

Retention of Anti-Measures - A Utility Appliance Turn-in Program

Miriam L. Goldberg, XENERGY Consulting Inc., Madison, WI

Marian V. Brown, SCE, Rosemead, CA

Karen Smith, XENERGY Consulting Inc., Madison, WI

Introduction

Quantifying persistence for measures that consist of equipment removal rather than installation poses interesting conceptual and methodological questions. This was a study of measure retention in Southern California Edison (SCE) Company's appliance recycling program, which involves the pickup and ecologically responsible dismantling/destruction of spare refrigerators and freezers from residential locations.

Program savings are achieved in two ways, corresponding to the alternative disposition of the appliance that was picked up. First is the savings from removing a unit that would otherwise have been kept in use at the premise (keepers). Second is the savings from preventing the transfer to a new user within the utility territory of a unit that would otherwise have been discarded (transferrers).

Research Design and Methodology

Corresponding to the duality in program savings mechanisms are distinct conceptualizations of measure life:

- (a) **Keepers:** time to re-acquisition of a spare appliance, such that the residence returns to the number of refrigerators or freezers in place prior to program participation.
- (b) **Transferrers:** remaining operational life of an appliance were it to be transferred within the utility territory instead of being picked up by the program.

Participant surveys completed as part of the first year impact analyses included questions on what would have happened to the unit in the absence of the program. For units that reportedly would have stayed at the premise, current residents were surveyed to determine the number of units currently at the premise. Thus, for keepers the retention was assessed as a premise characteristic, regardless of whether the original participant was still there.

For units that would have otherwise been transferred, the evaluators constructed life tables. The age of a recycled appliance could be referred to the table to obtain an expected in-situ operational life. SCE's 1995 Residential Saturation Survey, which included appliance discard questions, was the main data source.

The keeper and transfer analyses each provided a survival curve with confidence bands. The two curves were combined to create an overall survival curve and confidence bands for each unit of first year energy savings.

Research Findings

The median measure life determined from the combined survival curves had a 90 percent confidence band of 5.4 to 6.8 years. The program's *ex ante* estimate of 6 years expected useful life falls within this band. The results support this estimate.