Promoting Sustainable Behavior in Tompkins County Homeowners
A Town-Gown Collaborative Experiment

Funded by NYSERDA (NY State Energy Research and Development Authority)
Elisabeth Harrod, General Manager, Snug Planet
A Social Marketing* Approach to Influencing Homeowner’s Energy Use

Energy Educator Visit

• Build rapport
• Empower do it yourself - low-cost, no cost steps to reducing energy use
• Information about loans and rebates
• Use social norming and making commitment
• Follow-up at 1 month to encourage completion of low-cost actions

*Research-based tactics.
A Social Marketing Approach to Influencing Homeowner’s Energy Use

*Participants:* 170 homeowners in Ithaca area, who contacted Snug Planet for a home audit

**Method:** Customers were randomly assigned:
- Energy Educator plus Audit (n=85)
- Audit Only (n=85)

**Data Collection:**
- Snug’s customer data files after 6 months
- 6 month follow-up survey – emailed customers about their energy saving behavior in the home
- $15 gift card incentive to take the survey
- Response rate – 60%

**Time Frame:** August 2015-April 2017

*Who was excluded?* Customers (n=171) with personal connection to the project or returning customers.
The Energy Educator Visit
Making a Commitment

Energy Action Plan

Lighting
- Install energy efficient compact fluorescent light bulbs (CFLs) in light fixtures.
- Install some energy efficient, long-lasting LED bulbs in our home.
- Turn off lights when not in use, or install motion sensors to turn them off automatically.

Hot Water
- Install high pressure, low flow shower heads.
- Lower water heater temperature to 120°F.
- Insulate hot water supply pipes.

Appliances & Electronics
- Reduce phantom energy load by turning power strips off or installing a smart power strip.
- Regularly clean and/or service appliances: ____________________________
- Replace old, inefficient appliances with new Energy Star models: ___________________

Health & Safety
- Install and maintain a smoke & CO detector on each floor.
- Conduct a home radon test.

Save MORE Energy
- Recommend a Snug Planet home energy audit to a friend.
- Like us on Facebook or follow us on Twitter for energy-saving updates and resources.
- Other:
  - Other:

May we share your Energy Action Plan online to celebrate the community-wide impacts of our energy saving work?
- Yes  - No

Signed: ________________________________

www.snugplanet.com  •  607-277-SNUG (7684)  •  1730 Mecklenburg Rd, Ithaca NY 14850
Social Norming

May we add you to our map of customers who completed an Energy Action Plan?
Hypotheses

Customers* who receive the Energy Educator visit will:

1) Be more likely to uptake the auditor-recommended work
2) Will spend more money on recommended work
3) Will do take more low-cost and no-cost energy-saving actions (both ongoing habits and one-time actions)

* Compared to customers in the Audit Only Condition
Results

(sneak preview)
Hypothesis 1

Were customers who received the Energy Educator visit more likely to take up the auditor recommended work on their homes?
No Difference in Number of Jobs “Won”

- Jobs Won: 22 Energy Educator, 26 Audit Only
- Jobs Lost: 63 Energy Educator, 59 Audit Only
No Difference in Number of Jobs “Won”

- Jobs Won
  - Energy Educator: 22
  - Audit Only: 26

- Jobs Lost
  - Energy Educator: 63
  - Audit Only: 59

Logistic regression: not significant

B = -.434
Exp (B) = .648
Sig. = .251 (p)
Job Uptake Rate: 
Affected by Selection Criteria and End-Date of the Experiment?

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2017 Participants</td>
<td>28%</td>
</tr>
<tr>
<td>2015-2017 Excluded</td>
<td>35%</td>
</tr>
<tr>
<td>Prior Years</td>
<td>39%</td>
</tr>
</tbody>
</table>

(N=170) (N=171)
Hypothesis 2

Did customers who receive the Energy Educator visit spend more money on the auditor recommended work?
Did Customers Having the Energy Educator Visit Spend More Money?

<table>
<thead>
<tr>
<th></th>
<th>Average “Job Size”</th>
<th># Customers</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Educator</td>
<td>$9314</td>
<td>22</td>
<td>$3924</td>
</tr>
<tr>
<td>Audit Only</td>
<td>$9367</td>
<td>25</td>
<td>$5890</td>
</tr>
<tr>
<td>Overall</td>
<td>$9342</td>
<td>47</td>
<td>$5013</td>
</tr>
</tbody>
</table>

Analysis of Variance
F = .206
Sig = .65 (p value)

*Customers excluded from the study during this time period spent average of $9026 on work (n=171).
*Prior to the study (2011-2013), average job size was $11,644 (n=86).
Does size or age of house, energy use, or “leakiness” of the house predict how much customers spent?

