Effective Energy Communication Strategies for Low-Income Residents

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Bass Connections in Energy – Duke University

Background

Communicating about Energy in the Triangle: Engaging students and local partners to improve household consumption

Low Income Residents
• Residential sector comprises 22% of primary energy use
• 21% of households in the US have household incomes of less than $20,000 a year
    - Energy consumption can account for at least 8% of overall household
        expenditures for this group
• Studies indicate that residents can save 10-20% in energy usage through simple behavioral changes

Langevin *et al.* 2013

Abstract

Social scientists are beginning to understand a number of ways in which low-income populations face resource challenges that affect not just their material standing, but also the ways they engage information. Those challenges, in turn, also constrain the success of programs charged with helping low-income consumers conserve energy through changes in home maintenance and household energy behavior. Led by Dr. Brian Southwell, a team of Duke undergraduate and graduate students in the Bass Connections in Energy program conducted a small set of in-depth interviews with applicants to the Low Income Energy Assistance Program in Durham County to inquire about their information needs, preferences, and tendencies. The interviews explored the time-orientation of residents, e.g., tendency toward immediate goals versus long-term goals, perceived social network norms regarding community energy education, and a variety of other factors that pose both opportunities and challenges for future energy education outreach efforts. From this, we were able to determine two separate "community meeting" and "free workshop" strategies for promoting energy use tips. Promotional materials were created and further pretested among Durham residents in order to determine their effectiveness. Furthermore, the group tackled energy behavior from the developer side by analyzing the accessibility of information in regards to gross rent and building retrofits that would yield the greatest short term gain. Working with a local non-profit called Clean Energy Durham, our recommendations will address promotional efforts as well as information accessibility in order to organize more effective energy campaigns and overcome barriers to energy-use change among low-income residents.

Objectives

Resident Team
• Target low-income residents to determine their understanding of and attitude towards energy behavior
• Create outreach tools to increase energy efficiency in the community
• Question: What would drive low-income residents to attend a Clean Energy Durham workshop? Are there predictors to determine who would be most interested?

Building Developer Team
• Building developers focus group and collect information on energy efficiency importance
• Develop plan to incentivize building developers to improve energy efficiency of their units
• Question: Can building owners or managers be incentivized to either retrofit or design with energy efficient measures?

RESIDENT

Methods

Face-to-face interviews (n = 61) with applicants to Durham County (NC) Department of Social Services Low Income Energy Assistance Program.

Interviews separate from application process.

Key questions addressed:
• Information needs
• Resident time-orientation
• Perceived social norms

i.e. **Do you pay attention** to whether or not your **neighbors or friends** or other people important to you take steps to save energy in their homes?

Demographics
• Age = 24 to 78 (median: 43)
    - 90% female and 96 % African-American
• Median annual household income < $20,000

Results

Home Experiences
• Majority (57%) = homes *drafty most or all of the time* this past winter
• Most (75%) reported no weatherization at residence since move-in
• 87% currently rent their residence; nearly half live in standalone house
• 66% reported electric or gas bill greater than $150

Interest in Attending Workshop/Meeting
• 74% agreed they would attend free workshop if available near home
    "Yes location location location, close to me is best"
• 74% agreed they would attend a community meeting if near home
• 59% report energy use meeting somewhat uncommon or not at all common among people important to them.

"Free Workshop" Attendance

(R-squared = .40)

Predictors:
• **Average heating bill: beta = .52, p < .01**
• **Perceived understanding: beta = .33, p < .05**

Future planning agency, descriptive social norm, attitude towards meeting/workshop, injunctive norm, home ownership, sex, age, household income: NS

"Community Meeting" Attendance

(R-squared = .43)

Predictors:
• **Future planning agency: beta = .34, p < .05**
• **Average heating bill: beta = .53, p < .01**
• **Descriptive social norm: beta = .31, p < .05**

Attitude towards meeting/workshop, injunctive norm, perceived understanding, home ownership, sex, age, household income: NS

DEVELOPER

Methods

Focus groups with building developers.

