

# Regional Water Supply Solutions Generally More Cost-Effective than New Dams and Reservoirs

Investments in water conservation and regional water supplies (Integrated Regional Water Management, or IRWM) have consistently been far more cost effective and less environmentally damaging than investments in new, large reservoir projects in California.

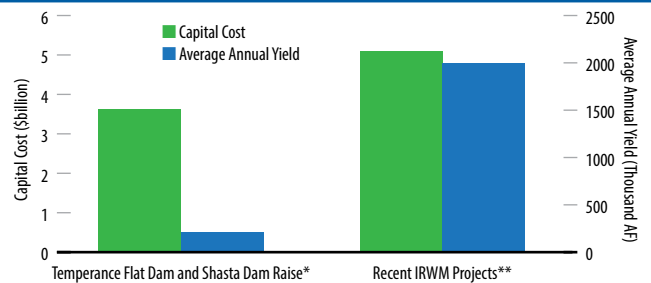
*“Thanks to the voters over the last decade, the state has been able to invest roughly \$1.43 billion in grants to help local agencies implement local water supply reliability projects.... That funding has leveraged an additional \$3.7 billion of local funding and all told, the projects implemented through this approach have yielded about 2 million acre-feet per year of water supplies, either through demand reduction or local supply augmentation.”*

—MARK COWIN, DIRECTOR, CALIFORNIA DEPT. OF WATER RESOURCES, PRESENTATION TO THE SANTA CLARA VALLEY WATER DISTRICT, 2013

Sources:

\* USBR cost and yield estimates from *Upper San Joaquin River Basin Storage Investigation Draft Feasibility Report*, January 2014, [www.usbr.gov/mp/sccao/storage/docs/Draft\\_Feasibility\\_Report\\_2014/USJRBSI\\_Draft\\_FR\\_2014\\_Full\\_Report.pdf](http://www.usbr.gov/mp/sccao/storage/docs/Draft_Feasibility_Report_2014/USJRBSI_Draft_FR_2014_Full_Report.pdf); *Shasta Lake Water Resources Investigation Draft Feasibility Report*, November 2011, [www.usbr.gov/mp/slwni/docs/DFR/MP700\\_SLWRI\\_001\\_CHESto3\\_DFR.pdf](http://www.usbr.gov/mp/slwni/docs/DFR/MP700_SLWRI_001_CHESto3_DFR.pdf).  
 \*\* Statement of Mark Cowin, Director of the Department of Water Resources, 2013, <http://mavensnotebook.com/2013/10/21/mavens-minutes-santa-clara-valley-water-district-workshop-a-statewide-perspective-on-the-bay-delta-conservation-plan/>; *California's Climate Future*, Governor's Office of Planning & Research, 2013, [http://opr.ca.gov/docs/EGPR\\_ReviewDraft.pdf](http://opr.ca.gov/docs/EGPR_ReviewDraft.pdf).

Figure 1: Capital cost and annual water yield comparison

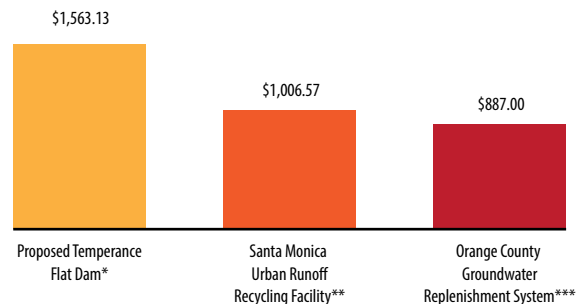


Investments in water use efficiency, water recycling, and other IRWM projects can create new water at a fraction of the cost of water “generated” from new reservoirs.

