Characterizing residential high users

Claire Cowan
Energy Center of Wisconsin

What makes a household a high user?

OUR DEFINITION OF HIGH USERS
Roughly 80th percentile or above in electricity or natural gas usage

CAUSES OF NATURAL GAS HIGH USAGE

SAVINGS OPPORTUNITIES

AGGREGATE NATURAL GAS-SAVING OPPORTUNITIES

OVERALL NATURAL GAS HIGH-USER AVERAGE
- 15% savings per home
- 27% savings per year
FOR 16 HIGH HEATING INTENSITY HOMES
- 21%
- 38% savings per year

CAUSES OF ELECTRIC HIGH USAGE

SAVINGS OPPORTUNITIES

AGGREGATE ELECTRICITY-SAVING OPPORTUNITIES

OVERALL ELECTRICITY HIGH-USER AVERAGE
- 28% savings per home
- 3,500 kWh per year

PAST ENGAGEMENT WITH EFFICIENCY EFFORTS

Experience with energy efficiency

91%
of 168 study participants told us about past energy efficiency measures they have taken.

Mostly positive experiences

78%
of the households with past energy efficiency efforts reported that it was a positive experience.

(31% gave mixed review, 6% spoke of it in generally negative terms.)

IMPLICATIONS FOR PROGRAM DESIGN

Focus on the big opportunities
Speak to the audience
Explore data for pre-engagement insights
Pick the key barriers and address (e.g. nudge)
Be cognizant of the perceptions (e.g. cost perceptions)

PURPOSE
This project is intended to enable Minnesota utilities to better tap into the unique energy-saving opportunities among high users with a research driven set of program concepts and approaches. High users account for a disproportionate share of the energy consumption in the residential sector and have been found to experience greater savings when engaged around efficiency. They are also easily identified by utilities for targeted program approaches and messaging. To date, few efficiency programs target high users in a deliberate and effective manner or focus on their particular needs, circumstances, and motivations.

PRINCIPAL RESEARCH QUESTIONS
- How are high users most effectively identified and classified?
- What are the unique technical and achievable energy-saving opportunities?
- How can high users be most effectively informed and engaged to progress toward more efficient choices and practices?
- How can the unique opportunities and barriers among high users best be addressed within the confines of Minnesota utilities’ residential efficiency programs?

STUDY PHASES
Characterization high users (2015)
- Analysis of utility billing data
- In-home visits to 100 high users in 10 cities, 10 locations
- Identify tailored program approaches for high users (winter/spring 2015)
- Test tailored program approaches (summerfall 2015)

FOR MORE INFORMATION
Clare Cowan, Energy Center of Wisconsin, 608-210-7117, cowan@uw.edu