Key Questions:
1. Have you ever considered energy efficiency when implementing building changes?
2. What types of energy efficiency measures have you used? What drove you to put these measures in place?
3. Are energy charges included in the building's rent or does each apartment pay their bill separately?

Results

1. Building developers are prioritizing energy efficiency when cost effective

"We're starting to realize the cost savings,… When we first started out, it was like oh energy- we need to do this and do that…now it's sort of become a common practice."

2. Energy efficiency reduces gross rents, allowing developers to borrow more

Gross rent = total rent + associated utilities

Average system with $75 per month utility to $50 per month utility
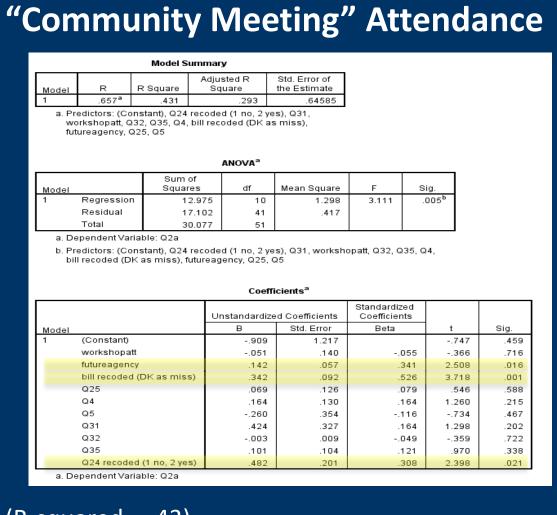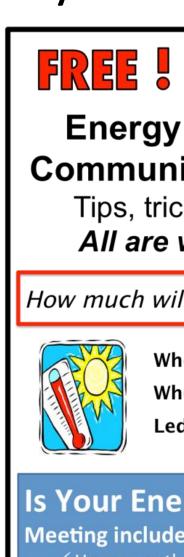→ over $300 savings per year
→ borrow $5,000 per unit

3. Utilities are rarely included in monthly rent payments

"It is very, very rare today to see a landlord pay all the utilities for their tenants."

4. Keeping utility bills low improves tenant retention

Large tenant utility bills→ less likely to re-lease or sign additional long term leases

Recommendations

Gross Rent Publication

• Regulations requiring energy audits, bench marking, and disclosure for rental properties.

Expand Energy Education Program to Businesses

Residential education workshop model → company, school, & university employees

• Led by CED associate
• License "Pete Street" & other materials to existing employee financial education programs
• Workshops to K-12 students to promot energy education

Duke University potential pilot testing
• Educate employees on potential financial savings
• Provide employee benefits and promote environmental sustainability

Partnership with Durham County
→ Use 2015 LIEAP application period promote workshops

Promote workshops via flyers:

Highly visible and visited locations (i.e. city hall, grocery stores, churches, libraries).

Pretested multiple flyer options at Durham social services.

Key points:
- Emphasize FREE
- ALL are welcome
- Spanish translation

FREE ! FREE! FREE!
Energy Savings Community Meeting
Tips, tricks & more
All are welcome!

How much will **YOU** save next month?

When: 3pm Saturday, April 12th
Where: 123 N Main St
Led by: Clean Energy Durham

Is Your Energy Bill Too High?
Meeting includes:
✓ Home weatherization for beginners
✓ Quick/ Cheap tricks for saving energy
✓ Exchange tips with neighbors

Acknowledgements

References

Department of Numbers. 2013. Durham North Carolina Residential Rent and Rental Statistics. Accessed from: http://www.deptofnumbers.com/rent/north- carolina/durham/. Date accessed: 1 April 2014.

EIA. 2009. 2009 RECS Survey Data. Accessed from: http://www.eia.gov/consumption/residential/data/2009/index.cfm. Date accessed: 10 April 2014.

Langevin, J., P. L. Gurian and J. Wen. 2013. Reducing energy consumption in low income public housing: interviewing residents about energy behaviors. *Applied Energy* 102:1358-1370