

Saving a million acre-feet of water through conservation and efficiency in California

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A new analysis released today by the Pacific Institute recommends specific actions that can annually save a million acre-feet of water quickly and at a lower economic and ecological cost than developing new supplies. The assessment notes that new actions are immediately needed to reduce the growing tensions over the state's water resources and to address California's persistent water supply challenges.

This is a key time for California [water](#): the California Water Bond has been tabled for at least two years and may be scrapped altogether. New reviews from around the state are calling for prompt efforts to use technology, economics, and institutional reform to address the state's water crisis. All parties seem to agree that the state will need a diverse portfolio of solutions - but it makes the most sense to do the most effective things first. The Pacific Institute's new report, *California's Next Million Acre-Feet: Saving Water, Energy, and Money*, quantifies more than one million acre-feet of water that can be conserved through improved efficiency, with savings coming from the urban and industrial sectors and improvements in agriculture.

"There is vast untapped potential to reduce our demand for water without affecting the services and benefits that water provides," said Heather Cooley, co-director of the Pacific Institute's Water Program and lead author of the report. "We identified how the next million acre-feet of water can be conserved in [California](#), with approximately 30% of the savings from the urban sector and 70% from the agricultural sector. Both sectors have savings potential far exceeding this amount, and while we

could have identified one million acre-feet of water savings annually in either sector alone, we're showing how all sectors can benefit from these improvements."

In the urban sector, the report identifies water savings from replacing old, inefficient water-using devices with high-efficiency models in our homes and businesses, as well as replacing some lawns with low-water-use plants. In the agricultural sector, best water management practices include weather-based irrigation scheduling, regulated deficit irrigation, and switching from gravity or flood irrigation to sprinkler or drip irrigation systems.

The efficiency improvements identified in California's Next Million Acre-Feet require an upfront investment of less than \$1.9 billion, costs that could be borne by a mix of state, federal, and local agencies and individuals - all at a small fraction of the cost of the proposed water bond. The cost of the conserved water is \$185 per acre-foot for the agricultural sector and a net savings of \$99 per acre-foot for the urban sector, over the lifetime of the efficiency improvement. Conserving water also conserves energy, saves money, and reduces the need for new water and energy projects.

In contrast, building a new dam at Temperance Flat would require a capital investment of \$3.4 billion and provide only 158,000 acre-feet per year; the cost of this water would be \$720 per acre-foot, and cost estimates are rising. Unlike such proposed new water storage projects, urban and agricultural efficiency improvements often pay for themselves as a result of the many co-benefits that water conservation and efficiency provide, including reductions in wastewater and energy bills and improvements in crop quality and yield - and they can be implemented immediately.

Early this year, Pacific Institute President Peter Gleick testified before

the U.S. House of Representatives Subcommittee on Water and Power that "improving the efficiency of our water use is the cheapest, easiest, fastest, and least destructive way to meet California's current and future water supply needs." Previous Pacific Institute reports on urban and agricultural water efficiency provide a comprehensive statewide analysis that finds that existing, cost-effective technologies and policies can reduce current state demand for water by 6-8 million acre-feet, or around 20 percent.

What do the water conservation and efficiency measures in the California's Next Million Acre-Feet report look like? A million acre-feet is nearly 12 times the city of San Francisco's annual water use and almost three times the amount of water that would be yielded annually by the proposed Sites Reservoir and Temperance Flat Reservoir combined. It would take 18 water desalination plants the size of the proposed Carlsbad plant (which would be the largest in the northern hemisphere) to produce a million acre-feet a year.

The Pacific Institute's analysis strongly recommends that water conservation and efficiency be a central component of any portfolio of solutions for California's water problems, and it offers specific strategies to help finance and implement them. Such strategies include financial incentives and rebates for water users, water pricing policies, metering, setting of targets, and education.

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