

## **Shirley Pon, NMR Group**

**Poster Title:** Age Before Beauty? Stability and Change in Recycling Program Savings Over Time

**Abstract:** Appliance recycling programs have long held a place in efficiency portfolios. These programs produce energy savings by using incentives and outreach to encourage participants to retire inefficient secondary appliances. In addition, recycling programs provide a valuable service by facilitating the pickup of bulky appliances. However, as efficiency standards have increased, program administrators, regulators, and evaluators have raised concerns about the energy savings being realized by the current vintages of recycled appliances. They also have questions about what participants realistically would have done with the appliances in the absence of the program. In short, do the current savings continue to justify a place for appliance recycling programs in program portfolios?

In this poster, the authors will explore the stability and change in factors that affect energy savings resulting from an appliance recycling program over time. In addition, we will provide details on customer satisfaction and experience, including how customer experience varies based on key demographic factors.

Following an approach advocated by the Uniform Methods Project (UMP), the authors used a combination of program tracking data, responses from an on-line survey of 365 appliance recycling participants, and the Residential Energy Consumption Surveys (RECS) to update gross and net energy savings. Updated parameters include appliance age and date of manufacture, size, door configuration, location in unconditioned space, partial use, and free-ridership. The poster will use tables and charts to compare the current parameter values and savings to those obtained in a 2011 study of the same program and to other recent appliance recycling program evaluations. The poster will discuss factors that have affected refrigerator and freezer savings over time. For example, physical factors such as the increased size and prevalence of side-by-side door configuration have countered the efficiency gains achieved by younger units.

The poster will use informational graphics to explore issues related to the physical and financial feasibility of program alternatives, program satisfaction, and demographic differences in the participant experience. We will compare refrigerator with freezer respondent actions taken prior to program participation, their belief of their likelihood to overcome the challenge of physically removing the appliance and likely actions in the absence of the program, and their willingness to pay for removal. The poster will conclude by highlighting demographic differences in the willingness to pay for removal or indicating the need for assistance from a hauler by age group as well as free-ridership impact.

We think presenting as part of the poster session will allow the authors to engage in one-on-one dialog with attendees about the nuances of appliance program evaluation, as well as the importance of recycling programs to customers. This poster will provide information that will help program administrators and regulators think through key issues about the future of appliance recycling programs, in a market where older appliances are more efficient than they have been in years past.

The research underlying this poster is complete and currently publicly available. The authors may have the opportunity to update savings using program results from 2018 prior to presentation.