

# **It's What You Do With You've Got, That Pays Off in the End Energy and Demand Savings Estimates with Parsimonious Data**

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## **Introduction**

Research found that reliable savings could be estimated for a program with limited data collection. Annual electrical energy savings and demand reduction were estimated using an incomplete sample and householder reported or field collected data. Results still produced realistic error assignments.

## **Methods and Analysis**

The specific example involves an appliance turn-in program that only recorded estimated age, size and type of appliance. Residential refrigerators and freezers were collected and data recorded on Brand, Type (such as Side-by-Side), Estimated Age and Estimated Volume. No other data was recorded such as name plate model and serial number, name plate location, color, design features or measured data such as two hour electrical usage.

The research concluded that reliable energy usage estimates can be made without monitoring data for the five major types of refrigerators and three types of freezers manufactured between 1940 and the present with adjustments for size from 7.75 cubic feet to 30 cubic feet of actual volume. The results can be used to estimate energy usage for units obtained in an appliance turn-in program and for turn-in and replacement programs implemented in low income weatherization programs.

The research also included a review of limitations of these estimates and additional opportunities for simplified savings estimates.