Decoupling

A Utility’s Perspective

Jan Berman, Sr. Director, PG&E

February 12, 2013
About Pacific Gas & Electric (PG&E)

- 70,000 square-mile service area
- Provides energy services to 15 million Northern Californians
  - 5.1 million electric customer accounts
  - 4.3 million natural gas customer accounts
- 22,000 employees
- $15.6 billion in revenues
- > 50% of PG&E’s electric supply comes from non-GHG gas emitting sources
How Do Utilities Feel About Energy Efficiency?

- Customer satisfaction
- Reduces customer bills
  - EE is less expensive than new generation
- Infrastructure
  - Mitigate demand growth on T&D
  - Investment optimization
- GHG emissions reduction

- Reduced sales revenue
- Reduced investment opportunity
EE Customer Engagement
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EE Increases Customer Satisfaction

Overall Customer Satisfaction Index (CSI)

Customers that are aware of PG&E’s Energy Efficiency programs score significantly higher on overall customer satisfaction.

“How familiar are you with energy efficiency or conservation programs from PG&E to help you with ways to use less electricity?”

Customer Satisfaction in Relation to Program Participation

Customers who participated in multiple programs had higher satisfaction with PG&E, with each additional program increasing satisfaction.

% of respondents who scored between 8-10
“How would you rate the programs and / or services offered by PG&E? Please use the following 10-point scale where “1” means you are “extremely dissatisfied” and “10” means you are extremely satisfied.”
Note: Low counts for SMBs that participate in more than 3 programs so results are not shown.
Source: PG&E Customer Energy Solutions Composite Survey - 2014 Q3 Results.
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Residential Average Customer Bills

Source: PG&E internal data combined with SNL data - 2011 and 2012 data

**PG&E**
- Monthly res. bill average: $90.48
- Residential rate: 16.4 c/kwh
- Residential usage: 551 kw/month

**National**
- Monthly res. bill average: $118.38
- Residential rate: 12.1 c/kwh
- Residential usage: 977 kw/month
EE Remains the Cheapest Source of Energy

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PG&E’s Targeted DSM (TDSM) for Transmission & Distribution Reliability initiative focuses on reducing permanent load at customer sites of four capacity-constrained substations.

➢ **Goal**
  - Defer substation capacity expansions projects & repurpose projected $10 million in capital expenditure
  - Build an integrated relationship that supports “non-wires alternatives” assessments as a standard practice

➢ **Current status**
  - 2 out of 4 capacity expansion projects deferred for 3 years (potentially indefinitely)
  - 1 deferred due to load shifting
  - 1 reclassified as “maintenance”

➢ **Long term vision**
  - Free up as much as $50 million in distribution capital expenditure each year through using targeted DSM to mitigate projected circuit deficiencies that would otherwise require a “wires” solution
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EE Reduces GHG Emissions

PG&E’s Generation Mix (2013)

- Natural Gas + Other: 45%
- Nuclear: 22%
- Large Hydro: 11%
- Eligible Renewables: 22%

PG&E’s Generation Mix (2013) with EE

- Natural Gas + Other: 39%
- Nuclear: 18%
- Large Hydro: 8%
- Eligible Renewables: 17%
- Accumulated Energy Efficiency: 17%

Source: PG&E internal data
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- **Reduced sales revenue**
- **Revenue decoupling**
  - Reduced investment opportunity
Revenue decoupling is a generic term for a rate adjustment mechanism that separates (decouples) an electric or gas utility’s fixed cost recovery from the amount of electricity or gas it sells. Under decoupling, utilities collect revenues based on the regulatory determined revenue requirement, most often on a per customer basis. On a periodic basis revenues are “trued-up” to the predetermined revenue requirement using an automatic rate adjustment.”

