2016 Demand Response End of Year Review

February 22, 2017
## 2016 Summary

<table>
<thead>
<tr>
<th>Events Dispatched</th>
<th>Customers</th>
<th>MWs (August)</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIP</strong></td>
<td>1 test</td>
<td>~248</td>
<td>303</td>
</tr>
<tr>
<td><strong>CBP – DA</strong></td>
<td>16</td>
<td>~29</td>
<td>4</td>
</tr>
<tr>
<td><strong>CBP – DO</strong></td>
<td>19</td>
<td>~426</td>
<td>15</td>
</tr>
<tr>
<td><strong>AMP</strong></td>
<td>14</td>
<td>~1,297</td>
<td>87</td>
</tr>
<tr>
<td><strong>DBP</strong></td>
<td>14</td>
<td>~455</td>
<td>17</td>
</tr>
<tr>
<td><strong>SmartAC</strong></td>
<td>14 tests</td>
<td>~151,000</td>
<td>70</td>
</tr>
<tr>
<td><strong>PDP</strong></td>
<td>12</td>
<td>~210,000</td>
<td>39</td>
</tr>
<tr>
<td><strong>SmartRate</strong></td>
<td>12</td>
<td>~146,000</td>
<td>45</td>
</tr>
<tr>
<td><strong>DRAM</strong></td>
<td>N/A</td>
<td>~5,000</td>
<td>17.2*</td>
</tr>
<tr>
<td><strong>ADR incentives</strong></td>
<td></td>
<td>~600</td>
<td>69</td>
</tr>
</tbody>
</table>

* MW contracted for across 6 DRPs
PG&E 2016 DR Successes

- Increased interest and participation in BIP – reached RDRR cap.
- Successful 2016 and 2017 DRAM RFO solicitation process.
- ADR pipeline of projects increased (35.5 MW).
- PDP system enhancements improved customer experience.
- Door to door marketing test of SmartAC had 5x the install rate.
- Testing complete on SmartAC 2-way switches, which will be installed going forward.
PG&E 2016 DR Challenges

- Declining enrollments in CBP related to frequency of dispatch
- 60-40 split in ADR incentive payments are a barrier
- Current Rule 24 CISR process makes customer enrollment difficult for DRPs participating in DRAM.
- SmartAC paging system problems in SubLap tests.
Customers:
- Over half of residential customers are familiar with and willing to participate in a DR program.

Primary participation drivers:
- Reducing energy costs/bills
- Taking advantage of incentives
- Meeting environmental goals*
  *Large C&I cite “doing the right thing” as the primary driver

Aggregators:
- Customer dissatisfaction due to consecutive days of dispatch
- Customers fatigued due to amount of events being called
Why do customers de-enroll?
- DR does not fit their operational requirements
- Low return for the incentive/high risk
- Duration & frequency of dispatch
- Unhappy with the baseline calculation
- Higher incentives via a DRP program

What changes do they want?
- Flexibility
- Changes to baseline calcs
- Better understanding of incentives
- Better tools (view into real time or next day performance)
- Residential customers want a Smart Phone app
- Program stability
- Higher incentives
- Rationale for event days
Changes/trends for 2017

- Back Up Generators for DR prohibited
- Integrating BIP starting May 1, 2017
- Increasing choice in CBP for 2018, educating aggregators
- DRAM increasing in size (MW and budget targets)
- CISR-DRP form revision/Click-Through improvements
- Possible mid-stream/up-stream ADR incentives
- ADR expands to SMB/res with deemed incentives
- Implementation of auto-enrollment for SmartAC residential customers who move