PWP, Inc.

2004-2005 EnergySmart Grocer Program

Evaluation Findings Summary

Program Overview

Implemented by Portland Energy Conservation, Inc. (PECI)

- Offered in the territories of PG&E, SCE, and SDG&E
- Goal of 1,300 retrofits for 2004-2005, with 59,165 annual MWh of energy savings. (2003 program delivered about 28,000 annual MWh.)
- Audits, technical assistance, incentives for refrigeration, lighting, and HVAC
- Delivered through 5 field reps (Energy Experts) who did audits, offered technical assistance, direct installs
- Direct sales by vendors (primarily lower cost items)

Evaluation Results -- Participation

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Program exceeded its overall goals for both annual deemed savings and the number of stores with retrofits, while evaluation impacts were 7% lower.

Summary of Program Results, by Segment

Utility	No. of Audits Completed			No. of Stores With Rebates/Retrofits			Deemed Annual Savings (kWh)			Evaluation Annual MWh
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	2006
All	359	210	149	1357	1018	339	59,826,622	37,852,733	21,973,889	54,836
PG&E	176	116	60	464	362	102	27,564,558	15,014,742	12,549,817	24,899
SCE	132	58	74	526	346	180	19,835,642	12,637,296	7,198,347	18,091
SDG&E	51	36	15	367	310	57	12,426,421	10,200,696	2,225,726	11,845

Evaluation Results -- Participation

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- In contrast to 2003 program, the number of audits for 2004-05 was significantly less than the number of stores receiving rebates.
  - Every audited store received at least some direct install (DI) measures – some of which might have been rebated in 2003.
  - About 130 stores installed rebated measures in 2004-2005 after having been among 650 audited in 2003.
  - Contractors installed measures in more stores that had not been audited – notably such items as strip curtains and door gaskets.
- Lower proportion of audits in 2004-05 suggests that energy efficiency opportunities may have been missed as contractors focused on the “low hanging fruit” and on easily reached urban stores.
  - The percentage of rural retrofits (25%) is lower than the percentage of rural audits (41%), indicating that most non-audit retrofits were installed in urban areas as contractors focused on these stores
  - Average deemed savings per retrofit were 75% higher for rural than for urban stores (37.2 MWh vs. 64.8 MWh).

Evaluation Results -- Impact

- Primary M&V activity for most program measures was verification of installed measures and operating conditions, but more detailed analysis was conducted to verify or refine deemed savings estimates for:
  - floating head pressure (FHP) and floating suction pressure (FSP) control
  - medium temperature anti-sweat heater control
  - compact fluorescent bulbs.

Evaluation Results -- Impact

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- For Floating Head Pressure (FHP) and Floating Suction Pressure (FSP), field data from 15 stores were used in a model to calculate savings
  - Calculated impacts for FSP control within 10% of deemed savings, but FHP impacts were less than half the deemed savings level. (Possible reasons – undersized condensers, observed difference between condensing and ambient temperatures higher than targeted.)
  - Even with small sample, mean calculated savings were statistically significantly different at 95% confidence level from deemed savings values for both air cooled (468 kWh vs. 900 kWh) and evaporative (403 kWh vs. 1100 kWh) condensers .
  - We therefore considered the deemed savings value for the FSP impacts verified, but reduced FHP impacts per hp by 50% for calculating annual net impacts.

Evaluation Results -- Impact

- For Medium Temperature Anti-sweat Heater (ASH) controls, the deemed savings value of 343 annual kWh per linear foot was confirmed
  - Data from stores where loggers were installed showed that the mean connected load for ASH was .37 amps per foot (or .92 amps per 30” door) and heaters were on less than 1% of the time when store personnel manually turned on the heaters when needed.
  - Annual impacts per linear foot for these timer controlled ASH controls can be calculated as 369 kWh.
  - Run time metering at three sites where ASH controls cycled the heaters based on temperature and humidity sensor readings showed that the heaters are on about 8% of the time. With a .37 amp/foot connected load, this would result in annual savings per linear foot of 343 kWh – exactly the deemed savings value
- Based on these results, we did not revise the deemed savings estimate of impacts for medium temperature ASH controls.

Evaluation Results – Impact

- For CFLs, high rate of burn-outs/removals (35.8%) observed during an initial round of site inspections prompted more detailed analysis of retention and a subsequent adjustment of associated impacts.
- A second round of verifications conducted in early 2006 found that the percentage of CFLs still installed and operating after 1 year ranged from zero to 100% at individual stores, and averaged 63.7% overall.
- Given the substantial numbers of sites with measure retention issues, the impacts attributable to CFLs were reduced by 36% in the first year and all subsequent years.