California introduced Decoupling:
- Gas in 1978
- Electricity in 1982

Source: NARUC, "Decoupling For Electric & Gas Utilities: Frequently Asked Questions (FAQ)". 2007
Revenue Decoupling

Traditional Regulation vs. Decoupling

Traditional Regulation: Revenues Change With Consumption

Decoupling: Prices Change With Consumption
Impact of Decoupling on Rates is Modest


<table>
<thead>
<tr>
<th>Year</th>
<th>Delivery Revenue Requirement ($ millions)</th>
<th>Decoupling Adjustment ($ millions)</th>
<th>% of Delivery Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1027</td>
<td>22.85</td>
<td>2.2%</td>
</tr>
<tr>
<td>2007</td>
<td>1027</td>
<td>85.86</td>
<td>8.4%</td>
</tr>
<tr>
<td>2008</td>
<td>1069</td>
<td>33.64</td>
<td>3.1%</td>
</tr>
<tr>
<td>2009</td>
<td>1091</td>
<td>62.42</td>
<td>5.7%</td>
</tr>
<tr>
<td>2010</td>
<td>1,113</td>
<td>71.21</td>
<td>6.4%</td>
</tr>
<tr>
<td>2011</td>
<td>1,119</td>
<td>21.30</td>
<td>1.9%</td>
</tr>
<tr>
<td>2012</td>
<td>1,210</td>
<td>-11.62</td>
<td>-1.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Delivery Revenue Requirement ($ millions)</th>
<th>Decoupling Adjustment ($ millions)</th>
<th>% of Delivery Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>8925</td>
<td>-127.73</td>
<td>-1.43%</td>
</tr>
<tr>
<td>2006</td>
<td>9933</td>
<td>224.6</td>
<td>2.26%</td>
</tr>
<tr>
<td>2007</td>
<td>10409</td>
<td>217.27</td>
<td>2.09%</td>
</tr>
<tr>
<td>2008</td>
<td>10261</td>
<td>40.32</td>
<td>0.39%</td>
</tr>
<tr>
<td>2009</td>
<td>11169</td>
<td>103.55</td>
<td>0.93%</td>
</tr>
<tr>
<td>2010</td>
<td>11224</td>
<td>465.56</td>
<td>4.15%</td>
</tr>
<tr>
<td>2011</td>
<td>10306</td>
<td>383.9</td>
<td>3.73%</td>
</tr>
<tr>
<td>2012</td>
<td>11032</td>
<td>403.04</td>
<td>3.65%</td>
</tr>
</tbody>
</table>
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- Shareholder incentives
Over the last two decades California has rewarded investor-owned utilities for energy efficiency accomplishments with shareholder incentives.

Several different mechanisms have been in place at different times.

Key to success with shareholder incentive:

- Stakeholder support
- Outcomes close to expectations
- Transparent and (relatively) simple mechanisms
- Meaningful opportunity
How Shareholder Incentives Work

<table>
<thead>
<tr>
<th>Why this type?</th>
<th>Shared Savings</th>
<th>Management Fee</th>
<th>Life-Cycle Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOUs and Customers both benefit and it rewards incremental performance</td>
<td>Simple to use. Can reduce contention.</td>
<td>Promotes “deep savings” goals and rewards incremental performance</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How does it work?</th>
<th>Shared Savings</th>
<th>Management Fee</th>
<th>Life-Cycle Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiply net benefits by a pre-determined earnings %</td>
<td>Multiply expenses by a pre-determined %</td>
<td>Multiply achieved lifecycle savings by $/unit earnings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example (illustrative only)</th>
<th>Shared Savings</th>
<th>Management Fee</th>
<th>Life-Cycle Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000 net benefits x 7% = $70,000 earnings</td>
<td>$1,000,000 expenses x 5% = $50,000 earnings</td>
<td>1) 1st year net savings * EUL = lifecycle savings 2) lifecycle savings x coefficient = earnings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When was it used?</th>
<th>Shared Savings</th>
<th>Management Fee</th>
<th>Life-Cycle Savings</th>
</tr>
</thead>
</table>
### Overview of Shareholder Performance Incentives

