

*Residential Appliance Recycling
Exemplary Program*

***Old Refrigerator Pickup & Recycling Program
Sacramento Municipal Utility District***

PROGRAM OVERVIEW

Initiated in response to the “energy crisis” in 2001, old refrigerators and freezers were picked up from homes and transported to a recycling center for dismantling and recycling. These old, very energy-inefficient units were thereby removed permanently from the market in an environmentally responsible manner.

The goal was to quickly implement a program that would help Sacramento Municipal Utility District (SMUD) customers lower their electric bills and reduce the potential for power blackouts during this “crisis” period and afterward. Removing and recycling old, secondary refrigerators and freezers was identified as providing cost-effective, short- and long-term load relief, environmental benefits, and customer assistance.

SMUD issued a request for proposals from recyclers to provide a complete, turn-key operation. The awarded contractor provided all program advertising, a website and also a call center with a toll-free number for scheduling appointments and answering customer inquiries, vehicles and trained crews for picking up the appliances from homes and delivering them to the recycling center, and administration of a participant database. Customers received \$50 as an incentive (per unit, up to two units) during the first phase of the program (September 2001 – April 2002) and \$35 during the second phase (June – August 2002). The contractor administered the incentive payments.

PROGRAM PERFORMANCE

Over 8,900 appliances were picked up during the entire program, saving customers 13.7 million kWh each year and reducing summer peak load by 1.9 MW. In addition, over 560 tons of steel and aluminum were recycled, over 3,700 pounds of R-12 refrigerants were recovered, nearly 25 tons of foam insulation containing CFC-11 were incinerated, and over 600 gallons of compressor oils were recovered. Total cost of the program was \$1,850,000, funded entirely through the California Energy Commission (CEC) from money established by the state legislature to fund programs addressing electric-system reliability. Originally, \$1,500,000 was allocated to the program by the CEC for approximately 6,000 units. The program quickly sold out. Its success and popularity helped SMUD acquire \$350,000 in additional funding from the CEC to conduct a second phase. SMUD and CEC staff worked to ensure quick, smooth program implementation.

Advertising was conducted almost exclusively through local newspapers, including the primary daily and three community newspapers. Press releases were also issued and printed in at least six other community newspapers. The advertising message included the header, “Turn that old fridge into some cold, hard cash from SMUD.” The message also noted the incentive amount; the estimated annual energy bill savings; that the unit would be recycled,

thus “preserving resources and preventing contaminants from getting into the landfill”; and the phone number.

Appointments for pickup were scheduled typically within two weeks, although depending upon volume, sometimes extended up to three weeks. Appointments were available during the hours of 8 am to 5 pm on weekdays and Saturdays. The only program restrictions were that the appliances had to be operational when picked up and between 10 and 27 cubic feet in volume, and were limited to no more than two units per household. The contractor subcontracted with licensed hazardous waste companies to recycle or dispose of compressor oils, refrigerants, and insulation following all applicable laws and regulations.

SMUD's program was the first in the nation to take advantage of a contractor using a different method to deal with CFCs trapped within the foam insulation. Attempting to capture this ozone-destroying compound trapped within the millions of tiny pockets within the foam insulation typically results in some loss of CFCs to the atmosphere. Instead, the SMUD contractor had the entire pieces of insulation incinerated at high temperature, thus destroying it completely (minor loss occurred as the insulation was separated from the plastic and metal walls of the appliance). This alternate method, SMUD believes, brought competition to the appliance-recycling market, and several other utilities and utility consortia around the country consequently modeled their programs on SMUD's.

LESSONS LEARNED

One lesson learned is that while the program targeted secondary units, often the units picked up had until very recently been the household's primary unit. These “newer” secondary appliances did not offer the same energy savings as the typically “older” secondary units that were targeted; however, their remaining useful lives were generally longer, thereby offering similar savings over the remaining life-cycle.

A second lesson is that this program was highly popular and ran through its budget very quickly. In the first half of the 1990s, SMUD offered a refrigerator recycling program; over a five-year period, over 80,000 old primary and secondary refrigerators and freezers were picked up and recycled. Since then, SMUD believed the market for another program was ripe with pent-up demand. This recent program also proved to be popular.

Funding by the California Energy Commission is no longer available. However, the program's success, popularity, and relatively large energy savings, as well as environmental benefits, should make it prime for consideration within the SMUD energy efficiency portfolio in the future, and for other utilities considering such benefits to their communities.

PROGRAM AT A GLANCE

Program Name: SMUD's Old Refrigerator Pickup & Recycling Program

Program Start Date: Sept. 2001

Program Participants to Date (Annual Total): 8,900

Eligible Population or Customer Segment: 450,000 total residential customers

Participation Rate: 2%

Annual Energy Savings Achieved: 13.7 million kWh

Peak Demand (Summer) Savings Achieved: 1,900 kW

Other Measures of Program Results to Date

- Over 560 tons of steel and aluminum were recycled.
- Over 3,700 pounds of R-12 refrigerants were recovered.
- Nearly 25 tons of foam insulation containing CFC-11 were incinerated.
- Over 600 gallons of compressor oils were recovered.

Budget

- 2001: \$650,000 utility cost, \$0 customer cost
- 2002: \$1,200,000 utility cost, \$0 customer cost

Funding Source: California Energy Commission

Best Persons to Contact for Information about the Program

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