

PRELIMINARY EVALUATION FINDINGS
WPL'S GREAT REFRIGERATOR REBATE PROGRAM

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INTRODUCTION

This summary describes the preliminary findings of an ongoing evaluation of Wisconsin Power and Light's (WPL's) Great Refrigerator Rebate Program, a residential rebate pilot program that was in effect from May-December 1985. The pilot program was designed to motivate WPL's retail residential electric customers in three of WPL's 14 service districts to purchase energy efficient refrigerators. During the pilot program, 1,950 WPL customers purchased energy efficient refrigerators and received a rebate from WPL. There were three rebate levels (high, higher and highest), and the amount of the rebate for each efficiency category varied across the three pilot districts -- Janesville, Sheboygan and Tomah. In the Janesville and Sheboygan districts the three rebate levels increased with refrigerator efficiency levels (\$30, \$40, \$50 and \$50, \$75, \$100, respectively). In the Tomah district the rebate level was \$50 for each efficiency level.

EVALUATION ISSUES

The evaluation, which began April 1, 1986 and is still underway, has focused on the following issues:

1. How does the estimated program participation compare to the actual program participation?
2. Did the rebate influence customers' decisions to purchase energy efficient refrigerators?
3. What are the program-induced energy savings?

FINDINGS

Program Participation

The 1,950 rebates granted to eligible residential retail electric customers were nearly two and one-half times the estimated program participation. Approximately 750-800 rebates had been estimated for the pilot program (about 250 per district). Actual program participation was higher than the estimates for the total pilot area and for the individual districts (Sheboygan-872, Janesville-663, and Tomah-415 rebates).

The program penetration differences stemmed in part from differences in the estimated versus the actual program time period and in the estimated versus the actual monthly refrigerator sales. The original program participation estimate was for a six-month pilot program; the actual program lasted eight months. Refrigerator sales were estimated to be distributed evenly throughout the calendar year. Monthly dealer sales data collected for 1984 and 1985 show instead that 75 percent of annual refrigerator sales occur during May-December.

WPL's Great Refrigerator Rebate Program reached nearly 60 percent (1,950/3,269) of the targeted residential market buying new refrigerators. In 1985 WPL had approximately 72,000 retail residential electric customers in the three pilot districts. Assuming that refrigerators last 15-20 years, the average annual replacement rate for refrigerators ranges from 5-7 percent. Using the six percent replacement rate (which is representative of WPL's territory), 4,356 refrigerators is the revised estimate for the number of refrigerators purchased in 1985 for the three pilot districts. During May-December, approximately 3,484 new refrigerators were purchased in the Janesville, Sheboygan and Tomah districts.

Rebate Influence on Customer's Purchase Decision

Data have been collected from a rebate participant survey, a dealer survey and dealer sales data that indicate some WPL customers did purchase energy efficient refrigerators due to the rebate offer but that there was a high free-rider component to the pilot program. Results from a program participant survey, which was mailed with the customer's rebate, indicate that approximately 72 percent of the respondents would have purchased an energy efficient refrigerator without the WPL rebate offer. Fifty-three percent of the customers responding to the survey indicated that the energy savings from a new, energy efficient refrigerator were worth the extra cost to buy it. An on-site survey conducted of dealers in the test district found that 78 percent of the participating dealers interviewed did not have to change their mix of stock to accommodate the rebate program.

Of the 1,950 rebates approved during this pilot program, nearly half (953) were for refrigerators in the highest efficiency level. Monthly dealer sales data collected on a sample of dealers participating in the program show that the percent of customers purchasing energy efficient refrigerators increased from 70 percent in 1984 to 81 percent in 1985. The monthly dealer sales data indicate that the rebate may have motivated customers not only to purchase more energy efficient refrigerators than they normally would purchase, but to purchase more refrigerators in the highest efficiency level. Additional analysis is being done to determine what factors, other than the rebate, might be influencing customers'

decisions to purchase energy efficient refrigerators and to determine what effect the absence of a control group has on the interpretation of the data.

Program-Induced Energy Savings

Program-induced annual energy savings are estimated to be 109 kWhs per energy efficient refrigerator. This estimate is the difference between the average annual energy usage for qualifying refrigerators, 991 kWhs, and the national average annual energy usage for all new refrigerators, 1100 kWhs.

Preliminary data analysis indicates a high free-rider component to this program. While the program costs (\$190,000, including rebates) are spread across all participants, the energy savings to the utility, over the lifetime of the refrigerator, must exclude the free-rider component.

SUMMARY

Cost-effectiveness and estimates of actual energy savings are in progress. Preliminary findings, however, show that WPL residential retail electric customers are purchasing energy efficient refrigerators without rebates. Rebate programs designed to encourage purchase of the highest efficiency appliance through the offer of a rebate may be more effective if certain market segments in the residential sector are targeted rather than the entire sector.

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The three efficiency levels were based upon information from the Association of Home Appliance Manufacturers' (AHAM) 1985 Directory of Certified Refrigerators and Freezers, which lists annual kWh values developed by the FTC. The refrigerator models in AHAM were ranked according to annual kWhs per cubic foot. The midpoint was an annual energy usage of 66 kWhs/cubic foot. Refrigerators in the more efficient 50 percent were divided equally into three efficiency categories. The highest efficiency level was for those refrigerators using less than 57 annual kWhs/cubic foot.