<table>
<thead>
<tr>
<th></th>
<th>Correlations with $ Spent on Work (n=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>House Square Feet</td>
<td>.017</td>
</tr>
<tr>
<td>Age of House</td>
<td>-.042</td>
</tr>
<tr>
<td>Audit Blower Door #</td>
<td>-.043</td>
</tr>
<tr>
<td>Total Yearly Energy Use</td>
<td>-.063</td>
</tr>
</tbody>
</table>

Not Significant
<table>
<thead>
<tr>
<th>EE Observed CUSTOMER ENTRY POINTS</th>
<th>EE Observed CUSTOMER BARRIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain-high bills &amp;/or major comfort issue</td>
<td>No pain from energy bills</td>
</tr>
<tr>
<td>Has an identifiable problem</td>
<td>No identifiable problem</td>
</tr>
<tr>
<td>Spends money &amp; willing to invest</td>
<td>Motivated by cheap energy audit</td>
</tr>
<tr>
<td>Views audit as an evaluation tool</td>
<td>DIY homeowner, wants a to-do list</td>
</tr>
<tr>
<td>Doesn't need to see &quot;specific&quot; savings</td>
<td>Wants detailed or technical analysis</td>
</tr>
<tr>
<td>Has a history with their house</td>
<td>Just bought the house</td>
</tr>
<tr>
<td>Understands systems-based approach</td>
<td>Fixated on a specific solution-not open</td>
</tr>
<tr>
<td>Asks good questions</td>
<td>Dictator, not interested in collaborating</td>
</tr>
<tr>
<td>Willing to act &amp; do their part</td>
<td>Inertia, unwillingness to act</td>
</tr>
<tr>
<td>Open to collaborating w/Snug</td>
<td>Unresponsive, poor communication</td>
</tr>
<tr>
<td>Has a personal connection to Snug</td>
<td>Decision-makers don't agree</td>
</tr>
<tr>
<td>Has heard positive feedback about Snug</td>
<td>Doesn't trust contractors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EE Observed BUILDING GREEN LIGHTS</th>
<th>EE Observed BUILDING RED FLAGS</th>
</tr>
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<tr>
<td>Dirt floor crawl space or wet basement</td>
<td>Vermiculite</td>
</tr>
<tr>
<td>Ice icicles &amp;/or Ice dams</td>
<td>Knob &amp; tube</td>
</tr>
<tr>
<td>Complicated Roof Line</td>
<td>Asbestos</td>
</tr>
<tr>
<td>Uneven temperatures or extreme drafts</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>Attic Access barriers</td>
</tr>
<tr>
<td></td>
<td>Basement/Crawlspace Access barriers</td>
</tr>
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Is it something about the customer?

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Trends:

1. The number of customer entry points increases the likelihood (by about 20%) of taking up the recommended work ($B = 0.185; \text{Exp}(B) = 1.2, p=0.088$).

2. Number of customer entry points positively correlated with $ spent on work ($r = 0.366, p = 0.094$).
Hypothesis 3a

Did customers who received the Energy Educator visit do more one-time no/low-cost energy saving actions?
One-time Low-cost/No-cost Energy Saving Actions

Chi-square analyses revealed significant difference at $p < .01$
Hypothesis 3b

Did customers who receive the Energy Educator visit change ongoing energy use habits?
Ongoing Energy Saving Habits

“In the past six months how often have you done the following to save energy in your home?”

- Turn off computers/TV
- Shorter showers
- Unplug small appliances
- Turn off power strips
- Cold water laundry
- Air dry clothes
- Turn off lights

![Bar Chart](chart.png)

Analysis of Variance revealed no significant differences between conditions.

(scale of 1-4; 1 = never; 4 = always)
Conclusions

1. The Energy Educator visit does not increase sales—neither number of contracts nor amount of contract $.
2. Trends suggest that the Energy Educator visit might discourage customer uptake of big expensive, work.
3. The Energy Educator visit does not impact customer ongoing energy use habits.
4. The Energy Educator appears to significantly affect uptake of low-cost/no cost one-time energy actions.
5. The Energy Educator observations of customer ”readiness” might help identify which customers are likely to uptake the work and spend money.
Caveats and Further Considerations

• Experiments, even "real-world" ones have their downfalls
• Six month “end point” may not be long enough
  – Customers come back months and years later
• Market factors
• Weather factors
• Very few low-income customers - those most in need are not getting the audits and needed home retrofits