

# Sites Offstream Storage Reservoir Fact Sheet

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**Location:** The Sites Offstream Reservoir Project has been under study by the California Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (BOR) for decades. The Sites project is located in the Antelope Valley, about 10 miles west of the small town of Maxwell on Interstate 5 in northern California. The Antelope Valley is separated from the greater Sacramento Valley by a low range of hills, allowing it to be flooded for "offstream" storage of water pumped from the Sacramento River.

**Review Status:** DWR and BOR have failed to meet several previously set deadlines to produce a Sites Project draft Environmental Impact Report/Statement (EIR/S) and feasibility study for public review, the latest of which was "early 2013," but DWR has posted a 2013 administrative draft EIR/S and other documents, the basis of information in this fact sheet.

**JPA:** These processes have moved slowly for a number of reasons, one being the desire to have some nearby local governments form a joint powers agency to join in and help finance the project. The Sites Joint Powers Agency was formed in 2010, but it is unclear how and when project planning will be accelerated. It hopes to receive Water Bond funding, perhaps the entire bond.

**Information Status:** Although large amounts of information is available, until the draft and final feasibility reports and EIR/S documents are released, much of the information about Sites, including its alleged costs, benefits, impacts, and even purpose is preliminary. And judging from Reclamation's draft Environmental Impact Statements (EIS) for the Temperance Flat Dam and the final EIS for Shasta Dam, major issues may still be unresolved even then.

**Project Purpose:** The government's stated purpose of the Sites Reservoir is to increase water supplies to meet existing water contracts and provide greater flexibility in water management for agricultural, municipal, and environmental uses. Alleged environmental benefits of the project include increasing the survival of anadromous fish (salmon and steelhead) in the Sacramento River and improving Delta water quality.

**Project Description:** The potential reservoir sizes evaluated in detail include a 1.2 million acre foot (MAF) reservoir and a 1.8 MAF reservoir (in comparison, Folsom Reservoir on the American River stores about 1 MAF). The reservoirs would require the construction of two large dams up to 310 feet-high and nine smaller saddle dams. Most of the water stored in Sites would be diverted from the Sacramento River using existing facilities on the river at Red Bluff and north of Hamilton City. Water from these diversions will be ferried through

the existing Tehama-Colusa and the Glen-Colusa Canals to Sites. In addition, a third river diversion and pipeline will be constructed north of Colusa. The diversions will take as much as 5,900 cubic feet per second (CFS) of water from the Sacramento River.

