

Los Vaqueros Reservoir

Frequently Asked Questions

How much will it cost to build and operate the expanded Los Vaqueros Reservoir?

The Initial Economic Evaluation for Plan Formulation Report (July 2006) evaluated the economics of one project alternative and found that expanding the reservoir to 275 thousand acre feet (TAF) would cost approximately \$550 million resulting in a Benefit-Cost Ratio between 1.3 and 1.7. Since that time, additional alternatives have been identified that could reduce the capital cost of the expansion while providing similar levels of benefits. Further, the project can be implemented while meeting the CCWD Board Principles and the Assurances included in the March 2004 CCWD customer vote. Feasibility-level studies and environmental impacts analysis (EIS/EIR) are underway.

The annual costs for operations, maintenance and power are estimated at \$3.55 million per year in the Initial Economic Evaluation. These estimates are based on preliminary feasibility studies and include all capital costs for construction, engineering, administration, environmental compliance and mitigation, legal, real estate and contingencies.

How much did it cost to build the existing Los Vaqueros Reservoir?

In November 1988, Contra Costa Water District voters approved a measure authorizing CCWD to issue bonds for the development of a new 100,000 acre-foot Los Vaqueros Reservoir as a solution to water quality and emergency storage challenges. The project was constructed and operational within nine years from the date it was approved, and delivered for less than the \$450 million budget.

Is Los Vaqueros Reservoir a good location for surface storage?

The location of the Los Vaqueros Reservoir near the state and federal water system pumps in the south Delta makes it uniquely positioned to provide environmental and water operations benefits for the Delta and Bay Area water users.

The CALFED Bay-Delta Program Programmatic Record of Decision (ROD), signed in August 2000, identified potential opportunities to restore the Bay-Delta ecosystem and improve water quality and reliability. Water storage projects were listed as one component of this strategy. Los Vaqueros Reservoir is one of five sites identified as potential locations for expanding surface water storage. The other potential projects are enlarging Shasta dam, new north of Delta storage, new In-Delta storage on Delta islands, and new or expanded storage on the San Joaquin River. Each of the storage projects has unique purposes and they are being evaluated independently.

What are the identified benefits of a Los Vaqueros Reservoir expansion?

Los Vaqueros Reservoir will add flexibility to the state's current water management system and can provide unique benefits which include:

- A dedicated water supply for Delta fish protection, habitat management, or other environmental purposes, such as fish restoration and refuge management
- Emergency water storage to protect Bay Area water users against Delta levee failures, regulatory restrictions, or other water supply disruptions
- Improved water quality to reduce salinity, total organic carbon and taste & odor compounds for Bay Area water users
- Increase flexibility of diversions from the Delta, which will allow better adaptive management to benefit water quality and fisheries
- State-of-the-art positive-barrier screens to reduce fish losses
- Improved ability to capture higher, shorter-duration flows if California's snowpack is reduced in the future

How can surface storage assist in saving the Delta?

The added storage and new intakes with state-of-the-art positive barrier fish screens allow additional flexibility in the location and timing of pumping from the Delta. With this flexibility, surplus water can be safely stored in the reservoir at times when it is available in the Delta. Water stored in this way can be used specifically to protect Delta fisheries, including Delta smelt, by reducing or eliminating pumping at the state and federal pumps when fish are near the state and federal pumps. In this way, municipal and industrial water supplies can be safely delivered from the Delta while minimizing impacts to fish populations. This flexibility could also be used to provide environmental water to improve habitat in the tributaries to the Delta.

How will water from Los Vaqueros Reservoir be delivered to project partners (beneficiaries)?

Several Los Vaqueros Expansion alternatives are being evaluated that include construction of new conveyance pipelines between Los Vaqueros facilities and either the South Bay Aqueduct pipeline or the South Bay Pumping Plant. In these alternatives, the new conveyance would be used to deliver water from Los Vaqueros to users on the South Bay Aqueduct system.

Alternatives are also being evaluated that include making water supply reliability or emergency supply deliveries from Los Vaqueros through an existing interconnection with EBMUD's Mokelumne Aqueduct pipeline. Using existing water supply network interconnections, water from Los Vaqueros could be delivered to several Bay Area water agencies.

