Considerations for Lighting Programs

The National Energy Efficiency Program Best Practices Study

2005 National Energy Star Lighting Partner Meeting

April 4, 2005

Jane S. Peters, Research Into Action, Inc. Study Contractor
Presentation Overview

• Project Background
• Residential Lighting Chapter
• Lessons Learned
• Best Practices Website and Products
Project Advisory Committee
Kenneth James - PG&E
Pierre Landry - SCE
Rob Rubin - SDG&E
Jay Luboff - (formerly) CPUC
Eli Kollman - (formerly) CPUC
Sylvia Bender - CEC

Project Team
Mike Rufo, Marissa Meyers, Phil Willems - Quantum
Jane Peters & Dulane Moran - Research Into Action, Inc.
Bruce Mast & Bill Brooks - Frontier Associates
Lori Megdal - Megdal & Associates
Benchmarking

“Benchmarking is the process of identifying, sharing, and using best practices to improve business processes.” Source: American Productivity and Quality Center

"Benchmarking is simply about making comparisons with other organizations and then learning the lessons that those comparisons reveal". Source: The European Benchmarking Code of Conduct

Best Practice

The term “Best Practice” refers to a business practice that, when compared to other business practices used to address a similar business process, produces superior results.
What Makes a Program?

- Program outcome is a function of changeable program components and changeable and unchangeable context variables.
Key Questions of BP Study

• What design, implementation, evaluation & management, practices are used?
• How effective are they?
• Is there room to improve performance?
• Can knowledge help meet the challenges & opportunities in CA new EE environment?
BP Study Program Inclusion

- Referenced in previous BP-type study
- BP team recommendation
- Random selection
- Completed implementation cycle (mostly PY2002)
- Availability of program and evaluation data
- Participant willingness
Residential Lighting Chapter

- 2002 California – Cross-Cutting Statewide Residential Lighting Program
- 2002 Efficiency Vermont – Efficient Products Program, Lighting Component
- 2002 Massachusetts Electric – Residential Lighting Program
- 2002 Midwest Energy Efficiency Alliance – ENERGY STAR® Change a Light, Change the World Campaign
- 2001 NW Energy Efficiency Alliance – ENERGY STAR® Residential Lighting Program
- 2000-2001 United Illuminating – Retail Lighting Program
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</thead>
<tbody>
<tr>
<td>Retail Price/ kWh</td>
<td>$.135</td>
<td>$.13</td>
<td>$.11</td>
<td>$.085 (IL)</td>
<td>$.06</td>
<td>$.11</td>
</tr>
<tr>
<td>Program Budget</td>
<td>$9.4 million</td>
<td>$1.6 million</td>
<td>$3.3 million</td>
<td>$630,000</td>
<td>$2.6 million</td>
<td>$1.5 million/yr</td>
</tr>
<tr>
<td>Total Incentives Paid</td>
<td>7.3 million</td>
<td>$655,147</td>
<td>$2.2 million</td>
<td>$309,000</td>
<td>$0</td>
<td>$635,405/yr</td>
</tr>
<tr>
<td>Eligible Households</td>
<td>9.1 million</td>
<td>286,000</td>
<td>1.1 million</td>
<td>NA</td>
<td>4.2 million</td>
<td>276,539</td>
</tr>
<tr>
<td>Net MWh goal</td>
<td>192,000</td>
<td>NA</td>
<td>9,695</td>
<td>NA</td>
<td>28,032</td>
<td>NA</td>
</tr>
<tr>
<td>MWh achieved</td>
<td>162,888</td>
<td>11,039</td>
<td>18,037</td>
<td>10,198</td>
<td>271,560 BP (123,352 rev)</td>
<td>7,808</td>
</tr>
<tr>
<td>Unique Participants</td>
<td>NA</td>
<td>21,784</td>
<td>98,168</td>
<td>23,272</td>
<td>NA</td>
<td>13,327</td>
</tr>
</tbody>
</table>
Broad Themes

• Used three or more tactics
• Leveraged ENERGY STAR® recognition
• Supported third party verification
• Dominated by market transformation strategies
• Benefited from regional coordination and partnership efforts with other organizations
## Barriers Addressed

