

Case Study – Water Use Efficiency

Recirculating Hot Water Systems: Residential Survey and Feasibility Study

This CALFED-funded study was designed to provide an expanded understanding of the typical wait time for hot water to arrive at a plumbing fixture and the variables that are likely to influence the whole house water savings potential of recirculating systems.

The Water Use Efficiency Program Element of the CALFED Water Supply Reliability Objective was designed to help with water savings to lessen dependency on Delta water. Such studies were funded in areas far-flung from the Delta but that receive part of its water supply from the Delta.



A \$30,100 grant from Proposition 50 funds was provided to the City of San Diego for a Recirculating Hot Water Systems: Residential Survey and Feasibility Study to evaluate the pattern of hot water use and significance of warm up water waste (water that runs down the drain while waiting for hot water to arrive) in 200 single family residential homes within San Diego.

Remote control hot water circulation system.

According to the final report dated October 2007, this study provided an expanded understanding about the typical wait time for hot water to arrive at the fixture and of the variables that are likely to influence whole house water savings potential of recirculating systems. The data collected at the 190 single-family households participating in the study showed an average wait for warm up water of 56 seconds, measured at fixtures located furthest from the central hot water heater. This was calculated to be a reduction in warm water waste of 2.2 gallons per use event.

Projections made in this study further adjusted the 2.2 gallons downward to 1.7 gallons per use event to account for a portion of warm up water that is unavoidably wasted because it is not recirculated. This study found that on average, the master shower has the longest wait at 77 seconds per use event, followed by the kitchen sink at 63 seconds per use event, and the master sink at 60 seconds. This study gathered extensive data that enables estimates to be made for whole house water and wastewater reductions through the use of recirculating systems.

One projection of whole house water savings shows that the reduction of around 18 gallons per day per household would result in a decrease in water and wastewater fees that substantially, if not fully, offset the up-front costs to purchase and install a

recirculating system. At this daily savings rate, recirculating systems would effectively reduce the average indoor water consumption by about 10 percent.