



WATER SYSTEMS OPTIMIZATION

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NEWS RELEASE

WSO'S WATER LOSS CONTROL PROGRAM WINS IN ENERGY SAVINGS

SAN FRANCISCO, March 2011 –The results are in: Water Systems Optimization's water loss control pilot produced the most significant water and energy savings in a recent California Public Utilities Commission (CPUC) study that compared different methods of water conservation and the consequent embedded energy savings.

California's system of providing water to its customers requires significant amounts of energy: the California Energy Commission found that a staggering 19% of the state's total annual electricity demand is related to water use.¹ More specifically, 7.7% of the state's total annual electricity demand goes directly toward water and wastewater utilities' operations to source, convey, treat, and distribute water.² Energy costs, which are escalating rapidly, can make up a significant portion of water utilities' operating costs. This suggests that water conservation and efficiency must play a part in the states' greater energy efficiency goals.

Toward this end, the CPUC approved a comparison of water conservation pilot programs (in D. 07-12-0503). Each pilot quantified the energy savings for a unique water conservation scheme, ranging from consumer toilet retrofits to recycled water programs to pump efficiency improvements.

Southern California Edison (SCE) was one of the participating energy utilities that collaborated with a variety of water agencies in their service territory to institute three of the nine statewide Energy Embedded in Water pilots. One of their pilots aimed at properly quantifying water loss in distribution networks. As a national leader in water loss management, WSO was selected by SCE to carry out this prestigious research project. WSO provides water agencies the tools and metrics they need to make smart decisions about the value of proper water loss management. WSO's thorough analysis

¹ California Energy Commission. "California's Water-Energy Relationship: Prepared in Support of the 2005 Integrated Energy Policy Report Proceeding." November, 2005.

² GEI Consultants & Navigant Consultants. "Embedded Energy in Water Studies – Study 1: Statewide and Regional Water Energy Relationship." Prepared for the California Public Utilities Commission. Managed by The California Institute for Energy and Environment. August, 2010.

of distribution system efficiency allows for significant water savings and reduction in revenue loss.

For this program, WSO conducted detailed AWWA top-down water audits for Las Virgenes Municipal Water District, Apple Valley Ranchos Water Company and Lake Arrowhead Community Services District and bottom-up field leakage measurements. Based on comprehensive Economic Level of Leakage analysis the most efficient and cost effective leakage intervention tools were selected and piloted in each water utility.

Upon completion of WSO's water loss control pilots an independent team at ECONorthwest evaluated the results. ECONorthwest calculated the energy embedded in the water loss savings achieved by WSO to find the following:

ENERGY SAVINGS FROM ALL SOURCES	APPLE VALLEY (KWH/YEAR)	LAS VIRGENES (KWH/YEAR)	LAKE ARROWHEAD (KWH/YEAR)	TOTAL (KWH/YEAR)
Energy Saved from Program Leak Detection and Repairs	76,973	355,557	65,258	497,788
Potential Energy Saved from Future Detection and Repair of Hidden Leaks	193,575	1,100,519	368,527	1,662,621

ECONorthwest. "Embedded Energy in Water Pilots Impact Evaluation, Draft Report Prepared for the California Public Utilities Commission." Dec. 9, 2009.

As shown here, WSO's analysis of three water distribution systems within SCE's service territory show sizeable energy savings attainable through proactive leak detection. Furthermore WSO calculated that advanced pressure management (not yet implemented) would yield water and energy savings similar to savings achieved through proactive leak detection.

In fact, among all nine pilots, WSO achieved the largest energy savings. WSO's findings saved over 22,000 kWh per year than the next best pilot, and their proactive leak detection program's embedded energy savings accounted for almost 35% of all the pilots' cumulative savings. Even more water and energy savings are possible upon implementing the recommended pressure management schemes.

The Embedded Energy in Water pilots produced important data in establishing a reliable framework toward understanding how to best capture energy savings through water conservation. With a clear advantage over the other water conservation approaches piloted in this statewide study, WSO's work emphasizes the importance of distribution water loss management. These results clarify that water agencies should prioritize sound water loss assessments and detailed design of economically viable implementation strategies. Focus on water loss control provides for a sustainable balance between water supply and demand while simultaneously saving valuable embedded energy.