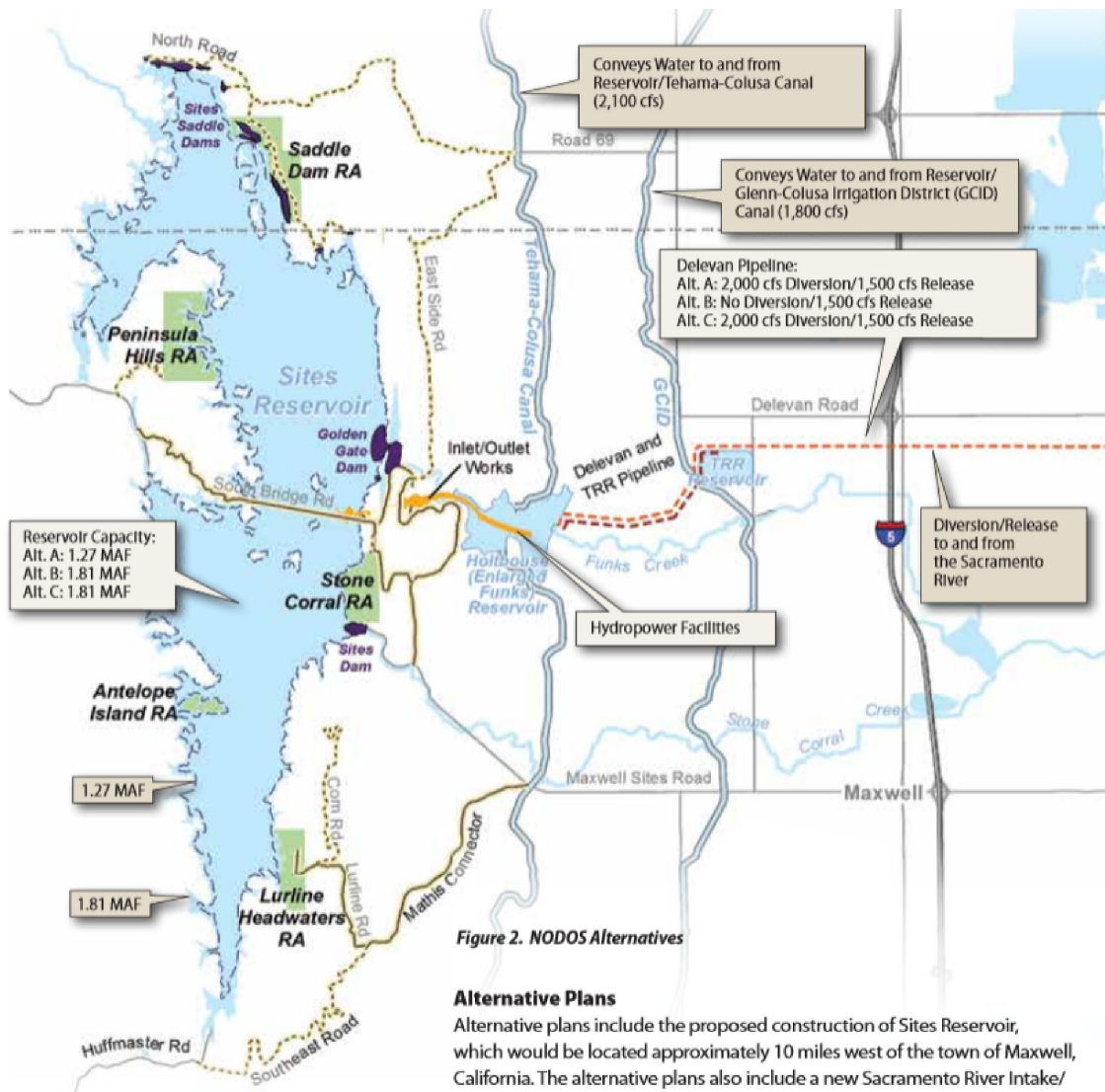


Figure 2. NODOS Alternatives

**Alternative Plans**

Alternative plans include the proposed construction of Sites Reservoir, which would be located approximately 10 miles west of the town of Maxwell, California. The alternative plans also include a new Sacramento River Intake/Release Facility in Colusa County across from Moulton Weir and a new Delevan Pipeline that would be approximately 13.5-miles long to convey water between the Sacramento River and Sites Reservoir. Each alternative plan was formulated to meet the planning objectives described previously.

**Water Yield:** Total storage volume is not the same as water yield, which is the amount of water a reservoir produces, depending on the type of water year (wet, normal, dry, average, nature of drought sequence, etc). The projected average annual increased CVP and SWP deliveries are 210 to 245,000 acre-feet, an increase of 1 to 2% of CVP and 3 to 4% of SWP deliveries compared to the no action alternative. Dry and critical year deliveries are modeled to increase by 4 to 5% in the CVP and 9 to 10% in the SWP. Releases from Sites Reservoir are modeled to be from 425 to 488,000 acre-feet per year.

**Cost:** Just a few years ago, government agencies estimated the cost of constructing Sites and its diversion and conveyance facilities at no more than \$1.2 billion. The 2013 estimates for the 1.2 to 1.8 million acre-foot alternatives ranged from \$2.2 billion to \$4.1 billion depending on the alternative. According to a December 2015 article in the L.A. Times, the current federal estimate is up to \$6.3 billion. Existing DWR documents estimate annualized benefits but say they are deferring annualized cost estimates to the draft feasibility report.

