Large C&I Retrofit

Deep Dive

July 8, 2014
Energy Efficiency
Program Administrators

- Berkshire Gas
- Columbia Gas of Massachusetts
- Cape Light Compact
- Liberty Utilities
- National Grid
- NSTAR
- Unitil
- Western Massachusetts Electric
- Mass Save
Agenda

• Historical Review
• 2013 Challenges / Drivers
• Strategies and Tactics to Deliver the 3 Year Plan
  • Targeted initiatives
  • Innovative implementation
  • Large projects
  • Investments in capacity and capability
  • New offerings

• APPENDIX
Historical Review

- Electric - 36% growth savings since 2010
- Gas - 61% growth savings since 2010

Electric Savings (Annual MWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Gap</th>
<th>2013 Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>349 K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>160 K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2013</td>
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</table>

Gas Savings (Annual Therms)

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Gap</th>
<th>2013 Savings</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>5.6 Mil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>1.3 Mil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2013</td>
<td></td>
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</tbody>
</table>
2013 Challenges / Drivers

- **Evaluation**
  - limited impacts (CHP, custom gas)

- **Market**
  - periodicity of participation, fewer very large projects, competing priorities for scarce capital, customer personnel/ownership changes, economic conditions, etc.

- **Implementation**
  - capacity/availability of trade allies, customer scheduling constraints, possible cross-program influences (upstream)
Strategies/Tactics to Deliver the Plan

- Goals are at unprecedented levels

- All PAs continuously monitor progress, review pipeline, identify gaps, and consider and deploy new strategies and tactics to achieve goals

- Emphasis on increasing both breadth and depth of participation through targeted approaches: segment based, technology based, both
Targeted Initiatives

- Specialized approaches / offers to better meet the needs and interests of specific subsets of customers.
  - Technology and/or Segment based
  - Best practices research – identify and apply proven successes
  - Vendor-driven delivery – where appropriate / necessary, leverage external capacity and expertise
  - Marketing – utilize enhanced messaging, propensity modeling, analytics, etc. for improved targeting and communication

- EnergySmart Grocer (ESG)
  - Targeting food sales customers – national, regional, and independent grocers
  - Capture previously unrealized deeper refrigeration savings opportunities
  - Dedicated 3rd party program manager with specialized capabilities:
    - Relationships with grocers and understanding of decision making process
    - Technology/end-use expertise
    - Project / program management tools
    - Serves as specialized team – sales, technical assessment, project management, processing
  - 3-4x incremental savings improvement
Innovative Implementation

- **Comprehensiveness and Gas/Electric Integration** – continuous improvement in sales effectiveness through improved understanding of project / customer economics

- **Customer focus** – negotiating incentives to meet customer financial needs/requirements

- **Sharing effective practices** – continuous communication among PAs re: incentives offered, measures, approaches to increasing project close rates

- **EE Project Pro Forma**
  - Developed to facilitate economic evaluation of EE projects
  - Encourages comprehensiveness and gas/electric integration
  - Considers both energy and non-energy benefits
  - Provides information about common financial metrics used to evaluate capital investments
Large Projects

- Completing more large projects – CHP, MOUs, large custom – are a necessary element of the PAs strategies to meet the 3 year goals

- PAs have dedicated resources focused on working with largest customers to identify and implement large projects

- Requires longer development and implementation cycles with lots of engineering.

Strategic Energy Management Planning (SEMP)

- Single customer = 4.7 Mil KWh savings in 2012 & 2013
- 5 facilities
- Comprehensive results – HVAC, Chiller, lighting & controls, data center, retro-commissioning
- 2.2 year avg payback
- 2014/2015 goal = 6 Mil KWh savings (50% increase)
Investments in Capacity & Capability

- **Internal resources** – additions and redeployments (e.g., acct. execs., channel sales, strategic sales teams, etc.)

- **External resources** – program vendors, implementers, channel partners, trade allies

- **Productivity improvements** – streamline processes (e.g., technical review / cost effectiveness screening)

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**Trade Allies / Channel Partners**

- Create scale and broader market engagement through a “one-to-many” approach

- Examples include:
  - HVAC optimization via manufacturers and/or distributors for specific segments
  - Building tune-up via ESCOs, property managers, and HVAC/mechanical contractors
New Offerings

- Leverage work of MTAC and other Subcommittees (lighting, non-lighting, gas)
- Identify, evaluate and incorporate additional measures
- Capitalize on latest technology developments
- Target incremental or relatively under-tapped savings opportunities

Networked Lighting Controls
- Promote installation & commissioning of latest innovative control systems of new construction & retrofit projects
- Enables customization of lighting to suit business while achieving significant energy savings
- Simple incentive structure ($0.50 per Sqft) and pre-qualified product list to facilitate decision making
- Targeted to large office buildings, universities & industrial facilities
Statewide Forecast: Gas (Annual Thermgs)

