New Opportunities for Advanced DSM with AMI Deployments
Agenda

1. Behavior change in the southwest
2. Focusing on Peak Savings
3. AMI Data for Better Marketing
4. Planning for success
Behavior Change in the Southwest
Opower in the Region
Delivering energy savings throughout the region

Cumulative Program Impact

- 2.6MM+ HH served with HERs
- 685 GWh electric savings
- 5.8 MM therms gas savings
- $80 MM in customer bill savings
- 512,000 MT of CO2 abated

Utility Partners

- Arizona Public Service
- Public Service Co, NM
- Rocky Mountain Power (UT)
- Xcel Energy (CO, NM)
- Black Hills Energy
- Southwest Gas
- City of Fort Collins
- Loveland Water and Power
Home Energy Report Recipients are Still Saving!
HER Recipients are Saving when it Matters Most

Distribution of summer kWh savings at Western Utility

- kW savings up to 1.58 times higher during daily peak hours
- 42% of savings happen during daily peak hours
- 18% of savings occur during daily super peak hours

*Based on AMI savings measurement of 3 waves of households in July – September of 2015, composed of approximately 122,000 treatment households and 35,000 control households.
AMI Enables a Focus on Peak Demand
Infusing AMI insights into HERs

Leveraging HERs for TOU education and outreach
- Show customers when they’re using energy
- Encourage conservation behavior during peak
- Demonstrate value of AMI to customers
- Educate customers about TOU rates
Increase peak savings from HERs

Run a Peak Day Alerts campaign this summer

• Notifications complement e/HERs
  • Cohesive customer experience
  • Maximizes total and peak energy savings
• Coordinated cross-channel marketing modules and tips create even more effective campaigns
Peak Day Alerts

Behavioral science + AMI data motivates customers to reduce usage during the most important times of the year

- **3% peak savings** across entire territory
- **No devices, no rebates**

Rebates
- Add rebates to **bump peak savings to 14+%**
- **No devices**
HERs + Peak Alerts Provide Additive Reductions

Average Savings during Peak Events

<table>
<thead>
<tr>
<th></th>
<th>HER only</th>
<th>Peak Alerts only</th>
<th>HER+Alerts</th>
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<tbody>
<tr>
<td>Savings</td>
<td>1.2%</td>
<td>2.8%</td>
<td>4.4%</td>
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</table>

Takeaways

- Peak savings from Peak Day Alerts and HERs are additive
- Layer Peak Day Alerts on HERs to maximize reduction during peak hours and increase total energy savings
- Incremental benefits from Peak Day Alerts can boost TRC of HER program

*Based on randomized control trial at 2 utilities running BDR + HER summer programs*
And maximize total year-round EE savings

Savings during and outside peak events
results from 3 utilities over 1 year

- Non-Peak
- Peak, non-Event
- Peak Event

0.3% average annual savings

half of kWh savings occur in peak alerts season

2/3 of total savings come during non-peak hours

3x more peak savings during event than non-event peak
High Bill Alerts

Emails, text, and automated phone calls sent to gas or electric customers when they’re on track to receive a higher-than-normal bill.

High Bill Alerts have a 61% average open rate (compared to industry average of 20%)

- Designed to reduce bill shock and prevent high bill calls
- Increase satisfaction and engagement by driving to self service tools
- Bill projection uses AMI data and rates to project future bill

Your electricity use is projected to be $234.42

There’s still time to lower your bill

Oracle
High Bill Alerts Can Drive Measurable EE Savings

![Bar Chart]

**Savings Rate from HBAs**

- Midwest Utility (No HER) 0.72%
- West Utility 0.23%
- West Utility 0.25%
- Northeast Utility 0.26%
- West Utility 0.37%

**A stand-alone HBA program saving 0.72%**

**Four programs where HBAs are layered on top of HERs, savings average 0.27%**
Using AMI to Optimize Program Marketing
AMI Data in Action

Load Curves From 1,000 Customers

Source: Opower (2014)
AMI Data for Targeted Marketing
The Smart Grid: Planning for Success
Installing smart meters is not enough
Leaders know they must connect smart devices to the grid and people who use it
Measurable customer benefits justify huge infrastructure investments

EE & DR are 45% of total benefits from smart grid

Operational Savings 55%

Peak Time Rebate 25%

Energy Efficiency 20%

These benefits justified $250m BGE smart grid investment

$230 million investment @ 8.5% ROE allowed

$20 million return on investment
BGE’s AMI Business Case

Customer Benefits

O&M Savings and Avoided Capital Costs
» Meter operations
» Meter reading
» Distribution system management
» Other O&M benefits

DSM Benefits
» Capacity Revenue
» Capacity price mitigation
» Energy revenue
» Energy price mitigation
» T&D infrastructure benefit

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<th>AMI and SEP solution</th>
<th>NPV</th>
<th>Total</th>
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<td><strong>Total SEP Benefits</strong></td>
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**Total Benefits**
$1,267 $2,635

**Proposed Capital Expenditures**
$434 $641

**Total O&M Expense**
$95 $194

**Total Costs**
$529 $835

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Smart Grid Proposed Solution - TRC

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<th>NPV Total Costs</th>
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Thank You