**Customers:** DWR admits that Sites water will cost \$340 per acre-foot, which makes it too expensive for agricultural use. In 2015, the general manager of the Sites JPA, thinks Sites water could reach \$500 to \$700 per acre foot according to press reports, although he believes the water will be affordable once the financing costs are paid off in 40 or 50 years. Exporting it south of the Delta and pumping it over the Tehachapi Mountains to Los Angeles would add another \$150 per acre-foot. It is unclear whether Sites JPA farmers will have the political power to wrest Sites water back from the state's urban agencies is a question. For now, no water agency has committed any of their money to helping build the project. Exactly who will pay for Sites and who will purchase its water remains unclear.

## ENVIRONMENTAL IMPACTS

**Sacramento River** - Significant water diversions from the Sacramento River to fill Sites Reservoir could result in substantial adverse impacts on the river's ecosystem. Flow impacts from Sites diversions are often downplayed by proponents since they will occur during high winter flows. But current minimum flows for the Sacramento River will allow significant diversions throughout much of the year. One perfectly legal diversion scenario could take up to 67% of the average flow of the Sacramento River during the month of April. Further modifying flows in the Sacramento River could affect the river's riparian and aquatic habitats, and the plethora of sensitive, threatened, and endangered fish and wildlife species that depend on these habitats. Flow impacts may be magnified if Sites is constructed along with the BOR's proposed 18-foot raise of Shasta Dam, reducing flows even further.

**Reservoir Footprint** - The Sites reservoir will drown up to 14,000 acres of grassland, oak woodland, chaparral, riparian habitat, vernal pools, and wetlands (including 19 acres of rare alkali wetlands). At least 23 sensitive, threatened, or endangered wildlife species could be affected, including valley elderberry longhorn beetle, fairy shrimp, hardhead, northwestern pond turtle, Cooper's hawk, sharp-shinned hawk, tricolored blackbird, golden eagle, short-eared owl, long-eared owl, burrowing owl, ferruginous hawk, lark sparrow, northern harrier, yellow warbler, white-tailed kite, California horned lark, merlin, prairie falcon, pallid bat, western red bat, ringtail, and American badger. Potential habitat exists for 56 other sensitive, threatened, or endangered species. The reservoir site also supports four rare plant species that the California Native Plant Society considers to be of limited distribution.



**Cultural Resources** - Field surveys have identified 41 prehistoric sites within the reservoir footprint, 17 of which appear to provisionally meet criteria to be included on the National Register of Historic Places. The reservoir footprint may also possess 15 to 20 significant historic sites, including the historic district associated with the town of Sites.



**Water Quality** - DWR claims that Sites could be used to improve water quality in the Delta. But the reservoir is located in a region that naturally produces selenium and high amounts of metals and other potential pollutants. There also could be abandoned mercury mines in the reservoir footprint. The shallow reservoir could concentrate these pollutants in its warm waters and release them downstream into the Sacramento River.

