

Retrofitting Residential Equipment – Clothes Washers

Applicability

A typical family of four washes a little more than one load of laundry per day, which accounts for approximately 22 percent of residential indoor water use (Vickers, 2001). While the average clothes washer in the United States uses 41 gallons of water per load, the new high efficiency clothes washers use between 11 and 25 gallons per load. A Residential Clothes Washer Incentive Program BMP would encourage customers to purchase water efficient clothes washers through a direct discount at the time of purchase or a rebate after the purchase. This BMP can be implemented by any Water User Group (“utility”) that has residential customers.

Description

Under this BMP, the utility would develop and implement an incentive program to encourage customers to purchase efficient clothes washers. Water efficiency for clothes washers is best described by using water factor (WF) terminology. WF is calculated by dividing the gallons of water used to wash a full load of clothes by the capacity of the washer tub in cubic feet. As of Jan. 1, 2011, the U.S. Department of Energy requires that all Energy Star washing machines have a maximum WF of 6.0, which is the highest ratio that the Consortium of Energy Efficiency (CEE) will consider as an efficient model of washing machine. For more information, go to http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=11628.

For this BMP to be the most effective, the incentive offered should bridge at least one-half of the gap in the price difference between the efficient machines and conventional ones. As with any incentive program, the amount of the incentive will impact the participation in the program. Fully featured inefficient machines cost approximately \$400, while the least expensive efficient machines cost between \$600 and about \$1000. For the least expensive machines, the price difference is around \$200. The price difference is the most important factor of the buying decision for low-income customers. In addition, low-to-moderate income customers would be more likely to purchase the efficient washer if they received the incentive in the form of a discount at the time of purchase, rather than waiting between four weeks and six weeks for a rebate.

A clothes washer incentive program can be more effective if offered in conjunction with local gas and/or electric utilities because the incentive can be increased and the marketing reach should expand. The energy savings is a result of using more efficient motors, less energy required for heating hot water because less hot water is used, and a shorter drying time because the spin cycle on efficient washers remove more water.

Incentives should only be given to those customers who install washers that qualify as water efficient. A list of efficient washers is maintained and regularly updated by the Consortium for Energy Efficiency (CEE); please see CEE website at <http://www.cee1.org/>. CEE, a nonprofit public benefits corporation, develops national

initiatives to promote the manufacture and purchase of energy-efficient products and services. The U.S. Department of Energy and U.S. Environmental Protection Agency support CEE through active participation and funding. The CEE has ratings based on water and energy efficiency. This list has been used by many utilities as the source of qualifying washers to receive an incentive.

The utility may want to give higher rebates or discounts to customers purchasing the most WF efficient CEE Tier III models, slightly less to those purchasing Tier II models, and the lowest incentives to those purchasing Tier I models.

Implementation

Develop and implement a clothes washer incentive program designed to increase the market share of efficient clothes washers to 20 percent of the installed units by the second year of implementation. The program should be offered to customers in single-family homes and in multi-family units that have in-unit washer connections. Approach the local gas and/or electric utility to join in a partnership to implement the program. Organize stakeholder meetings. Develop a marketing plan for educating customers, appliance stores, and realtors about this program. Initiate the program.

Schedule

The following schedule should:

- Plan, implement and market an efficient clothes washer incentive program within six months of adopting this BMP.
- Continue marketing efforts to achieve at least 20 percent market penetration for efficient washers by the end of the second year after implementing this BMP.

Scope

In order to accomplish this BMP, the utility should:

- Develop and implement a plan to offer incentives for the purchase of efficient clothes washers.
- Within two years of implementing this program, increase the market share of efficient clothes washers to at least 20 percent of local clothes washer sales.

Documentation

To track the effectiveness of this BMP, the utility should:

- Calculate the number of single-family homes and multi-family units with in-unit washer connections.

- Calculate the average number of persons per household for single-family and multi-family residences.
- Calculate the number of efficient clothes washer incentives issued each year, by year, including brand, model and water factor of each efficient washer.
- Estimate water savings per efficient washer.
- Average total washer sales per year in the service area.

Determination of Water Savings

$$\text{Savings} = \text{EWS} \times 5.6 \times \text{Hs} + \text{EWM} \times 5.6 \times \text{Hm}$$

EWS = Number of single-family efficient washer incentives

EWM = Number of in-unit multi-family washer incentives

Hs = Number of people in average single-family household

Hm = Number of people in average multi-family household

Or

Single-Family: 5.6 = gallons saved per capita per day

Multi-Family In-Unit: 5.6 = gallons saved per capita per day

The rebates to the customers for installation of water efficient clothes washers are the most significant costs of this program. If the rebate cost for the clothes washer is set too low, only those customers already planning to buy an efficient washer will do so. If the rebate is set too high, the utility will be overpaying the customer to retrofit. Most utilities that implement this BMP have found a rebate to work effectively if set between \$50 and \$100 per efficient clothes washer. If partnering with an energy utility, the gas or electric utility rebate could add an additional \$50 to \$100. Some utilities have started offering tiered rebates based on the efficiency of the washer; the highest rebates are offered for the most-efficient washers in the lowest water factor tier.

Administration of the program can be conducted by utility staff or contracted out. Washer inspections are sometimes performed in order to verify installation and discourage fraud. Labor costs range from \$15 to \$35 per clothes washer. Marketing and outreach costs range from \$5 to \$15 per clothes washer. Administrative and overhead costs range from 10 percent to 20 percent of labor costs.

To calculate the total cost per unit, total all costs and divide by the number of units being retrofitted.

For comments or questions regarding the Retrofitting Residential Clothes Washers BMP, please contact the water efficiency specialist of the Water Supply Planning Branch at 919-707-9009.

References:

- The Department of Energy:
http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=11628)
- Handbook of Water Use and Conservation, Amy Vickers, Waterplow Press, May 2001.
- Texas Water Development Board Report 362, Water Conservation Best Management Practices Guide, November 2004.