Workshop M

Optimizing Energy Efficiency for Strategic Energy Management

Tuesday, February 18, 2014
1:45 p.m. to 3 p.m.
Kim Weaver has over 25 years of energy efficiency, demand management and information technology experience. She joined Constellation’s retail energy efficiency team in September 2010 to serve the Great Lakes Region. She has been a long-time advocate of using our natural resources wisely and creating self-funding solutions for customers. In her current role, Ms. Weaver helps customers to reduce their utility costs over time by implementing energy efficient projects with no upfront capital.

Ms. Weaver graduated from Miami University in Oxford, OH and served on her local School Board.
Innovative Funding Options for Energy Efficiency Initiatives

Ohio Energy Management Conference

Kim Weaver
Your Specialist for Efficiency Made Easy
Chicago Hilton Hotels – Efficiency Made Easy

Hilton Northbrook
Hilton Lisle
Doubletree Alsip

Hilton Hotels’ Challenge:
The Chicago Hilton hotels were looking for ways to meet corporate sustainability goals and overcome the obstacle of lighting upgrade needs without using capital funding.

Solution:
Through Efficiency Made Easy, the Hilton hotels were able to upgrade their lighting and control sensors while enjoying immediate cost savings. The hotels also participate in Constellation’s gas and demand response programs.

Greenhouse Gas Reductions:
Hilton Northbrook – 650,000 lbs.
Hilton Lisle – 863,000 lbs.
Doubletree Alsip – 287,000 lbs.
Energy efficiency is the reduction of the quantity of energy that we use while providing the same or better services and functions in order to enhance our clients energy infrastructure by making it more efficient and sustainable.

\[ \text{COST} = \frac{(P \times Q\downarrow)}{T} \]
An Integrated Energy Strategy

\[ \text{COST} = (P \times Q)T \]
Permanent Vs. Responsive

- Energy Efficiency
  - Load Shifting
  - Distributed Gen

- Conservation
  - Demand Response
  - Economic Programs
  - CE Programs

Graphs:
- **Permanent**
  - kW
  - 1 24

- **Responsive**
  - kW
  - 1 24

$/$/MWyr
Interactions

EE Project

Solar
Green
Power
Gas
Load Response

kW

1

24

Bandwidth

Bandwidth penalty

Efficiency Project Q

Q outside bandwidth
Implementation

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Product Vendor</th>
<th>Engineer/Architect</th>
<th>Energy Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>Product O&amp;M</td>
<td>Time</td>
<td>Energy</td>
</tr>
<tr>
<td>More</td>
<td>More</td>
<td>More</td>
<td>LESS</td>
</tr>
</tbody>
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Funding

Blend Cost with electricity to reduce impact on Operating Budget

Capital Expenditure or lease

Performance Contract
Energy Performance Contracting is the mechanism to fund building improvements and to achieve sustainability goals via guaranteed energy savings from your operating budget.

**Key Features:**
- Reduce energy consumption
- Guaranteed Savings
- Operating costs and complexity reduced
- Turn-key implementation

**Primary Market:**
- Public Sector / Corporate
- No capital required
- Achieve sustainability goals
- Avoid of technical and financial risks
- Energy savings used to purchase equipment

≥ 10 year contract | typically financed by a 3rd party
In-Electric Rate Funding

In-Electric Rate Funding allows businesses to implement energy efficiency measures without a capital expenditure. The costs of efficiency measures are factored into the price per kilowatt hour and are reflected on the electricity bill.

The Benefits
• No up-front capital required
• Cost savings
• Reduced energy consumption – an improved load profile
• Warranty coverage
• The customer retains full benefit of the efficiency measures at the end of the electricity contract
How In-Electric Rate Funding Works

- Lower Quantity
- Lower Capacity Obligations & Tags
- Lower T&D Charges
- Improved Load Profile
- Asset Appreciation

\[
\text{COST} = P \times Q
\]

Year 1 - 3

\[
\downarrow \text{COST} = \downarrow P \times \downarrow Q
\]

Year 4
## Benefits Summary

### Direct Savings Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy savings ($)</strong></td>
<td>By reducing the quantity (Q) consumed, ECMs can save enough money to pay for themselves. These cost savings will increase after the ECMs are paid for and the energy savings continue.</td>
</tr>
<tr>
<td><strong>Quantity Reductions</strong></td>
<td>The reduction in energy usage and demand may also improve load factor. Reduce capacity payments. Provide additional EDC Savings based on at least $10/MWh.</td>
</tr>
<tr>
<td><strong>Warranty Savings</strong></td>
<td>One year warranty on entire installation and even longer on most items. One year on all installed equipment. 3 or more years on linear fluorescent lamps. 5 years on linear fluorescent ballasts. Other lighting technologies vary.</td>
</tr>
<tr>
<td><strong>Maintenance Savings</strong></td>
<td>Even when the warranty is over, most of the new equipment has a longer life providing additional savings for years to come.</td>
</tr>
<tr>
<td><strong>Greenhouse Gas (GHG) Savings</strong></td>
<td>The energy related savings will be converted into reductions in greenhouse gases such as CO$_2$ and NO$_X$.</td>
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### Other Issues Addressed

<table>
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<td><strong>Capital</strong></td>
<td>Customers able to finance ECMs through the electric supply contract instead of traditional capital allocation and budgeting process eliminated one of the biggest hurdles of getting started.</td>
</tr>
<tr>
<td><strong>Phase Out</strong></td>
<td>Government is phasing out older, less efficient lighting technologies: Phase outs of T-12s, some T-8s, halogens, incandescent lamps starts in July 2012 and continues in July 2014 and July 2016.</td>
</tr>
<tr>
<td><strong>Facility Upgrade</strong></td>
<td>The implemented ECMs will provide important facility modernization benefits.</td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td>This product also provides documented sustainability benefits for customers committed to tracking their environmental efforts.</td>
</tr>
<tr>
<td><strong>On Bill</strong></td>
<td>Charge imbedded in the electric commodity rate and therefore on the same bill as your electric commodity...no new bills / line items. These documented Q reductions can help meet Energy Star and LEED goals.</td>
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Drivers for Efficiency Projects

Budget Certainty and Lower Energy Costs

Changes in Government Regulations/Mandates

- February 2011: Better Building Initiative – improve energy efficiency by 20%
- 2013 Inaugural Speech: Climate-smart energy policies
- T12 lighting not available

External Pressures for Environmental Stewardship
Constellation: A Leading Provider of Energy Solutions

- Natural Gas: 330 million mmBTUs delivered in open retail markets (2011)
- Retail Power: 69 million MWh peak load served (2011)
- Wholesale Power: 62 million MWh full requirements load-serving product (2011)
- Load Response: 1,730 MW of dispatchable load (2011)
- Energy Efficiency: 185,622 MWh conserved by customers (2011)
- Solar: 105 MW of solar installations completed or under construction in US (2011)

Constellation is headquartered in Baltimore, MD and is a unit of Exelon Corporation.

- Trusted supplier to 2/3 of the Fortune 100
- Approx 100,000 C&I & Public Sector customers
- Approx 1 million Residential customers
Questions?

Thank you!

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Your Specialist for Efficiency Made Easy
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