<table>
<thead>
<tr>
<th>States</th>
<th>Type*</th>
<th>Award</th>
<th>Threshold/Trigger</th>
<th>Cap</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>SB</td>
<td>10% of net benefits</td>
<td>No. Minimum spending</td>
<td>10% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>California</td>
<td>SB</td>
<td>9-12% of net benefits</td>
<td>85% of savings goal</td>
<td>$150 million per year (reward) / $150 per year</td>
<td>Yes</td>
</tr>
<tr>
<td>Colorado</td>
<td>SB(^{12})</td>
<td>0.2-12% of net benefits</td>
<td>81% of savings goal</td>
<td>20% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Connecticut</td>
<td>PT</td>
<td>1-8% of program costs</td>
<td>70% of energy efficiency goals</td>
<td>8% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Georgia</td>
<td>SB</td>
<td>15% of net benefits</td>
<td>50% projected participation</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Hawaii</td>
<td>SB</td>
<td>1-5% of net benefits</td>
<td>100% of savings goals</td>
<td>5% of net benefits; $4 million</td>
<td>No</td>
</tr>
<tr>
<td>Idaho</td>
<td>SB</td>
<td>1-10% of net benefits</td>
<td>7-11.7% of new homes in program</td>
<td>10% of program benefits</td>
<td>Yes</td>
</tr>
<tr>
<td>Kentucky</td>
<td>SB</td>
<td>10% of net benefits</td>
<td>100% of savings goals</td>
<td>10% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>PT</td>
<td>3.75-5.5% of program costs</td>
<td>75% of savings goals</td>
<td>5.5% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Minnesota</td>
<td>SB</td>
<td>Based on spending</td>
<td>90% of savings goals</td>
<td>150% of savings goals / 30% of budget</td>
<td>No</td>
</tr>
<tr>
<td>Nevada</td>
<td>ROR</td>
<td>5% of DSM equity</td>
<td>No</td>
<td>5% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>PT</td>
<td>8-12% of program costs</td>
<td>65% of planned savings and 1:1 cost effectiveness</td>
<td>12% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Ohio</td>
<td>SB</td>
<td>50-75% of net value of avoided costs</td>
<td>65% of savings goals</td>
<td>15% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>SB</td>
<td>15% of program costs or 25% of net savings</td>
<td>No</td>
<td>Fixed; $2.7 million in 2010</td>
<td>No</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>PT</td>
<td>4.4% of program costs</td>
<td>60% of savings goal</td>
<td>125% for savings metric; $150,000 for performance</td>
<td>No</td>
</tr>
<tr>
<td>Texas</td>
<td>SB</td>
<td>1% of net benefits - up to cap</td>
<td>102% of savings goals</td>
<td>20% of program costs</td>
<td>No</td>
</tr>
<tr>
<td>Washington</td>
<td>PT/SB</td>
<td>5-100% of net benefits</td>
<td>100% of savings goal</td>
<td>150% of savings goal</td>
<td>Yes</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>ROR</td>
<td>Same as other investments</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>


* Type of Mechanisms: **SB**: Shared benefit, **PT**: Performance Target, **ROR**: Rate of Return
Historical PG&E EE Earnings by year booked

- **1990-1993** Performance incentive 15%
- **1994-1997** Performance incentive 30%
- **1998-2001** Milestone based incentive
- **2002-2005** No mechanism
- **2006-2009** Shared Savings incentive @ 7%
- **2010-2012** Management fee 5% + performance incentive up to 1%
- **2013-2014** Lifecycle savings incentive

$ million

Note: Years 1992-2007 settlement, 2008 onward earnings booked
Source: PG&E internal data
EE Incentive Earnings v. Spending

Cap as a % of Budget

PG&E added, Source: internal data
PG&E EE Electricity Approved Expenditures

Source: PG&E internal data
Policy Affects Cumulative EE Savings

California Flattens Energy Demand

Source: CEC, EIA, US Census, CA Department of Finance
Appendix
Shareholder Incentive Mechanisms

Three broad categories

**Shared benefit** (preference among states) – incentive based on a share of the benefits from approved efficiency programs (12 states).

**Performance targets** – incentive based on achievement of fixed energy savings targets or performance goals (5 states)

**Rate of return** – increased rate of return earned according to program spending or savings (2 states)