<table>
<thead>
<tr>
<th>Identified Barrier</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Search Costs</td>
<td>Use an ENERGY STAR® platform, a credible source of easily identified information</td>
</tr>
<tr>
<td>Product Unavailability</td>
<td>Use manufacturer buy-downs. Work directly with retailers to increase stocking and ordering of energy-efficient lighting products.</td>
</tr>
<tr>
<td>High Costs</td>
<td>Upstream buy-downs to increase manufacturing and reduce costs</td>
</tr>
<tr>
<td>Undervaluing EE Features (related to higher first costs)</td>
<td>Marketing and instant rebates expose consumers to the benefits of energy-efficient lighting products</td>
</tr>
<tr>
<td>Organizational Practices and Customs</td>
<td>Special events and campaigns create interest &amp; excitement and increase sales and affect ordering and stocking</td>
</tr>
</tbody>
</table>
Lighting Program Best Practices

Program Theory and Design:

- Conduct sufficient market research
- Develop a sound program plan; clearly articulate a program theory
- Link program tactics to the theory
Lighting Program Best Practices

Program Mgmt: Project Management

• Define program management responsibilities
• Clearly communicate program changes
• Maintain flexibility to respond to market changes
• Clarify requirements through RFP and contracting processes
Lighting Program Best Practices

Program Mgmt: Reporting and Tracking

- Data should relate directly to program plan or theory
- Regularly review algorithms and assumptions
- Collect & track data over time
- Review tracking reports frequently to assess progress
Lighting Program Best Practices

Program Mgmt: QC and Verification

• Verify accuracy of rebates, coupons, and/or invoices

• Assure quality through independent testing procedures, such as PEARL

• Assess customer satisfaction with lighting product quality
Lighting Program Best Practices

Program Implementation: Participation

• Keep participation simple
• Link program tactics to program theory and success indicators
• Develop tactics to reach all market actors
• Allow participation strategies to evolve and change with time and progress
Lighting Program Best Practices

Program Implementation: Marketing and Outreach

• Leverage marketing dollars: co-op marketing, sponsorships, national & regional coordination

• Include retail outreach to ensure product is stocked and POP clear
Lighting Program Best Practices

Program Evaluation

• No program is too small to evaluate
• Evaluation should clearly document progress and experience
• Involve program staff to create a culture where findings are valued and used
## Cost Effectiveness

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<tbody>
<tr>
<td><strong>Net-to-Gross Ratio</strong></td>
<td>.80</td>
<td>1.27</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>.57</td>
</tr>
<tr>
<td><strong>Freeridership Rate</strong></td>
<td>NA</td>
<td>6%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>5.7%</td>
</tr>
<tr>
<td><strong>TRC/Societal Test</strong></td>
<td>3.5</td>
<td>2.3:1 (B/C Ratio)</td>
<td>2.4</td>
<td>8.34:1 (B/C Ratio)</td>
<td>1.62</td>
<td>1.77</td>
</tr>
<tr>
<td><strong>Avg. measure life (yrs)</strong></td>
<td>9 (lamps)</td>
<td>6.4 (lamps)</td>
<td>8 (lamps)</td>
<td>7 (lamps)</td>
<td>7.34 (lamps)</td>
<td>8.6 (lamps)</td>
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<td><strong>Net MWh (Annual)</strong></td>
<td>162,888</td>
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<td><strong>Real Discount Rate</strong></td>
<td>8.15%</td>
<td>6.8%</td>
<td>5.56%</td>
<td>4.5%</td>
<td>4.75%</td>
<td>5.94%</td>
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<td>$309,000</td>
<td>$0</td>
<td>$635,405</td>
</tr>
<tr>
<td>Program $/first-year kWh saved</td>
<td>.058</td>
<td>.15</td>
<td>.18</td>
<td>.06</td>
<td>.01 BP (.02 rev)</td>
<td>.19</td>
</tr>
<tr>
<td>Incentive Dollars per kWh</td>
<td>.045</td>
<td>.06</td>
<td>.12</td>
<td>.03</td>
<td>NA</td>
<td>.08</td>
</tr>
<tr>
<td>Non-Incentive Dollars per kWh</td>
<td>.013</td>
<td>.086</td>
<td>.06</td>
<td>.03</td>
<td>.01</td>
<td>.11</td>
</tr>
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Broad Lessons

Align with other efforts in state and region
Build relationships with market actors (retailers, distributors, manufacturers)
Develop robust & nimble tracking systems
Continually streamline & simplify participation
Use adaptive management strategies
Energy Efficiency Programs
Best Practices
Website
www.eebestpractices.com
BP Study Reports

• Study Overview
  – Overall Executive Summary
  – Methodology

• Residential
  – Lighting
  – HVAC
  – Single-Family Comp
  – Multi-Family Comp
  – Audits
  – New Construction

• Nonresidential
  – Lighting/Turnkey
  – Large Comprehensive
  – HVAC
  – New Construction

• Crosscutting
  – Mass Market Advertising