Assessing Strategic Energy Management Cost Effectiveness

NEEP SEM Collaborative

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Synapse Energy Economics

• Founded in 1996 by CEO Bruce Biewald
• Leader for public interest and government clients in providing rigorous analysis of the electric power sector
• Staff of 30 includes experts in energy and environmental economics and environmental compliance
Superior Energy Performance
Cost Effectiveness
SEP Gross Energy Savings (% of Baseline Consumption) for 11 Facilities

Average

-10% -5% 0% 5% 10% 15% 20% 25% 30%

All Energy Sources Savings (%)  Electricity Savings (%)  All Fuel Sources Savings (%)
Internal Staff Time Cost vs. Total Gross Operational Savings

\[ y = 0.7683x + 159022 \]

\[ R^2 = 0.5213 \]
## Costs of SEP Projects in the SEP Cost Effectiveness Screening Tool

### SEP Costs for the 1st Year of Implementation

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Definitions</th>
<th>Cost Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal Staff Costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EnMS Development</td>
<td>Costs for energy management system (EnMS) development</td>
<td></td>
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<tr>
<td>EnMS Development Sunk Costs</td>
<td>Costs already invested in EnMS prior to SEP participation</td>
<td>Calculated. ( y = 0.5827x + 148486 ), where ( y ) = internal staff time and ( x ) = total energy savings</td>
</tr>
<tr>
<td>EnMS Development Less Sunk Costs</td>
<td>Additional EnMS related costs associated with SEP</td>
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<tr>
<td>Audit Preparation</td>
<td>Costs for internal audits</td>
<td></td>
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<tr>
<td><strong>Program Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit</td>
<td>Costs for certification audits. Assumed 2/3 of the initial cost for the second audit, and 1/2 of the cost for the subsequent audits</td>
<td></td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>Costs for EnMS development, energy savings determination (EnPI tool use), energy performance improvement action identification, and other necessary technical assistance. Assumed 2/3 of the initial cost for the second audit, and 1/2 of the cost for the subsequent audits</td>
<td>$69,000 (average program costs)</td>
</tr>
<tr>
<td>Monitoring and Metering Equipment</td>
<td>Costs for monitoring and metering equipment.</td>
<td>$14,000 (average program costs)</td>
</tr>
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</table>
Strategic Energy Management Cost Effectiveness
Cost Effectiveness of SEM

- Potentially influenced by many factors
  - State utility regulation, energy policies and goals
  - Characteristics of the service area and program administrator
  - Participant characteristics
  - Program design considerations
- Some of these factors are considered in the SEP Cost Effectiveness Screening Tool, but some are not.
Cost Effectiveness of SEM

• Challenge: how to provide program administrators with information on SEM cost effectiveness given these variations?

• Resources under consideration
  • Menu of program design options
  • Industrial SEM Cost Effectiveness Screening Tool
  • Commercial SEM Cost Effectiveness Screening Tool
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