What is the estimated yield of the project?

An expanded Los Vaqueros Reservoir would store up to 275,000 acre-feet of water (one acre-foot is approximately 326,000 gallons – or enough water to serve

2 average households for one-year). Not all of this water could be used each year; some water must remain in the reservoir for emergencies or use in subsequent years. Depending on operating objectives and procedures, it is estimated that the expanded reservoir could store and provide between 60 and 140 thousand acre-feet to improve Bay Area drought reliability and provide replacement supplies for environmental purposes. The reservoir would not make “new” water available to serve new growth. The expanded reservoir would provide flexible locations and timing for drawing water from the Delta for Bay Area partners to improve water supply reliability and provide environmental benefits.

What are the impacts on the environment?

The initial studies examined how an expanded reservoir could affect wildlife, wildlife corridors, and habitat in the Los Vaqueros Watershed. The Project team is currently evaluating impacts from facilities expanding the reservoir up to 275 TAF. As part of the permit approval process for the project, state and federal natural resource agencies will specify the acreage of required "mitigation" for these impacts. Such habitat restoration enhancement could accomplish the following:

- Improve habitat quality
- Increase acreage of suitable habitat for wildlife and plant life
- Increase species population sizes, use, and range
- Expand and link regional habitat areas

Additionally, as discussed above, one of the primary objectives of the expansion is to create a net benefit for the Delta and its tributaries.

How will water for an expanded Los Vaqueros Reservoir be taken from the Delta?

The Delta water that serves southern Bay Area water agencies (other than CCWD) is pumped from large pumping plants in the south Delta. The pumps are located at the end of a river channel and draw a large volume of water. At certain times of year, the pumps draw large numbers of fish into the louver-type fish screens, where many die in the screens or while being transported back to the Delta. New and/or expanded intakes for an expanded Los Vaqueros Reservoir would rely on much more effective positive-barrier fish screens, and would be located on the side of river channels so fish could swim past the fish screens rather than being trapped in them. These intakes would also provide flexibility for water operators to draw from an alternate location if fish are near one set of pumps.

The existing Los Vaqueros Reservoir pumping facilities incorporate positive-barrier fish screens, which have been monitored extensively during 10 years of operation. Use of this type of screen has resulted in substantial fishery protection at this CCWD intake (for example, no salmon and only one Delta smelt larva has been found in the intake in almost ten years of operations).

Will Los Vaqueros Reservoir diversions affect the Delta?

An expanded reservoir would divert surplus water only when fish impacts are low and water quality is high. The stored water can be used to meet Bay Area water needs throughout the year and create environmental benefits in the Delta or its tributaries. Therefore, a larger reservoir would allow more flexibility to meet water needs and protect the Delta at the same time.

The studies have found that an expanded Los Vaqueros Reservoir would change the water levels by less than 0.1 foot near proposed intakes and even less at agricultural diversion locations. Therefore, there would be no significant effect on water levels for current Delta users. Similarly, river velocities would change less than 0.1 foot per second at locations near intakes, having no effect on scour or other factors affecting local water users, and no adverse effects on fish or aquatic habitats within the Sacramento and San Joaquin River systems.

Will construction or operation of the Reservoir contribute to global warming?

The recent Public Policy Institute of California (PPIC) report and other sources suggest that an expanded reservoir at this location in the Delta could help the state protect against climate change. The project location allows for the capture and storage of early runoff and Delta surplus and is not in danger of spilling due to upstream flows. The expansion project fits in very well with most projections of climate change in California. The environmental studies are evaluating what impacts construction equipment and reservoir operations might have on greenhouse gas emissions.

What is the cost of the water?

Based on a preliminary cost allocation for one possible project formulation, water from Los Vaqueros Reservoir will have an average cost of approximately \$330 per acre-foot. Additional alternatives are currently being evaluated, and updated costs will be included in the Feasibility Report.

Do other cost effective alternatives exist?

