

# **Cost Benefit Analysis: Resource-Saving Metered Shower Systems**

## **Metered Shower System**

A Metered Shower System is a control system that is remotely actuated by a switch, coin or other sensor and has an automatic shutoff after a preset time. WCS Metered Shower Systems incorporate UL-Listed integrated programmable timing controls and low-voltage electronics for safety compliance. WCS Metered Showers are ADA compliant when installed to specifications.

## **Why Agencies Should Establish a Metered Shower Program**

Most Federal and State agencies are currently mandating reductions to water and energy use. Metered shower systems have been shown to be the fastest and most cost-effective way to reduce water and energy use and reduce wastewater production in institutional shower facilities. Metered shower systems have the added benefits of improved security and reduced maintenance.

A common misconception of shower facility operators prior to installation of a metered shower system is that the public may react negatively. Ten years of experience with metered shower systems has shown that the public is willing to limit their shower time and even pay a nominal fee for a shower - in exchange for shorter waiting lines, plentiful hot water, cleaner facilities and to help conserve resources. In public installations it is recommended that interpretive signs be displayed which explain the purpose and benefit of metered showers.

By limiting the amount of time per shower, existing shower facilities can accommodate a larger number of patrons. This allows agencies to reduce costs further by decreasing the size or number of shower facilities needed. Income from coin-operated shower systems can be used to further offset water and energy costs or to make additional improvements to the shower facilities.

## **Cost-Benefit Analysis**

### **Baseline for Shower Cost Calculations**

The following cost-benefit analysis illustrates the average cost of non-metered showers versus savings after installing metered shower systems from Water Conservation Services. This analysis is based on results from one year of operation of WCS CashMaster System III Coin-Operated Shower Systems in Carpinteria State Beach, California. The campground has 7 buildings, 28 showers, total. The park recorded 226,324 total shower cycles or an average of 8,083 cycles per shower per year. They charged \$.25 for 2 minutes of hot water and estimate the average shower length at 3 minutes (1 ½ cycles).

### **Comparative Cost Assumptions**

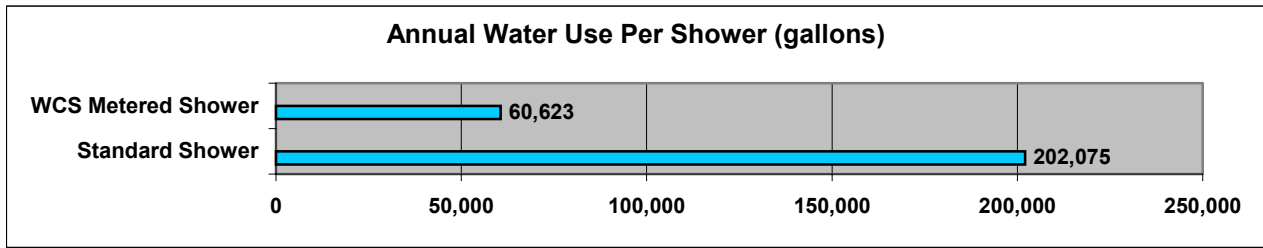
The cost comparison is based on 10 minutes per shower for un-metered showers versus 3 minutes per shower for metered showers. Both un-metered and metered showers use "low-flow" showerheads at a rate of 2.5 gallons/min. Water usage is 25 gallons per shower for un-metered showers and 7.5 gallons per shower for metered showers. Water temperature averages 106°F @ 80psi inlet water pressure. Electricity cost is \$.06/kWH. Gas cost is \$0.40/therm. Water cost reflects combined water and wastewater price equaling \$4.00/1000gal.