*“The California Department of Water Resources Bulletin 132-05 (on the management of the State Water Project) reports that transporting water to Southern California from the Delta to Castaic Lake costs \$212 per acre-foot. From the Delta to Lake Perris costs \$391 per acre-foot. Treatment costs add a further \$155 per acre-foot. Thus, water sourced from the proposed Northern California reservoirs would cost \$760–1,400 per acre-foot, delivered to a retail agency in Southern California after treatment. If the reservoirs yield less water annually than projected, the costs would be higher still.”*

—LOS ANGELES ECONOMIC DEVELOPMENT CORPORATION, “WHERE WILL WE GET THE WATER? ASSESSING SOUTHERN CALIFORNIA’S FUTURE WATER STRATEGIES,” 2009

Figure 2: Total cost per acre-foot for water generated from IRWM projects and proposed Temperance Flat Dam (without subsidies)



Sources:

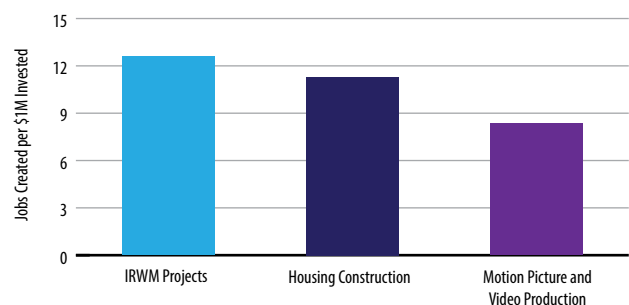
\* Calculation by NRDC, based on cost and yield estimates from *Upper San Joaquin River Basin Storage Investigation Draft Feasibility Report*, January 2014, [www.usbr.gov/mp/sccao/storage/docs/Draft\\_Feasibility\\_Report\\_2014/USJRBSI\\_Draft\\_FR\\_2014\\_Full\\_Report.pdf](http://www.usbr.gov/mp/sccao/storage/docs/Draft_Feasibility_Report_2014/USJRBSI_Draft_FR_2014_Full_Report.pdf), not counting proposed subsidies.  
 \*\* Assumes that annual costs include capital costs repayment over 40 years along with annual O&M costs.  
 \*\*\* Cost and yield estimates from “SMURRF Info Sheet”, [www.smgov.net/uploadedFiles/Departments/OSE/Categories/Urban\\_Runoff/UR\\_SMURRF\\_Info\\_Sheets.pdf](http://www.smgov.net/uploadedFiles/Departments/OSE/Categories/Urban_Runoff/UR_SMURRF_Info_Sheets.pdf).  
 \*\*\*\* Real cost per acre-foot from 2009 to 2010, not counting existing subsidies, [www.gwsystem.com/images/stories/pdfs/Operating\\_Costs\\_Fact\\_Sheet.pdf](http://www.gwsystem.com/images/stories/pdfs/Operating_Costs_Fact_Sheet.pdf).

In addition to water supply benefits, investments in water use efficiency, water recycling, and other IRWM projects create good-paying, quality jobs in local communities and produce as many jobs (or more) as would be created with identical investments in construction industries.

*“An investment of one-million dollars in these five types of water use efficiency projects [water conservation, graywater systems, groundwater management, recycled water, and stormwater] creates 12.6 to 16.6 jobs in Los Angeles’ economy, and stimulates \$1.91 to \$2.09 million in total sales.... Los Angeles’ water use efficiency projects stimulate more jobs per \$1 million invested than the Motion Picture and Video Production (8.35 person years of employment) and Housing Construction (11.3) industries.”*

—LOS ANGELES ECONOMIC ROUNDTABLE, WATER USE EFFICIENCY AND JOBS, 2011

Figure 3: Employment Effects of Integrated Regional Water Management Projects



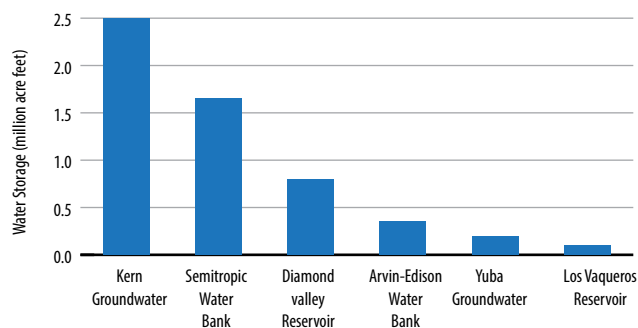
Source: Los Angeles Economic Roundtable, *Water Use Efficiency and Jobs*, 2011, [www.economicrct.org/summaries/Water\\_Use\\_Efficiency\\_and\\_Jobs\\_Study.html](http://www.economicrct.org/summaries/Water_Use_Efficiency_and_Jobs_Study.html).

