasibility, Economic Feasibility, and Environmental Feasibility.

Table 7. Implementation Risk

Implementation Risk	Comments	Score
Technical Feasibility	The applicant demonstrated that the project can be constructed with existing technology and available construction materials, work force, and equipment. The applicant also demonstrated that the project is technically feasible consistent with the preliminary operations plan, as discussed below. Conceptual level cost estimates, design drawings, and construction schedule indicated the project can be constructed. The preliminary operations plan contains the four required components and are generally supported by the information provided. The risk that the project cannot be operated to provide the substantiated public benefits, as described in the preliminary operations plan, is moderate. Preliminary operations plan components, as required by the regulations, are listed below: • Project operations and public benefits under a range of hydrologic conditions, including wettest and driest years and multiple dry years Generally supported • The actions that will be taken to meet the desired public benefit objectives - Generally supported • How operations will be monitored to ensure public benefit outcomes Generally supported • Preliminary adaptive management strategies - Not supported The applicant states that the project would create a new water supply through recharging the groundwater basin with treated wastewater that is independent of hydrology. The applicant does not describe how the public benefits would be met over a range of hydrologic conditions. The applicant generally describes operation of the existing Chino Basin but does not describe the actions that will be taken to meet the desired public benefits. The application states that the proposed project would operate within existing rules and regulations, and generally describes how water produced by the project would be dedicated to instream flows. The	3

Table 7. Implementation Risk		
Implementation Risk	Comments	Score
	descriptions do not provide enough detail to understand how the public benefits would be met. The monitoring efforts described by the applicant include data collection on the correlation of flows and fish which would be used to maximize the effectiveness of the pulse flows. The applicant generally states that the project will operate under an adaptive management strategy with the goal of maximizing project performance and benefits and describes future possible uncertainties. The adaptive management strategy is not described.	
Financial Feasibility	The applicant has not fully demonstrated that sufficient funds are likely to be available from public and non-public sources to cover the construction and operation and maintenance (O&M) of the project over the planning horizon. The financial analysis provided by the applicant indicates a medium risk of being unable to build or operate the project. The monetized non-public benefits are approximately fifteen percent of the non-public costs. The applicant reduced its funding request to be equal to the eligible funding amount and reviewers could not identify another funding source in the application to replace that funding. Revenues from non-public water supply benefits would not occur during the first 25 years of project operation. The applicant states that it will cover project costs, and demonstrates a strong rate base and history of meeting financial obligations. The applicant describes in the file "IEUA_A1 Feasibility Documentation.pdf" that 75 percent of the O&M costs (estimated at $910 per acre-foot) would be paid by the applicant through local Chino basin water rates and/or connection fees. The other 25 percent of the O&M would be paid by the SWP Contractors that would take the delivery of water from this project for 25 years. The applicant committed to pay all ongoing O&M costs after 25 years. The applicant also indicated that it plans to update its 2015 Cost of Service study "*to determine the most appropriate means to collect project required revenue, either from water rates and/or connection fees*" (see page 16 of IEUA_A1 Feasibility Documentation.pdf).	3
Economic Feasibility	Considering all benefits and costs quantified and monetized by the applicant and adjusted by staff, the calculated benefit/cost (B/C) ratio is 0.47. Expected monetized benefits of the project are substantially less than expected costs. Public benefits include water quality, ecosystem, and emergency response, which are about 74% of total benefits. Non-public benefits include water supply and are about 26% of total benefits. The applicant's analysis of total costs relative to total public and non-public benefits, as adjusted by staff, indicates a medium-high risk of being unable	2

Table 7. Implementation Risk		
Implementation Risk	Comments	Score
	to build or operate the project. The B/C ratio is substantially less than 1.0. The economic feasibility information is not fully supported because some benefits, including alleviating historical land subsidence, have not been monetized and it is unclear whether those non-monetized benefits would be large. Also, additional costs associated with arrangements that may be required to exchange stored recycled water for Lake Oroville stored water have not been monetized.	
Environmental Feasibility	Several project elements are covered under existing environmental documentation and some elements are still in the early environmental review stages. There is uncertainty whether an instream flow dedication and the remaining environmental documentation will be completed in the timeline proposed. There is a moderate level of certainty that the project can be built and operated. The environmental documents for a portion of the overall project have been completed. However, only a Notice of Preparation has been prepared for the following project components: • Project Element #1 - the acquisition of 15,000 AF of treated wastewater from upstream sources tributary to the Santa Ana River • Project Element 3b - to construct facilities to extract, treat, and distribute 50,000 AF from CBWB, and connect to a partnering SWPC distribution system The Programmatic Environmental Impact Report is scheduled to be completed by the end of August 2020. The application describes how significant environmental impacts will be mitigated and that the Lead Agency will prepare a Statement of Overriding Considerations for a significant and unavoidable impact to regional air quality. Due to the preliminary nature of the overall project's environmental documents, it is difficult to assess whether there will be any other significant and unavoidable impacts. Several project elements are covered under existing final environmental documents; however, draft environmental documents for the remaining project elements have not been completed and are described as being covered under a programmatic-level document. It is unclear if the project elements will be covered in a project level document. The application includes a permit list and a schedule which shows the permits will be acquired by the end of 2019. The applicant has identified that an instream flow dedication (California Water Code 1707) would need to be filed by DWR for the pulse flows proposed. Acquiring (purchasing) treated wastewater discharges from upstream Santa Ana River agencies may require a wastewater change petition from SWB. A Water Right	3

Table 7. Implementation Risk		
Implementation Risk	Comments	Score
	change may also be required. However, because at least three project element environmental documents are not final, it is difficult to assess whether the permit list is comprehensive. Because some project elements are in the early stages of development, comments from agencies that would approve permits have either not been received or were not available for review, which increases the implementation risk of the proposed project. An instream flow dedication for the proposed pulse flows could take several years to obtain, thus increasing the implementation risk of the project realizing the ecosystem benefits.	
	Preliminary Component Score	**11**

Table 8 shows the normalization calculation for the Implementation Risk score.

Table 8. Normalized Implementation Risk (IR)						
Total IR Score		Maximum IR Score		Maximum Possible Score		Preliminary Component Score
11	÷	17	x	15	=	10