### **Summary of Results**

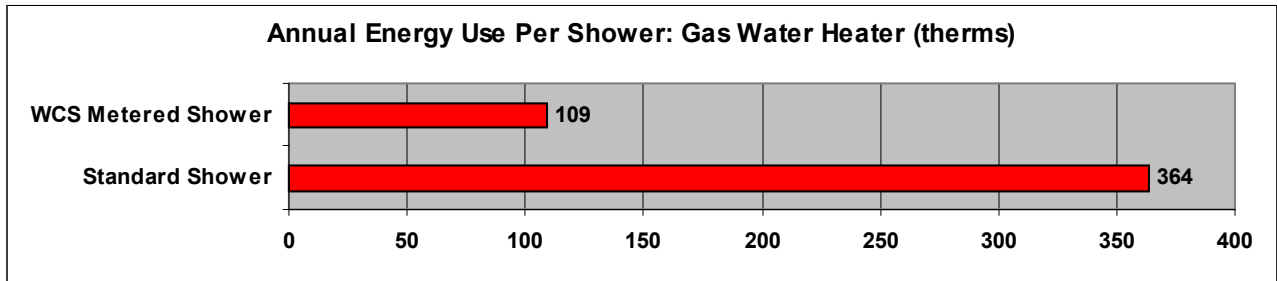
Experience in California State Parks after initial installation of WCS Coin-Operated Metered Shower Systems indicated a net drop of water usage of 40%, an energy consumption drop of 40% and effluent stream reduction of 40%. Over the next five years **realized savings had increased to approximately 70%**.

Shorter customer waiting lines and increased throughput have had **the additional benefit of increased customer satisfaction and a reduction in demand for construction of additional facilities** (which would cause even greater energy use, pollution and cost). In addition, reduction of waste stream from showers enables a larger number of customers to use facilities without expanding existing waste treatment facilities.

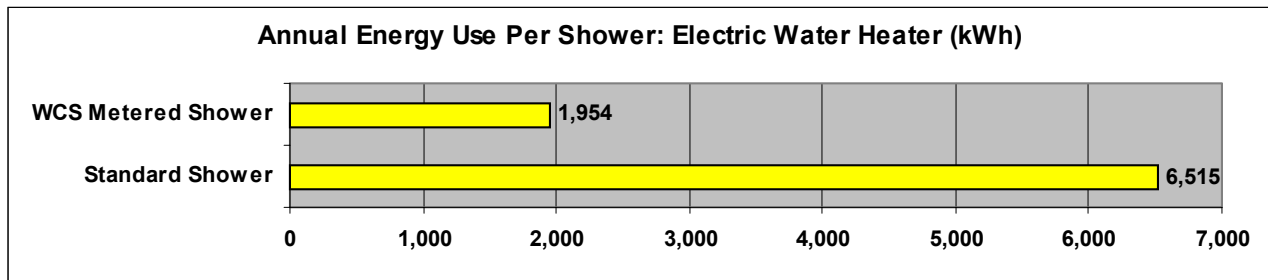
## Results



Carpinteria State Beach **saved 70% on annual water use** (\$566.00 saved per shower per year) for a total savings of \$15,848.00 for their entire campground (28 showers).



Carpinteria State Beach **saved 70% on the annual gas energy use** (\$102.00 saved per shower per year) for a total savings of \$2856.00 for their entire campground (28 showers).



Had Carpinteria State Beach used electricity for water heating they would have saved 70%, also. \$456.00 saved per shower per year or a total savings of \$12,768 per year for their entire campground (28 showers).

In addition, Carpinteria State Beach had \$55,767.00 in gross revenue from coins collected from their WCS coin operated showers. After deducting 12% for annual maintenance, \$6,790.00 for annual water use and \$1,221.00 for annual energy (gas) use, **the park made a total of \$41,781.00 in one year from their WCS CashMaster Coin Operated Shower Systems.**

Carpinteria State Beach Campground saved 70% on their water and energy cost. The collections from their WCS coin-operated shower systems more than paid for the system cost in one year. Results will vary based on water and energy costs, average time per shower and cost per shower. However, estimates for your shower facility can be calculated by plugging in local utility costs and proposed cost and time per shower. In addition, alternatives to coin-operated metered shower systems are available from WCS, including token-operated and push-button activated systems. These alternative metering systems have been shown to bring similar savings to coin-operated shower systems. No matter the size of your shower facilities or the type of WCS Metered Shower System - the results will be major resource savings and improvement to your facility's service.