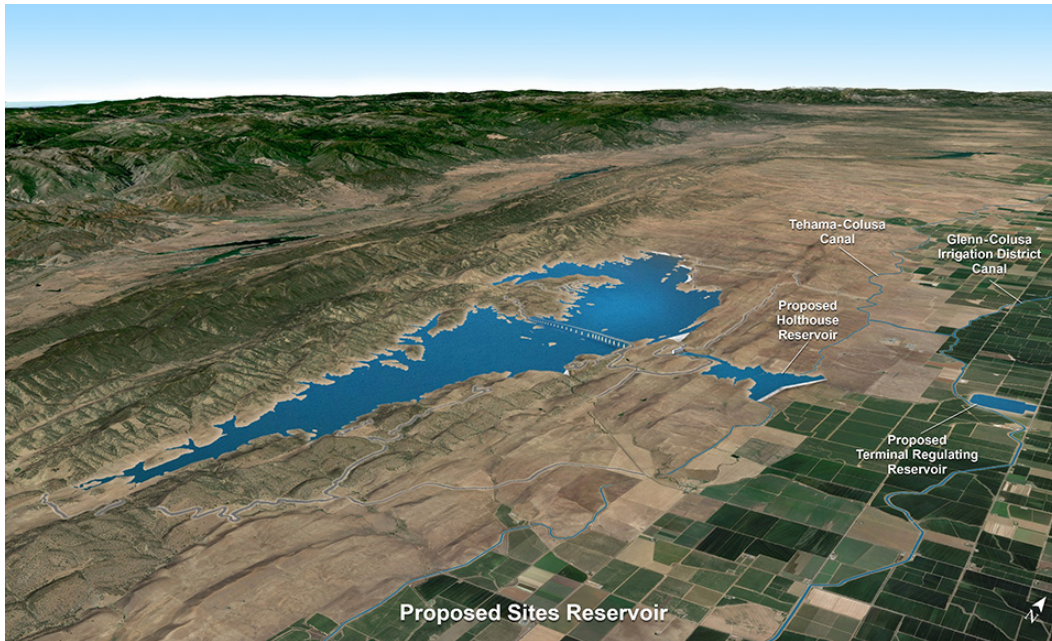
**Net Power User** - Because water diverted from the Sacramento River must be pumped into the reservoir, Sites will be a net power user. Electricity will be generated when water is released from the reservoir, but it will always require more electricity to fill the reservoir. Although the reservoir could produce energy during peak periods, the longterm economic viability of using Sites as a pumped storage facility is unpredictable.

**Seismic Issues** - The Sites Reservoir is located on the Great Valley fault system. This system has produced at least two major and destructive earthquakes (the 1892 Winters-Vacaville quake rated at magnitude 6–7 and the 1983 Coalinga quake rated at magnitude 6.7). According to the most recent seismic studies, faults underneath and adjacent to the various Sites dams could produce a maximum credible earthquake of magnitude 7. The consequence of a powerful reservoir-induced earthquake on unreinforced masonry structures in Maxwell and other local communities has yet to be assessed.

**Evaporation** - California's reservoirs already lose more than 2 MAF of water from evaporation every year. Evaporation from Sites will waste another 30 TAF or about 7% of the project's annual yield.



**Air Pollution** - The net electricity used to fill Sites and rotting vegetation and nutrients from the reservoir will annually produce CO2 emissions equal to the amount of greenhouse gases produced by all passenger cars commuting in the Los Angeles basin for two days.



Sources: "Plans for Sites Reservoir move ahead; new manager hired to lead project," Chico/Enterprise News Record, 9/13/2015. "Preliminary Administrative draft EIR/EIS," California Department of Water Resources, December 2013. "North-of-the-Delta Offstream Storage Investigation 2013 Progress Report," December 2013, U.S. Bureau of Reclamation. "North of the Delta Offstream Storage Overview and Status," power point by California Department of Water Resources staff, August, 2012. "CALFED Surface Storage Investigations Progress Report," California Department of Water Resources, November 2012. "Sites Reservoir Frequently Asked Questions," California Department of Water Resources, September 2007. "North of the Delta Offstream Storage Investigation Progress Report (Final Draft)," Integrated Storage Investigations, CALFED Bay-Delta Program, California Department of Water Resources, July 2000. "Flow Regime Requirements for Habitat Restoration along the Sacramento River between Colusa and Red Bluff," Integrated Storage Investigation, CALFED Bay-Delta Restoration Program, December 1999. "An Example of Average Monthly Diversion from the Sacramento River for Off Stream Storage Reservoir," California Department of Water Resources, August 1998. "CALFED Storage and Conveyance Component Facility Description and Cost Estimate Reports, Volume 1," CALFED Storage and Conveyance Refinement Team, October 1997. "Reconnaissance Survey of the Sites Offstream Storage Project," California Department of Water Resources, July 1996.

