Ethnography of Cool Roof Retrofits:
The Role of Rebates in the Materials Selection Process

Susan Mazur-Stommen, Ph.D.
Director of Behavior and Human Dimensions, ACEEE
(Research conducted for Lawrence Berkeley National Laboratories)
Findings about rebates

- Rebates did not drive decision-making by customers with respect to material selection in cool roofs
- Rebates were an insignificant portion of cost incurred
- Rebates were always an after-thought
- Rebates were often applied for by the contractors and not the consumers
- Roof retrofit costs varied wildly, and so did rebates
Other relevant findings

- Customers do not calculate ROI with respect to roof materials
  - E.g. customers typically do not track energy expenditures
- ‘Longevity’ of material was a primary concern
- Price was used to filter out contenders, grossly
- Material selection is based upon factors like neighborhood fit and aesthetics, rather than performance and cost
- Overall, customers were pleased with retrofits
Takeaways

- Utilities and contractors need more dialogue:
  - Regarding appropriate materials for specific climate zones in California – contractors were warning consumers away from materials like steel on dubious grounds.
  - Contractors could offer insights into the material selection process at a level of granularity useful for planning purposes.
- Utilities could better invest rebate money in contractor training, giving them the ROI information that can then be channeled to customers.
  - This could be a win-win-win, utilities see appropriate materials being promoted, contractors have sales tool, consumers save money.
Background

- Summer of 2010, ethnographic research was conducted with nine households in the Bay Area and Sacramento region.
  - These nine households comprised fifteen respondents, and their dependents.
  - They were selected from among a pool of respondents to a mail solicitation of all Sacramento Municipal Utility District and Pacific Gas and Electric customers who had received a rebate for their cool roof retrofit.
- Goal was to collect data on how and why consumers chose the cool roofing material used.
Methodology

- Ethnographic methods of fieldwork, including:
  - Semi-structured ethnographic interviewing
  - Grand tour questions
  - Participant observation
  - Freelist techniques
  - Photography
Process

- The ethnographic interview process included asking Grand Tour questions and being conducted on a home tour, as well as the elicitation of an oral history concerning occupancy and decision-making process.
  - Grand Tour questions are a classic method used by anthropologists negotiating entry into a field situation.
  - A typical Grand Tour set up might be, “tell me about your day” or “what do you do when you first get to work?”
  - This procedure provides a framework for the anthropologist to use in eliciting richly detailed data about specific cultural concepts and processes that can otherwise go under-analyzed.
Grand Tour

- In this instance, Grand Tour questions included “show me your house” and “tell me about your experience with your roof.”
- This type of question allowed informants to provide information that specific questions may have failed to anticipate.
  - One example would be that North Bay informants chose their roof type as much for its thermal and insulative qualities, as for its cooling and reflective properties.
Oral Histories

- Mini-biographies were solicited with focus on selection, purchase and inhabitation of the house in question.
  - Informants had been in their homes 20, 30, 40, and even 50 years!
  - Only one household still had children resident.
  - Most were retired, with two self-employed.
  - Income ranged from struggling to affluent
  - All claimed ‘some college’ with a few obtaining graduate degrees and professional certifications.
  - All exhibited high levels of social and cultural capital through their choice of neighborhoods, car makes (mostly late models), and leisure activities
Sample sizes and self selection bias

- In the case of cool roof research, the number of people who applied for and received cool roof rebates through their local utility is very small in comparison to the roofing market as a whole.
- The entirety of the data set received an invitation to participate, from which approximately 10% responded.
- Since we are seeking specificity and not attempting to form general rules about the nature of a phenomenon, it becomes more important to reduce researcher bias than sample bias.
Discussion

- Consumers typically stayed very close to the aesthetic of the original roof style when aesthetics were at issue:
  - Wood shake roofs generally became asphalt composite shingles mimicking shake
  - Concrete tile was replaced with concrete tile in cooler pigments.
    - “I liked what we had with the concrete tile, I like the way it looked,” says Melvin Chen.
  - Tar and gravel was replaced by membrane and foam, but these were roofs where the material type cannot be seen
Concrete Shake

SMUD Territory – this housing development had a HOA and CCRs. Social pressure to conform will be backed up by legal pressure, making decisions based upon strictly technical specifications meaningless.
Discussion

- Customers confront a complex universe of decision points – therefore they rely on contractors to ‘decide’ for them
  - Consumers are confronted by a wide field of products, materials, colors, features, benefits, drawbacks, and price
- A cool roof is not an infrastructural upgrade, it is a consumable, therefore decisions are made based upon one’s identity and position vis-à-vis other neighbors, than on technical specifications.
‘Copycat’ white roof in Sacramento

Where roofs cannot be seen from the street, white vinyl and foam are easy choices to make to replace tar and gravel.
Role of the Utility

- Rebate had little role to play in terms of incentivizing customers to choose cool materials.
- In all cases, the rebate was discovered ‘after the fact’ and was seen as a ‘nice bonus.’
- No one learned about cool roofs from their utility.
- Most reported reading utility company inserts regularly.
- Though provided with energy use data by the utility company, eight of the nine households gave it little attention.
Conclusions

- Good news – consumers are primed to hear an appealing narrative about energy savings
- Bad news – that narrative has little role to do with decision-making process
  - Energy savings is seen a bonus, not a driver
- Good news – consumers were willing to pay a premium to get a cool roof:
  - There may be no upside to the contractor in carrying non-cool materials.
Final thoughts

• If customers do not measure temperature change or energy savings before and after the retrofit, why are they so uniformly satisfied with their installations?

• Perceived benefit? Most of them wanted to ‘never put on another roof again’ and the products seemed to promise this.

• The role of a utility rebate may not be as driver but as signifier, closing out the process and symbolizing its completion as a ‘job well done’. However, the halo accrues to the contractor, not the utility.