The recent studies have examined the water costs for other water sources, including the Environmental Water Account (EWA), which has purchased water to protect Delta fish. Historically, EWA water has been purchased on the spot market, and purchase prices have increased at a rate greater than inflation. Future EWA water spot market prices are projected to increase at a rate even greater than the historical rate. The Los Vaqueros Expansion could provide a stable supply of environmental water that would be generally immune from future inflation.

The cost of water is competitive with other options:

- LV Environmental Water \$330 / acre-foot (includes water, storage and conveyance)

- Recent EWA Purchase Prices \$75 – 460 / acre-foot (based on 2001-2004 prices)
- Conservation \$200 – 600 / acre-foot*
- Recycled \$500 – 1500 / acre-foot*
- Desalination \$800 – 1200 / acre-foot*

**water only, does not include storage or conveyance cost*

Have other project partners agreed to pay for the expansion project?

Reclamation and Department of Water Resources (DWR) are funding the engineering and environmental studies, but once a preferred project is selected, the partners that would benefit from the expansion would pay for their share of construction and operation of the expansion. The potential partners include Bay Area water agencies and the state and federal resource agencies that operate the environmental water program. Because CCWD owns the watershed and existing facilities, CCWD would expect partners to pay CCWD for their share of existing facilities.

How quickly can new surface storage be brought on line?

After completion of the EIS/EIR and Feasibility Report, it will take three to five years for design and construction. The current schedule would have Los Vaqueros Reservoir operating as early as 2013.

Do we need additional water storage if the state plans to reduce water use through conservation and recycling?

California needs to implement a full array of different water management actions. Each contributes in different ways to the overall reliability of the water management system. Water conservation, water recycling, watershed management, conveyance, desalination, water transfers, groundwater storage, and surface storage are all needed in a diversified management portfolio.

An expanded Los Vaqueros Reservoir would address several important aspects of water supply planning that cannot be addressed by other management actions alone. Water storage is an important component to protect against droughts, provide emergency supplies, and to reduce impacts on fisheries. Without storage, water conserved in one year cannot be saved for a future dry year. Furthermore, water that is stored can be used to help fish and reduce environmental impacts. An expansion would also improve the quality of water delivered from the Delta, which is an important consideration for the agencies that rely on Delta water for drinking water supplies. Therefore, the Bay-Delta Program and Bay Area water agencies are examining a mix of strategies, including water conservation, recycling, and storage to improve water quality and reliability and reduce environmental impacts.

How can decisions on surface storage be made without final studies that better define project costs and benefits?

Existing surface storage studies already provide a wealth of information that can be used as the basis of implementation decisions on locating new storage. Since the late 1990s, state and federal agencies have performed detailed studies that have focused on the most promising surface storage projects. This information has been published in a series of documents that can be found on Los Vaqueros, DWR, and Reclamation project websites. The studies have determined estimated project costs and have shown that each potential surface storage project can be operated in a variety of ways to achieve a range of different benefits depending on the objectives of the project partners. The studies have also identified potential environmental impacts, including biological and cultural resources that may be affected. Impact analyses and mitigation strategies will be included in the environmental documents and permits.

Reports and summaries of these studies provide potential partners, including the state and federal governments, sufficient information to evaluate their level of interest in each project. The Draft Feasibility Study Report will be completed for the Los Vaqueros Expansion in 2008. The final studies should include input from project partners so final costs and benefits can be determined. Final decisions on project implementation will be made after the studies are completed and the projects are deemed feasible.

How many years of hydrologic data are being used for the analyses?

The operations studies use 73 to 82 years (beginning in 1922, and extending to either 1994 or 2003) of hydrologic record. In addition, the investigation includes sensitivity analyses that vary these flows to test the possible effects of climate change, such as more winter precipitation falling as rain and less as snow.

How is evaporation being taken into account?

Evaporation for all reservoirs, including Los Vaqueros Reservoir, is accounted for in the operations studies. Evaporation rates are directly related to the exposed surface area in a reservoir and wind and temperature conditions. Preliminary operations studies for Los Vaqueros Reservoir show the total average annual net evaporation ranges from none (this occurs when local precipitation in the watershed is greater than the evaporation from the reservoir water surface) to approximately 9 TAF per water year. These loss rates are comparable to loss rates associated with groundwater projects.