Evaluation Results – Process Issues

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- Program satisfaction was generally high. Both program participants and contractors were very satisfied with and assigned high value to both store audits and technical assistance provided by the program.
- While ESG representatives remained key players in the delivery of the program, the growing number of retrofits conducted directly by contractors without a previous store audit diminished the role of the ESG reps and may have led to missed opportunities for education as well as measure installation.
- Burnout problems with CFLs may pose a threat to the credibility of other information offered through the program, and suggests that this technology is probably not suitable as a “door opener.”

Evaluation Results – Market Baseline

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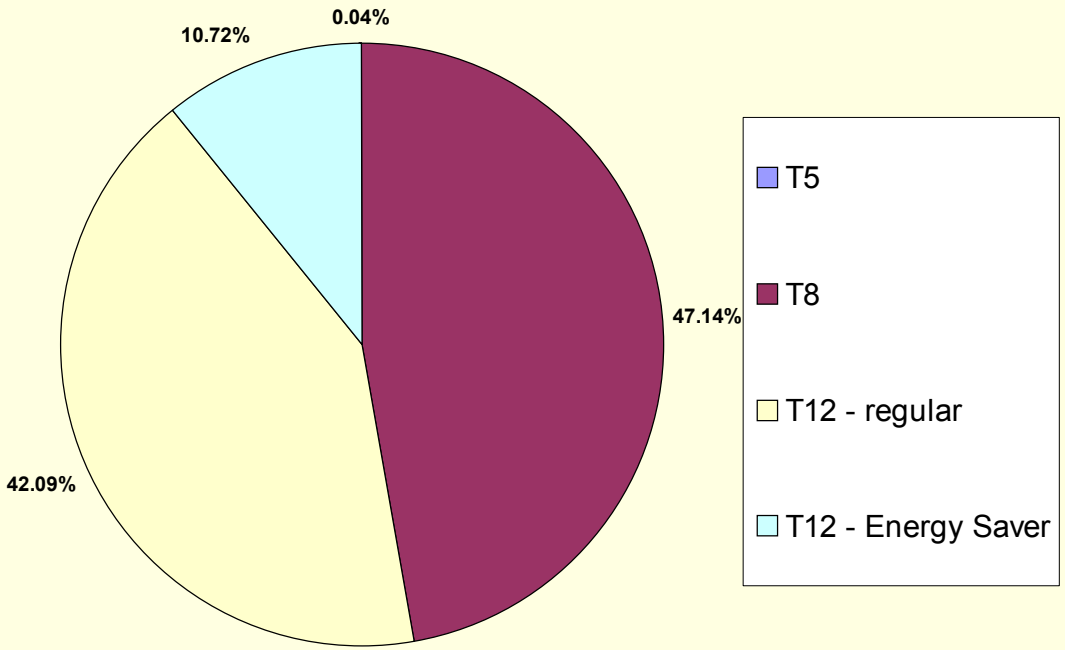
- The audit database created by the program includes data on existing lighting, HVAC and refrigeration equipment for more than 1,000 stores audited from 2003 through 2005, and provided the following findings.
  - For Lighting:



Evaluation Results – Lighting

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- While the total feet of T12 lamps in audited stores (more than 7 million feet) exceeds the total of T8 lamps, the number of T8s (47%) exceeds either the standard (42%) or energy saver T12s (11%) individually, while there are virtually no T5s (<.05%), suggesting that there are still significant opportunities within the independent grocer sector to improve energy efficiency through lighting retrofits.
- The total number of lamp-feet of T12 to T8 replacements for the 2003 and 2004/05 programs combined amounted to approximately 47,000 feet (plus about 8,000 feet of delamping), or less than 1% of the potential for the audited stores.)

Evaluation Results – Refrigeration

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As with lighting, audit results for walk-in cases illustrate the relatively modest penetration in terms of the percentage of potential.

- About one-third of 4,900 walk-ins in audited stores had strip curtains, so more than 3,000 doors could have had strip curtains installed. The 14,734 square feet of strip curtains rebated by the program for 2004-05 represent approximately 700 3’ x 7’ doors, less than one-fourth the potential.
- About-one third of walk-ins were identified as having door gaskets in poor condition, representing some 26,000 linear feet of gaskets. The 2004/5 ESG program rebated 2,100 linear feet of walk-in door gaskets, representing less than 10 percent of the gaskets on walk-ins identified as in poor condition.
- Most strip curtains and gaskets installed through the program were in stores that did not receive an audit, but were approached directly by a contractor.

Evaluation Results – Conclusions

- Plus
  - Program delivered 93% of targeted savings
  - Successful outreach to a hard to reach market
  - Contractors leveraged program for selected lower cost measures
- Minus
  - Less interaction between program staff and store decision makers in 2004-2005 program
  - Less education from use of audit
  - Fewer measures installed per store
  - CFLs do not appear to be an appropriate “door opener”