CORE RETRO-COMMISSIONING: LESSONS LEARNED & UPDATES

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OUTLINE

- BACKGROUND
- CORE RCx 2010-12
- FACTS & FIGURES
- LESSON LEARNED
- NEW OPPORTUNITIES
- Q&A
**BACKGROUND**

**Retro-commissioning (RCx)**
- RCx optimizes a building’s systems and operations
- RCx potential from 643-building LBNL study:
  - Median savings – 16%
  - Median cost – $0.30/ft²
  - Median payback – 1.1 years

**RCx at PG&E – Delivery Channels**
- Core
- Third Party Programs
- State and Local Government Partnerships

**History of Core RCx at PG&E**
- Traditionally managed by third party program implementer (2006-2011)
- Program administration moved in-house in 2012
Program Highlights

- **Requirements**
  - Eligibility – Facilities over 100,000 ft$^2$ and with 2M kWh or 50,000 therms usage
  - Incentives – $0.09/kWh, $1/therm and $100/kW on-peak. Total incentive capped at 50% of measure cost
  - Customer – commit to installing measures with less than 1 year simple payback up to $25,000

- **Good candidates for RCx**
  - High EUI, DDC controls, central plant, motivated customer

**2010-12 Core RCx suspended in January 2012**
FACTS AND FIGURES

PROGRAM METRICS FOR 2010-12 CYCLE – ALL CHANNELS

Over $6M in Incentives

Core Program 2010-12 Savings

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<thead>
<tr>
<th>Unit</th>
<th>Saving</th>
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<tbody>
<tr>
<td>kW</td>
<td>~ 4000</td>
</tr>
<tr>
<td>kWh</td>
<td>~ 44 M</td>
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<tr>
<td>Therms</td>
<td>~ 1.8 M</td>
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### LESSONS LEARNED

<table>
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<tr>
<th>Issue</th>
<th>Opportunity</th>
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<tr>
<td><strong>Process</strong></td>
<td>Simplification through streamlining and process standardization</td>
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<td><strong>Cost Effectiveness</strong></td>
<td>Cost controls and metric tracking</td>
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<td><strong>Customer engagement</strong></td>
<td>Improved communication plan, increased interaction between providers and customer’s contractors</td>
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<td><strong>Energy savings</strong></td>
<td>Improve persistence through program design changes</td>
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NEW OPPORTUNITIES

- WHOLE BUILDING
- REMOTE BUILDING AUDITS
- FAULT DETECTION & DIAGNOSTICS
- CONTINUOUS COMMISSIONING
- SMB

Pursue deeper energy savings through bundling and financing options
Revisit savings quantification techniques to better capture operational and behavioral savings
Explore technology enabled programs
Expand calculated EE programs to SMB market

PG&E
2013-14 Energy Efficiency PIP – RCx
“Whole Building” offers a comprehensive approach to customized commercial building efficiency with savings verified using whole building M&V standards. This approach addresses a number of focus areas:

– “Achieving deep energy savings through bundled measures”
– “Incorporating a comprehensive whole building approach”
– “Collecting and utilizing performance data”

Allows for performance-based incentives

Interval data used to quantify savings