## Presentation Overview

### 1. Pros/Cons of LEED EB O&M
- LEED for Existing Buildings vs. LEED New Construction
- The Monsanto Center: A Case Study
- Pro and Cons from a Building Owner Perspective

### 2. Common EB O&M Mistakes, and How to Avoid Them
- Building the right “Green Team”
- Data, Data, Data
- Performance Period Best Practices

### 3. Is LEED EB O&M Appropriate for Your Facility?
- Mission, Productivity, Branding
- Financial Criteria
- An Owner’s Perspective

### 4. Make Your Facility a LEED EB O&M Facility
- No-Cost Initiatives
- Pursuing Certification
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No Cons?

Average Savings of Green Buildings

- Energy Use: 30-50%
- Carbon Emissions: 35%
- Water Use: 40%
- Solid Waste: 70%
How Does EB O&M Actually Work?

The Monsanto Center: A Case Study

Missouri Botanical Garden
How Does EB O&M Actually Work?

- Decision to pursue certification
- Assessment of possible credit score
- Program and Policy Development
- “Went Green” During Performance Period
- Credit Clarification, Followed by Silver Certification in Jan. 2010
Challenges

- Systems in place were not what we thought
- Occupant comfort not easily resolved
- Engaging all players and stakeholders takes time
  - Considerable internal staff time required
- Institutionalizing policies requires commitment
# Highlights

- Documentation of intellectual capital
- Established institutional criteria and policies
- Increased communication and collaboration
- Strategies to measure success and savings

## Sustainability Performance Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
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<tbody>
<tr>
<td>Landscape Waste and Soil Amendments</td>
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<tr>
<td>Integrated Pest Management</td>
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<tr>
<td>Snow Removal Strategies</td>
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<tr>
<td>Water Use – Whole Building and Irrigation</td>
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<tr>
<td>Gasoline Powered Equipment Use</td>
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<tr>
<td>Storm Water Management</td>
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<tr>
<td>Building Waste Management</td>
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<tr>
<td>Indoor Environmental Quality and Occupant Comfort</td>
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<tr>
<td>HVAC Ongoing Commissioning</td>
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<tr>
<td>Energy Use</td>
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<tr>
<td>Green Cleaning Effectiveness</td>
<td></td>
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<tr>
<td>Alternative Transportation Utilization</td>
<td></td>
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<tr>
<td>Environmentally Preferred Purchasing</td>
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</tbody>
</table>
The Journey Continues…

...beyond certification.
How to Avoid Common Mistakes

Build the Right Green Team

- Include staff responsible for implementing all policies (HVAC/engineering, horticultural, custodial, IT, accounting, etc.)
- Leadership and participation from upper management is required
- Include a LEED EB O&M expert, and make that person a resource for other team members
- Allocate Green Team members enough time for LEED activities
- Give team members the LEED EBOM template forms they are responsible for at the beginning of the process

“I pity the fool that doesn’t maintain their waste stream logs”
How to Avoid Common Mistakes

Get the Right Data

- Make sure you have a complete, credit by credit list of data that needs to be tracked
- Double check that green team members have systems in place for collecting data at the right intervals, for the right time periods
- Collect data in the least time intensive way, in a format that can be managed
- Have a “test” data review before the performance period starts

Or the LEED Police will get you!
How to Avoid Common Mistakes

Performance Period Best Practices

1. Implement Policies First
2. Make sure all vendors are on board
3. Schedule Performance Period to capture key activities
4. Performance Period for all credits must end within one week of each other
Is LEED EB O&M Right for You?

Mission Critical
- Healthcare facilities
- Schools
- Environmental Mission

Productivity Gains, Occupant Engagement
- ~5-15% gains in productivity
- Culture of Feedback
- Comfort and Control

Branding Opportunities
- Can you be a first in your region?
- Do clients visit your site?
- Part of a larger sustainability effort.
Is LEED EB O&M Right for You?

## Financial Considerations

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Assessment</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Is the facility floor area greater than 150,000 SF?</td>
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<tr>
<td>2</td>
<td></td>
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<td>Are annual facility energy bills more than $200,000?</td>
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<tr>
<td>3</td>
<td></td>
<td></td>
<td>Does the building have aging equipment?</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Are there recurring maintenance problems/high maintenance costs?</td>
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<tr>
<td>5</td>
<td></td>
<td></td>
<td>Are there comfort complaints?</td>
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<tr>
<td>6</td>
<td></td>
<td></td>
<td>Do budgets constraints preclude major repairs?</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>Is there limited energy management expertise on staff?</td>
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<tr>
<td>8</td>
<td></td>
<td></td>
<td>Is the maintenance staff already overloaded with other tasks?</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>Have their been no major upgrades to the lighting systems?</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Are major mechanical systems ready for replacement?</td>
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</tbody>
</table>

Courtesy of the Energy Services Coalition
Is LEED EB O&M Right for You?

- Financial Considerations
  - Identify Income Streams
    - Energy Savings
    - Water Savings (Use and Waste)
    - Productivity Gains/Reduced Absenteeism
    - Tax Credits, Utility Incentives, etc.
  - Obtain cost proposals
  - Calculate Payback

Does EBOM add more than a 2 year payback?
Is LEED EB O&M Right for You?

- An Owner’s Perspective
LEED for Existing Buildings: O&M is a journey, not a destination

- Energy Efficiency
- Efficient Plumbing Fixtures
- Recycling
- Waste Management
- Procurement
- Green Cleaning
- Landscaping
- LEED Training
No-/Low-Cost Green Initiatives

- Green Cleaning
- Simple Building Control Strategies
- Staged Sustainable Procurement
- Alternative Transportation Incentives
Pursuing Certification

- Pre-qualify Your Building(s)
  - Does the building meet the minimum program requirements?
  - Will the building meet the nine prerequisites and achieve the minimum points required?
  - Can the building meet the required performance periods?
  - Will any alterations and additions follow the rating system’s guidelines?
Pursuing Certification

- Attend a USGBC Program Event on LEED EB O&M in your area
- Get Expert Assistance
  - National Registry of LEED AP O+Ms on the USGBC web-site
- Enter Your Facility into Energy Star Portfolio Manager
- Get an ASHRAE Level II Energy Audit
- Secure Buy-In and Form the Green Team
Resources for LEED EB O&M

- USGBC
  [http://www.usgbc.org](http://www.usgbc.org)
- Sample Templates
- The Paid-From-Savings Guide to Green Existing Buildings
- Energy Star Portfolio Manager
  [http://www.energystar.gov](http://www.energystar.gov)
- ASHRAE Guide to Commercial Energy Audits
  [http://www.ashrae.org](http://www.ashrae.org)
Questions?

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