**In the past few decades, California has added nearly 6 million acre-feet of new water storage capacity, with the biggest gains being realized from groundwater storage projects.**

*“The idea that surface storage is a silver bullet for the state’s water problems is a myth founded on the erroneous notion that large, unregulated amounts of water are available to fill new storage at a reasonable cost. It persists because most people do not recognize the technical limitations and because a few local interests stand to gain from state subsidies for new facilities....Surface storage is a costly way to expand water supplies in part because most favorable reservoir locations already have large dams.”*

—ELLEN HANAK ET AL., CALIFORNIA WATER MYTHS, PUBLIC POLICY INSTITUTE OF CALIFORNIA, 2009

**Figure 4: Recently Developed California Water Storage**



Source: Environmental Defense Fund, 2007, delatavision.ca.gov/DV\_Committee/Nov2008/Handouts/Item\_5\_Spreck\_Rosekrans\_Comment.pdf

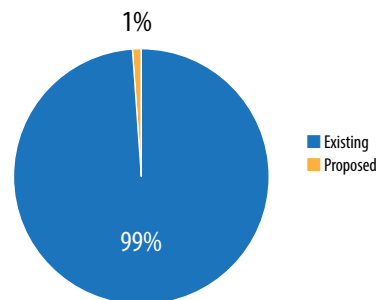
**With more than 1,400 dams in California, adding new surface reservoirs will generate little additional storage capacity and little additional water supply.**

*“Because large reservoirs already exist on most major streams in California, expanding storage capacity has less potential to increase water deliveries than it did in the past. The two frontrunners under consideration, Sites Reservoir in Colusa County and Temperance Flat on the Upper San Joaquin River, would add 3.1 million acre-feet to the roughly 41 million acre-feet of existing surface water storage capacity and increase agricultural and urban water supplies by just 1 percent, at an estimated cost of \$6.4 billion (Figure 5; Department of Water Resources, 2009).”*

—ELLEN HANAK ET AL., CALIFORNIA WATER MYTHS, PUBLIC POLICY INSTITUTE OF CALIFORNIA, 2009

**Figure 5: New surface storage will add little to existing water supplies**

Potential increase in water supplies (average annual yield, not storage capacity) from Sites and Temperance Flat Reservoirs  
Existing water supplies: 38MAF/year (1980-2005 average); additional water supplies from storage: 0.33MAF



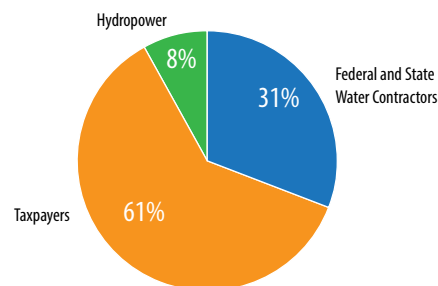
Source: California Water Myths, Public Policy Institute of California, 2009, www.ppic.org/content/pubs/report/R\_1209EHR.pdf.

**Many proposed new reservoirs rely on huge taxpayer subsidies amounting to billions of dollars that provide little or no public benefit.**

The proposed raising of Shasta Dam is economically infeasible without unjustified taxpayer subsidies. While the Bureau of Reclamation suggested that taxpayers should pay more than 61 percent of the cost of raising Shasta Dam because of purported benefits to salmon, the U.S. Fish and Wildlife Service concluded that the project would not have substantial environmental benefits, stating that: *“Only one alternative ... provides any measurable benefit to anadromous fish survival, and even under that alternative, in the vast majority of years the enlarged cold water pool results in either negligible or slightly negative impacts to Chinook salmon survival.”*

—U.S. FISH AND WILDLIFE SERVICE, FISH AND WILDLIFE COORDINATION ACT REPORT, 2011

**Figure 6: Proposed Taxpayer Subsidies for Raising Shasta Dam**



Source: Draft Shasta Lake Water Resources Investigation Feasibility Report, U.S. Bureau of Reclamation, 2011, www.usbr.gov/mp/slwr/dfs/DFR/MP700\_SLWRI\_001\_CIESu3\_DFR.pdf.