Goal Setting, Social Comparisons and Rewards: New Behavioral Incentives for Energy Efficiency

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Behavioral Nudges and Energy

• How do we address GHG emissions in the absence of a carbon tax, regulation, emissions trading?

• Potential for economically significant savings from energy efficiency
  o McKinsey report (2009): 23% savings are achievable nationwide
  o But diffusion of technology and behavior is slow in spite of high returns (Jaffe and Stavins, 1994)

• Behavioral nudges have been shown to have a significant impact: commitment devices, default options, social norms …

• Allcott and Mullainathan (2010) Science: Behavioral nudges have higher returns than traditional price/technology based approaches to induce energy efficiency and conservation
Some evidence

- How easy is it to influence residential energy demand using *behavioral factors*?

  - Laboratory studies, small scale experiments
  - Allcott (2011): 2% savings from a combination of information, social comparisons, injunctive statements (Opower)
  - Harding and Rapson (2011): ClimateSmart can lead to temporary (3%) increases/ decreases in demand in response to marketing of carbon offsets

- What is the mechanism through which behavioral nudges impact energy efficiency?
New evidence

• **CUB Energy Saver Program**
  o Funded by the Citizens Utility Board (CUB) of Illinois
  o Designed and run by Efficiency 2.0
  o Aimed at residential customers of ComEd in Northern Illinois
  o Program is focused on the use of a website with monthly email feedback

• **Field Experiment** was conducted in Western Massachusetts using direct mail sent to WMECo customers
Choosing goals

1. Install CFLs in your lighting fixtures (2320)
2. Close your blinds during summer days (2094)
3. Wash only full loads of dishes (1718)
4. Use more natural lighting (1613)
5. Unplug your coffee maker when you’re done brewing (1587)
6. Clean the lint trap in your dryer before every load (1189)
7. Use a drying rack to dry your clothes (1095)
8. Turn up the temperature of your thermostat during the summer (1093)
9. Use a microwave oven instead of your oven for cooking (1076)
10. Hand clean your oven instead of using the auto clean (1000)
Feedback

Goal through June 2, 2011

Savings on electric bill
$89

You're a little behind our projection. Need help?

Points from electric bill
944

You're a little behind our projection. Need help?

How do we calculate points?

Congratulations, last month you saved $34.

We calculate your savings by comparing your bill this year to the same period last year.
Evaluation

- Overall program savings about 6%
- Individual level savings about 3%. Individuals achieve higher savings in the first few months after enrollment but savings appear to lack persistence at 12 months
- Individuals who choose realistic goals 1%-15% savings relative to past year meet their goals – on average save about 8%
- Individuals who choose over-optimistic goals >15% save very little and give up fast
- About 11% of the households join because of rewards and save very little
WMECo DM Experiment

• Dis-entangling in an experimental setting
  o Information
  o Social Comparisons
  o Goal setting
  o Ranks

• NO rewards given
Mailers

ENERGY SAVINGS REPORT
Report Period: 1/1/13 - 4/1/13

Sample A Sample
123 Anytown, USA 12345-6789

Your Energy Savings Report helps you understand your home’s energy use and shows you how to save money on your electric bill.

Sign up with your account number to learn more!
www.WesternMassSaves.com

WEMCO account number: 9999999999

Electric use compared to last year

<table>
<thead>
<tr>
<th></th>
<th>Last Year (kWh)</th>
<th>This Year (kWh)</th>
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</thead>
<tbody>
<tr>
<td>February</td>
<td>600</td>
<td>550</td>
</tr>
<tr>
<td>March</td>
<td>600</td>
<td>550</td>
</tr>
<tr>
<td>April</td>
<td>600</td>
<td>550</td>
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</tbody>
</table>

Follow these personalized recommendations to save energy and money.

1. Raise your A/C thermostat three degrees this summer. Save up to $60 / year.
   - Lowering your air conditioner’s thermostat setting just three degrees can reduce your summer cooling costs by 20 percent.
   - 120 neighbors are doing this. [Free]
   - Learn more or shop for this product at www.WesternMassSaves.com/AirThermostat

2. Close the blinds during summer days. Save up to $23 / year.
   - Closing the blinds during the day keeps your home cooler and reduces cooling costs.
   - 110 neighbors are doing this. [Free]
   - Learn more or shop for this product at www.WesternMassSaves.com/SunShine

3. Install low flow showerheads. Save up to $50 / year.
   - For $20 you can find a great low-flow showerhead that doesn’t sacrifice water pressure and only a few minutes to install.
   - 90 neighbors are doing this. [Pay for itself in 6 months]
   - Learn more or shop for this product at www.WesternMassSaves.com/LowFlow

Go to www.WesternMassSaves.com to find more ways to save energy.

HOW YOUR ENERGY USE COMPARES TO YOUR NEIGHBORS

This graph shows average monthly electric use from February through April.

WHO ARE YOUR NEIGHBORS?

Efficient Neighbors
Neighbors who have saved up to 20% as compared to the “average” neighbor.

You are

How you compare:

GREAT
GOOD
ROOM TO IMPROVE

Neighbor Comparison - Last 12 Months

Complete the recommendations on the other side to improve for the next report in July.

You can also receive home energy tips by calling (877) 765-9382 and entering your account number. www.WesternMassSaves.com. All savings recommendations are estimates.
Mailers

You Used More Electricity and Did Not Reach the Target

We want you to recommend the right time that will keep your energy use to the limit. Following the recommendations could have led to savings. The chart below shows the difference between your actual and target electricity use each month over the report period. You could have saved 34$ more if you had followed the recommendations in your last report.

- Use more natural lighting.
- Keep thermostat at 84 degrees or below.
- Keep your windows closed.
- Lower the temperature of your water heater.

Your recommendations were:

- 54 Electric Increase
- 537 Electric Savings

How Energy Efficient Are You Relative to Neighbors?

Sample A, Sample 123 Anytown, USA 12345-6789

Your Energy Savings Report helps you understand how your home’s energy use compares to similar homes in your neighborhood and shows you how to improve your rank against them.

Sample A, Sample 123 Anytown, USA 12345-6789

How to Improve Your Rank Against Your Neighbors

If you perform all of the personalized recommendations on the back of this report now, you will improve to 34 out of 100 by the end of July and you’ll be on track to save $255 annually.

Complete the recommendations on the other side to improve your rank for the next report in July.
Preliminary results

• No impact of information alone
• No impact of rank comparisons
• Neighbor comparisons: Savings 0.87% to 1.39%
• Personal goal: Savings: 1.33% to 2.13%

• Why? - Psychological literature emphasizes that individuals require clear precise goals that they can achieve. Imprecise/implicit goals (ranks, social comparisons) create vague incentives and are less effective.