Pacific Institute

Media Release

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SAVING A MILLION ACRE-FEET OF WATER THROUGH CONSERVATION AND EFFICIENCY

New Study Identifies Key Next Steps for California Water

September 8, 2010 – Oakland, Calif. – 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

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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.

Based in Oakland, California, the Pacific Institute is a nonpartisan research institute that works to create a healthier planet and sustainable communities. Through interdisciplinary research and partnering with stakeholders, the Institute produces solutions that advance environmental protection, economic development, and social equity – in California, nationally, and internationally. www.pacinst.org

Background for Media:

How much is an acre-foot?
-An acre-foot is a quantity of water that would flood an acre of land one foot deep, or 325,851 gallons.

A *million* acre-feet is:
- nearly 12 times the city of San Francisco's annual water use; 4.5 times the city of San Diego's annual water use; and 1.6 times the city of Los Angeles' annual water use.

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- equivalent to a flow of 890 million gallons per day – 37% of the American River's annual discharge.

- approximately enough water to irrigate all the grain produced in California annually.*

- enough water to satisfy the household needs of 6.7 million new Californians (more than the growth that demographers predict will occur within the next 10 years).

- almost three times the amount of water that would be yielded annually by the proposed Sites Reservoir and Temperance Flat Reservoir – combined.

- the amount of water that would be produced annually by 18 large desalination plants (the size of the proposed Carlsbad desalination plant, which would be the largest in the northern hemisphere).

How Can California Save A Million Acre-Feet?

The Pacific Institute analysis shows that residents of California could reduce water use by more than 160,000 acre-feet each year by (1) replacing 3.5 million toilets with high-efficiency models, (2) installing faucet aerators and showerheads in 3.5 million homes, and (3) putting in 425,000 high-efficiency clothes washers. California businesses could save an additional 123,000 acre-feet each year by installing efficient devices in commercial and industrial kitchens, bathrooms, and laundries and upgrading cooling systems. And nearly 35,000 acre-feet of water could be saved outdoors by using pressurized water brooms instead of hoses to wash sidewalks and by replacing 2,000 acres of lawn with low-water-use plants in each of six counties: San Diego, Orange, Riverside, Ventura, Fresno, and Sacramento. In combination, these conservation measures alone would reduce urban demand by more than 320,000 acre-feet each year.

The agricultural sector uses 80% of California's developed water supply, or about 34 million acre-feet per year, so even small improvements in irrigation efficiency can produce tremendous water savings. For the million-acre-feet analysis, Pacific Institute researchers chose among the simplest, proven agricultural water-use efficiency measures available, which include: (1) weather-based irrigation scheduling, (2) regulated deficit irrigation, and (3) efficient irrigation technologies, e.g., drip and sprinkler systems. In various combinations, these three measures were applied to only 16% of the irrigated agricultural acreage in California, but produced nearly 700,000 acre-feet of water savings each year.

<u>Total Savings: 1,020,000 acre-feet</u>

*Grain acreage and applied water estimates based on data from the California Department of Water Resources; DWR defines grain as "wheat, barley, oats, miscellaneous grain and hay, and mixed grain and hay."