WSO

California, USA

Southern California EDISON Water Leak Detection Program and Water System Loss Control Study

Client: **Southern California EDISON / California Public Utilities Commission (CPUC)**

WSO, being a national leader in water loss management, was selected by SCE to carry out this prestigious research project. The Water Leak Detection Program and Water System Loss Control Study had two components; a primary and a secondary research component. Within the primary research component, detailed water audits and system water loss measurements were carried out for three water utilities in the Southern California Edison (SCE) service territory in order to accurately quantify the volume of system losses in each utility. The study team then used these results to determine the most efficient and economic intervention strategy against system water losses for each water utility and piloted them in each utility. The scope of the secondary research component was to draw on a collection of existing water leakage and system loss control studies to provide the basis for defining a range of possible water system loss control alternatives.

In the primary research component, WSO Conducted detailed AWWA top-down water audits and bottom-up field leakage measurements for Las Virgenes Municipal Water District, Apple Valley Ranchos Water Company and Lake Arrowhead Community Services District.

Based on comprehensive Economic Level of Leakage analysis completed in the water audits, the most efficient and cost effective leakage intervention tools were selected and piloted in each water utility. Upon completion of WSO's recommended water loss control pilots, an independent team at ECONorthwest evaluated the results. ECONorthwest calculated the energy embedded in the water loss savings. These results are shown in the table below.

Results of the nine water/energy pilots commissioned by the CPUC across California showed that the SCE water loss control program achieved the highest water and embedded energy savings.

The secondary research in combination with the applied component (primary research) of this study clearly indicates the significant potential for cost effective water loss reduction in California. The water saved through cost effective water loss reduction, estimated to be in the order of 0.35MAF, would be enough to provide water for 2 million people with an average daily consumption of 154 gallons per person per day. The economically recoverable system water losses would also achieve significant savings of embedded energy. Based on currently available energy proxies for California, the study team estimates energy savings around of 1.02 Billion KWh/year (about 26% of the 2008 California electricity system power generated by coal power plants[1]).

Water and Energy Savings	Apple Valley	Las Virgenes	Lake Arrowhead	Total
Water Saved from Program Leak Detection and Repairs (MG/Year)	35	37	11	83
Energy Saved from Program Leak Detection and Repairs (kWh/Year)	76,973	355,557	65,258	497,788
Potential Water Saved from Future Detection and Repair of Hidden Leaks (MG/Year)	87	116	60	263
Potential Energy Saved from Future Detection and Repair of Hidden Leaks (kWh/Year)	193,575	1,100,519	368,527	1,662,621

[1] Source: 2008 Net System Power Report - Staff Report, Publication number CEC-200-2009-010, to be considered for adoption July 15, 2009.(PDF file, 26 pages, 650 kb).