Smart Grid Technologies and Services
Will Consumers Engage?

Jordan Folks
Research Into Action, Inc.
Will consumers engage?

• Yes, if you give them what they want
  ▪ But that might not be what you think it is
The Study: The Empowered Consumer

• Representative survey of 1,500 consumers (online panel)
  ▪ Awareness of and interest in smart grid technologies
  ▪ Perceived benefits and barriers
  ▪ Regional and/or sociodemographic variation

• Close-ended survey questions
• Experimental survey design – choice based conjoint
The Experiments

Random (balanced) assignment to one of two conjoint experiments

**Experiment A:**
*Time-Varying Rate Plans*

**Experiment B:**
*Smart Thermostat Programs*
What is conjoint again?

• Series of randomized trade-off questions
  - Provides more nuanced insights on consumer preferences and willingness to pay/participate than standard self-report methods

Golf Study

If you were considering buying golf balls for your next outing and these were the only alternatives, which would you choose?

(1 of 17)

<table>
<thead>
<tr>
<th>Brand: Long Shot, by Performance Plus</th>
<th>Price: $8.00 for package of 3 balls</th>
<th>Performance: Drives 5 yards farther than the average ball</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eclipse+, by Golfers, Inc.</td>
<td>$6.00 for package of 3 balls</td>
<td>Drives 10 yards farther than the average ball</td>
</tr>
<tr>
<td>High-Flyer Pro, by Smith and Forester</td>
<td>$4.00 for package of 3 balls</td>
<td>Drives 15 yards farther than the average ball</td>
</tr>
<tr>
<td>NONE: I wouldn’t choose any of these.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Time-varying Rate Plan Experiment

Relative Importance of Rate Plan Elements

- kWh pricing: 52%
- kWh usage access: 17%
- Contract duration: 17%
- Bill limits: 14%

Sums to 100%
If utilities had to pick one to offer, this is the one
Expanding options expands participation
## It’s not where you are, it’s who you are

<table>
<thead>
<tr>
<th>Segment</th>
<th>Segment Size</th>
<th>Quote</th>
<th>Rate Preferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Champions</td>
<td>30%</td>
<td>&quot;Smart energy technologies fit our environmentally aware, high-tech lifestyles.&quot;</td>
<td>High interest in TOU</td>
</tr>
<tr>
<td>Savings Seekers</td>
<td>20%</td>
<td>&quot;How can smart energy programs help us save money?&quot;</td>
<td>High interest in TOU</td>
</tr>
<tr>
<td>Status Quo</td>
<td>18%</td>
<td>&quot;We're okay; you can leave us alone.&quot;</td>
<td>Strongly prefers standard rate</td>
</tr>
<tr>
<td>Technology Cautious</td>
<td>17%</td>
<td>&quot;We want to use energy wisely, but we don't see how technologies can help.&quot;</td>
<td>Strongly prefers standard rate</td>
</tr>
<tr>
<td>Movers and Shakers</td>
<td>15%</td>
<td>&quot;Impress us with smart energy technology and maybe we will start to like the utility more.&quot;</td>
<td>Strongly prefers standard rate</td>
</tr>
</tbody>
</table>
Smart T-Stat Program Experiment

Relative Importance of Smart Thermostat Program Elements

- Installation method: 31%
- DR enablement: 26%
- Incentive amount: 21%
- Qualifying thermostat capabilities: 13%
- Incentive payment method: 8%

Sums to 100%
Consumers prefer lowest out-of-pocket cost and no DR enablement

Relative Consumer Preference

<table>
<thead>
<tr>
<th>Installation method</th>
<th>DIY: free</th>
<th>44%</th>
<th>Independent contractor: $150</th>
<th>20%</th>
<th>Utility assigned contractor: $50</th>
<th>36%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentive amount</td>
<td>$50</td>
<td>30%</td>
<td>$125</td>
<td>32%</td>
<td>$250</td>
<td>38%</td>
</tr>
<tr>
<td>DR enablement</td>
<td>Utility can adjust</td>
<td>41%</td>
<td>Utility cannot adjust</td>
<td>59%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Incentive payment method          | Rebate check | 35% | Utility bill credit | 36% | Coupon | 30% |
| Qualifying thermostat capabilities| Fixed       | 31% | Dynamic               | 35% | Occupancy sensors | 34% |
Are incentives more of a pointer than a motivator?

Simulated participation rate for a smart thermostat program with DIY installation and no DR auto-adjustment:

- $250: 68%
- $125: 68%
- $50: 64%
Interest is driven by sociodemographics, not region

Segment Interest in [any] Smart Thermostat Program

<table>
<thead>
<tr>
<th>Segment Interest for Smart Thermostat Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Champions</td>
</tr>
<tr>
<td>80%</td>
</tr>
</tbody>
</table>

Segment Interest for Smart Thermostat DR Programs

<table>
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<tr>
<th>Segment Interest for Smart Thermostat DR Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Champions</td>
</tr>
<tr>
<td>44%</td>
</tr>
</tbody>
</table>
So, *will* consumers engage?

- Multiple choices/offerings to satisfy the different wants and needs of a varied customer base
- Incentives help, but bigger isn’t better
- Interest in smart thermostat programs is high, but DR is a hard sell
- Some segments are harder targets than others
  - Luckily, half of population are good targets!
- Design customer-centric programs
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