**Baseload (2013 Savings)**

- 5.6 Mil

**Productivity**

- Gains from # and / or size of projects

- ~0.25 Mil

**Incremental**

- Discrete, identifiable savings

- 1.1-2.1 Mil

**Statewide Forecast: Gas**

- 6.9-8.0 Million
- 6.8-7.7 Million

**3 Year Plan**

<table>
<thead>
<tr>
<th>Year</th>
<th>Technology/Sector</th>
<th>Known Projects</th>
<th>Other (Segment, Staffing, Channel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>~0.25 Mil</td>
<td>~0.25 Mil</td>
<td>~0.30 Mil</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td>1.1-2.1 Mil</td>
<td>0.9-1.8 Mil</td>
</tr>
</tbody>
</table>

**IU**

- Increase in Utilization

**Statewide Forecast:**

- 1.1-2.1 Mil
- 0.9-1.8 Mil

**Yearly Forecast:**

- 2014:
  - Technology/Sector: 1.1-2.1 Mil
  - Known Projects: ~0.25 Mil
  - Other (Segment, Staffing, Channel): ~0.30 Mil

- 2015:
  - Technology/Sector: 0.9-1.8 Mil
  - Known Projects: ~0.30 Mil
  - Other (Segment, Staffing, Channel): 0.30 Mil

**Baseload:**

- 5.6 Mil

**Overall:**

- 6.9-8.0 Million
- 6.8-7.7 Million
Statewide Forecast: Electric (Annual MWh)

Incremental (Discrete, identifiable savings)

Productivity (Gains from # and / or size of projects)

Baseload (2013 Savings)

430-475 Thousand

480-575 Thousand

3 Year Plan

YTD Progress

IU

Other (Technology / Sector, Channel)
Segment Specific
Productivity

45-90 K

~35k

430-475 Thousand

350K

2014

2015

95-190 K

~35K
APPENDIX
Grocery Segment

- Targeted offering for very energy-intensive customers

- 3rd Party program manager with specialized expertise
  - Technology / End use
  - Established customer relationships

- Streamlined process with concierge like service

- 3-4x incremental savings increase (8-10 mil KWh)
EE Project Pro Forma

- Tool developed for PA acct. execs. to facilitate economic evaluation of EE projects
- Encourages comprehensiveness and gas/electric integration
- Considers both energy and non-energy benefits
- Provides information about common financial metrics used to evaluate capital investments

### Energy Efficiency: Pro Forma Project Economics

<table>
<thead>
<tr>
<th>Project Name / Description</th>
<th>Sample Energy Efficiency Improvement Project</th>
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<tbody>
<tr>
<td>Customer Name</td>
<td>Acme, Inc.</td>
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<tr>
<td>City / Town</td>
<td>Anytown</td>
</tr>
<tr>
<td>Electric PA</td>
<td>Cape Light Compact</td>
</tr>
<tr>
<td>Gas PA</td>
<td>Liberty Utilities</td>
</tr>
</tbody>
</table>

| Electric Rate ($ per kWh) | $0.130 |
| Demand Rate ($ per kW)    | $7.000 |
| Gas Rate ($ per Therm)    | $2.000 |
| Discount Rate (%)         | 4.0%   |

#### Project Summary

<table>
<thead>
<tr>
<th>Project Costs</th>
<th>Project Energy Benefits</th>
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<tbody>
<tr>
<td>Total Project Costs</td>
<td>$1,651,513</td>
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<tr>
<td>EE Incentives</td>
<td>$741,310</td>
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<tr>
<td>Net Project Cost</td>
<td>$910,223</td>
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<tr>
<td>Electric Savings</td>
<td>26,322,000</td>
</tr>
<tr>
<td>Electric Savings (kWh)</td>
<td>2,090</td>
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<tr>
<td>Gas Savings (Therm)</td>
<td>2,000,000</td>
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</table>

<table>
<thead>
<tr>
<th>Project Savings</th>
<th>Project Environmental Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Electric Savings</td>
<td>$3,440,780</td>
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<tr>
<td>Total Gas Savings</td>
<td>$4,000,000</td>
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<tr>
<td>Total O&amp;M Savings</td>
<td>$0</td>
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<tr>
<td>Grand Total Savings</td>
<td>$7,440,780</td>
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<td>CO₂ Reductions (lbs)</td>
<td>17,064</td>
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<td>SO₂ Reductions (lbs)</td>
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<tr>
<td>NOX Reductions (lbs)</td>
<td>99,454</td>
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<tr>
<td>VOC Reductions (lbs)</td>
<td>10,300</td>
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<table>
<thead>
<tr>
<th>Project Metrics</th>
<th>Incentives</th>
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<tbody>
<tr>
<td>Cumulative Cash Flow</td>
<td>$6,530,557</td>
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<tr>
<td>NPV Cash Flow</td>
<td>$4,198,216</td>
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<td>Payback w/out Incentives (Yrs)</td>
<td>3.78</td>
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<tr>
<td>Payback w/Incentives (Yrs)</td>
<td>2.07</td>
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<tr>
<td>Return on Investment (%)</td>
<td>381%</td>
</tr>
<tr>
<td>Electric Incentives ($)</td>
<td>$478,810</td>
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<tr>
<td>Electric Incentives ($ per kWh)</td>
<td>$0.262</td>
</tr>
<tr>
<td>Gas Incentives ($)</td>
<td>$282,500</td>
</tr>
<tr>
<td>Gas Incentives ($ per Therm)</td>
<td>$2.825</td>
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</tbody>
</table>
THANK YOU