



CLIMATE CHANGE IS CRITICAL TO FORECASTING AND MANAGING FUTURE URBAN WATER USE IN CALIFORNIA:

Climate Change Alone is Responsible for 1 Million Acre-Feet of Additional Demand by End of Century

New Tool Allows Users to Analyze Effects of Prices, Population, Climate, and Technology on Urban Water Demand through 2100

August 16, 2012, Oakland, Calif.: Climate change will have significant impacts in California not just on water supply, but also on water demand. A new, free tool from the Pacific Institute helps water managers to forecast urban water demand with four global climate change models and compare different possible futures to the year 2100 by altering greenhouse gas emissions, population projections, conservation and efficiency measures, and more. The research shows climate change will cause increased water use in California's cities and suburbs, even as water supply is expected to diminish.

Urban water use – residential plus commercial, industrial, and institutional uses – accounts for over 20% of the water use in California, and up to half of urban water use is outdoors. The new report [*Urban Water Demand in California to 2100: Incorporating Climate Change*](#) describes how warming due to climate change is causing increases in water demand for landscapes, and will continue to drive up future water demand, particularly as more Californians settle in warmer, drier inland areas.

The Pacific Institute ran a number of scenarios through 2100. The analysis finds that climate change alone could increase urban water demand in 2100 by 8% percent, or around 1 million acre-feet, under a medium-high greenhouse gas emissions scenario. That is the amount of water needed to satisfy the current household needs of 6.7 million Californians or the amount of water produced by 18 large desalination plants (the size of the proposed Carlsbad plant).

“A million acre-feet of water is significant, and, of course, climate is not the only driver affecting demand. But factoring levels of climate change into the mix is critical,” said Dr. Juliet Christian-Smith of the Pacific Institute Water Program. “Future water use in California depends on a range of factors – technological, political, and economic – many of which are uncertain, but water utilities still need to plan. We created a flexible modeling tool that allows users to run their own scenarios, comparing how a range of factors in a range of climate change scenarios is likely to affect future patterns of water use in their specific areas.”

The rates at which conservation practices are put in place, and the degree to which they are continued, have a major effect on future water use. California's policy to reduce urban per-capita demand 20% by the year 2020 is likely to keep overall urban water use at or near current levels in the short-term. But beyond the 20x2020 mandate, urban water use rises quickly, increasing by over 5 million acre-feet from current levels to the end of the century under medium-high greenhouse gas emissions levels at a time when state agencies are projecting reduced water supply from snowmelt and runoff.

“Scientists in California have done tremendous work analyzing how climate change is likely to affect our water supply in reservoirs and mountain snowpack. Not as much attention has been focused on the demand side: what will climate change do to water use in cities?” said co-author Matthew Heberger. “Water managers are exploring ways to reduce climate impacts, and this report finds that conservation and efficiency efforts targeted at outdoor water uses are among the most useful.”

The **Urban Water Demand to 2100** model will make it easier for state agencies, water utilities, and others to explore scenarios of future water use and identify possible response options. The model can be customized to reflect local or regional population projections, development patterns, water uses, energy requirements, and expected savings from conservation and efficiency measures. Scenarios are not “predictions,” but rather tools to test hypotheses, data, and assumptions about future urban demand and potential response strategies. Scenario-based planning can help compare potential futures and different response strategies.

The **Urban Water Demand** model and report can be downloaded free of charge from the Pacific Institute website at www.pacinst.org/reports/urban_water_demand_2100/.

The Pacific Institute is one of the world’s leading independent nonprofit research organizations working to create a healthier planet and sustainable communities. Based in Oakland, Calif., the Institute conducts interdisciplinary research and partners with stakeholders to produce solutions that advance environmental protection, economic development, and social equity – in California, nationally, and internationally. www.pacinst.org

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