Beyond Direct Load Control: 

HAN and Customer-Centric Behavioral DR 

Kimberly Conley 
December 2014
Home and Business Area Network

If you know:

- How much energy you’re using
- How much it costs
- In real time

What behaviors change?

How much energy is saved?
Early HAN Proof of Concept
Potential for lower energy spending

Increased knowledge, choice and ability to take action

Customer engagement

Effective rate education tool

~5.6% load reduction

64% changed the way they use electricity

After 6 months, 50% still used HAN as much as they initially did

IHDs corrected the popular misperception that energy price varies by time of day
HAN Phased Rollout

2012
- Usage/pricing proof of concept

2014
- Self-registration
- Pricing/DR pilot (results by EOY)

2015
- DR program bundling

2013
- Launched Res/SMB platform
- System scaling
- Device validation

2015
- Commercial eligibility
- Manual Response
- Direct Load Control
- Telemetry
Pricing/DR Pilot

Real time info from meter:

- Energy demand and consumption (kW and kWh) starting Jan 2015
- Real-time price
- Estimated costs to date & estimated bill this month
- DR Event alerts

Goals:

1. Technology assessment of system performance
2. Customer feedback on information (vs. device experience)
Pricing/DR Pilot Preliminary Findings

- Unprecedented recruitment success: 35% acceptance rate (typical is 7-10%)
- 85% survey participation
- Energy usage and PG&E bill are prime motivators for participation
## Pricing/DR Pilot Preliminary Findings

| Information                                                                 | Engagement                                      |
|                                                                           | • 50% of IHD users look at it more than once a day |
| • 60% look most at real time usage                                        | • Only 12% gateway+cloud look > once a day       |
| • Estimated bill this month least seen                                    |                                               |
| • 25% look at all data equally                                            |                                               |
Room for improvement on SmartDay notification on both device types:

- 53% of IHD users report seeing a SmartDay notification, compared to 25% of gateway+cloud users
- Those that did see a SmartRate notification found it helpful
Key Takeaways So Far (and a question)

• Device experience can have a big impact on behavior change and program effectiveness
• Market segmentation matters
• Real-time information can be a sticky and persistent education tool for many (but not all)

Can pushing personalized, relevant, actionable information increase program effectiveness?
Some Challenges

Cutting edge technology
- Identifying and resolving early adopter system issues
- Expertise, resource, infrastructure needs
- Support/escalation process for critical issues

Industry standards
- Device interoperability issues
- Competing standards means consumer/industry confusion
# Behavior Opportunities

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemetry</td>
<td>DR event performance visibility</td>
</tr>
<tr>
<td>Manual Response</td>
<td>Customer choice (vs. utility controlled t-stat programs)</td>
</tr>
<tr>
<td>Low Income</td>
<td>Real time information/education about usage/costs</td>
</tr>
<tr>
<td>High Bill Inquiries</td>
<td>Ongoing access to usage/cost information may help reduce repeat issues</td>
</tr>
<tr>
<td>Rate Transition Tool</td>
<td>Small/medium businesses transitioning to time varying pricing</td>
</tr>
</tbody>
</table>
Thank you!

kimberly.conley@pge.com

hanprogram@pge.com

www.pge.com/han