Welcome
ESC Educational Webinar
Green Performance Contracting

For today’s webinar support, contact
Tony Philips at 601-602-4604

If you have any questions or need additional information about today’s webinar, please email Rhonda Courtney at rc@energyservicescoalition.org

To learn more about the Energy Services Coalition or to become a member go to www.energyservicescoalition.org
Green Performance Contracting

Using a Paid-from-Savings Project Approach to Earn a LEED Certification

Rob Van Der Like, CEM, LEED® AP, CSDP
Associate, Cadmus Group

Webinar support, contact Tony Philips at 601-602-4604
The Energy Services Coalition presents a national education forum through the use of webinars to enhance the learning and awareness of performance contracting.

Go to www.energyservicescoalition.org to view previous webinars:

- Optimizing Economic Stimulus Dollars through Energy Savings Performance Contracting
- Biggest Bang for the Buck - Leveraging Funds

Webinar support, contact Tony Philips at 601-0602-4604
Robert N. Van Der Like
CEM, LEED® AP, CSDP
Associate
The Cadmus Group, Inc.

- Currently completing a Paid-from-Savings Guide project for USGBC (to be published by GreenBuild 2009)
- Project manager for several LEED-EB: O&M projects
- Former energy manager for a large school district which used performance contracting
- Past ESC Member of the Board
In one sense ... 
all performance contracting is “green.”

- Reduces energy use – cost and resource depletion
- Reduces greenhouse gas emissions
What is “Green” PC?
What is “Green” PC?

Definition: *Meets a Standard*

1. Designed to achieve a level of energy and water performance that will meet the minimum required performance levels specified in the LEED rating system.
2. Designed to include other green performance measures where allowable and economically feasible.
3. Is not intended to be a guarantee of LEED certification.
Green PC
Presentation Outline

• Overview of LEED for Existing Buildings: Operations & Maintenance Rating System
• Possible Project Scenarios
• Project Economics and Feasibility
• USGBC Resources
Overview of LEED for Existing Buildings: Operations & Maintenance
LEED Rating Systems

- Homes
- Neighborhood Development (in Pilot)
- Commercial Interiors
- Core & Shell
- New Construction
- Schools, Healthcare, Retail
- Existing Buildings
  - Operations & Maintenance

Building Lifecycle:
- Design
- Construction
- Operations
LEED Rating Systems

A Way to Define Green
A Way to Define Green

Download a free PDF copy of the rating system at the USGBC web site.

LEED > LEED Rating Systems
LEED-EB: O&M

9 Prerequisites

49 Credits

• Sustainable Sites
• Water Efficiency
• Energy & Atmosphere
• Materials & Resources
• Indoor Environmental Quality
LEED-EB: O&M

Three types of green performance measures

- Building performance measures
- O&M Best Practices
- Sustainable Policies

Some credits contain one, two, or all of these types of measures.
LEED-EB: O&M & PC

Credits relating to PC

• *Essential* to PC
  (utility cost savings measures)

• *Potential* for PC
  (similar discipline or trade)

• Can be added with a *minor financial impact* (not typical of a PC project)
LEED-EB: O&M

Prerequisites
Prerequisites

- Minimum Indoor Plumbing Efficiency
- Energy Efficiency Best Management Practices
- Minimum Energy Efficiency Performance
- Fundamental Refrigerant Management
- Sustainable Purchasing Policy
- Solid Waste Management Policy
- Minimum Indoor Air Quality Performance
- Environmental Tobacco Smoke (ETS) Control
- Green Cleaning Policy
Prerequisites

Impact of PC on LEED-EB: O&M

- Minimum Indoor Plumbing Efficiency
- Energy Efficiency Best Management Practices
- Minimum Energy Efficiency Performance
- Fundamental Refrigerant Management
  - Sustainable Purchasing Policy
  - Solid Waste Management Policy
- Minimum Indoor Air Quality Performance
  - Environmental Tobacco Smoke (ETS) Control
  - Green Cleaning Policy
Prerequisites
Impact of PC on LEED-EB: O&M

Minimum Indoor Plumbing Efficiency

• Streamlined path for buildings constructed or completely renovated in 1993 or later.
• Must meet a baseline comparison
  – 120% of UPC 2006 fixtures (buildings 1993 or later)
  – 160% of UPC 2006 fixtures (buildings older than 1993)
Prerequisites
Impact of PC on LEED-EB: O&M

Energy Efficiency Best Management Practices

• Systems documentation (Systems Narrative, Sequence of Operation)
• PM plan and schedule
• Building Operating Plan
• ASHRAE Level I Energy Audit
Prerequisites
Impact of PC on LEED-EB: O&M

Minimum Energy Efficiency Performance

• ENERGY STAR rating of at least 69 (on a scale of 1 to 100 – for ratable spaces)
• 19% better than average (for non-ratable space types) using ENERGY STAR Portfolio Manager and USGBC Optional Calculators
Prerequisites
Impact of PC on LEED-EB: O&M

Fundamental Refrigerant Management

• Streamlined path for no CFC-based refrigerants
• Phase-out Plan (system replacement or refrigerant conversion) for equipment using CFC-based refrigerants or an economic analysis showing not economically feasible (> 10 year simple payback)
Prerequisites
Impact of PC on LEED-EB: O&M

Minimum Indoor Air Quality Performance

- Meet ASHRAE 62.1 – 2007 requirements for space type
- Minimum 10 CFM per person
LEED-EB: O&M

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• **Energy & Atmosphere**
• Materials & Resources
• Indoor Environmental Quality
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<th>Optimize Energy Efficiency Performance</th>
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<td>Existing Building commissioning – Investigation and Analysis</td>
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<td>Existing Building commissioning – Implementation</td>
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<td>EA c2.3</td>
<td>Existing Building commissioning – Ongoing Commissioning</td>
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<td>EA c3.1</td>
<td>Performance Measurement – Building Automation System</td>
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<td>EA c3.2</td>
<td>Performance Measurement – System Level Metering</td>
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<td>On-site and Off-site Renewable Energy</td>
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<td>Enhanced Refrigerant Management</td>
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LEED-EB: O&M

9 Prerequisites

49 Credits

• Sustainable Sites

• Water Efficiency

• Energy & Atmosphere

• Materials & Resources

• Indoor Environmental Quality
**Water Efficiency**

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<th>WE c1 – Water Performance Measurement</th>
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<tr>
<td>WE c3 – Water Efficient Landscaping</td>
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<td>WE c4 – Cooling Tower Water Management</td>
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LEED-EB: O&M

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Indoor Environmental Quality

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<th>EQ c1.2</th>
<th>IAQ Best Management Practices: Outdoor Air Delivery Monitoring</th>
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<td>EQ c1.3</td>
<td>IAQ Best Management Practices: Increased Ventilation</td>
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<td>IAQ Best Management Practices: Reduce Particulates in Air Distribution</td>
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<tr>
<td>EQ c1.5</td>
<td>IAQ Best Management Practices: IAQ Management for Facility Alterations</td>
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<tr>
<td>EQ c2.2</td>
<td>Controllability of Systems – Lighting</td>
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<tr>
<td>EQ c2.3</td>
<td>Occupant Comfort: Thermal Comfort Monitoring</td>
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<tr>
<td>EQ c2.4</td>
<td>Daylight and Views</td>
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Possible Project Scenarios
Possible Project Scenarios

How to get it all done!

- Owner leads the way
- PC project leads the way
- Turn-key project
Possible Project Scenarios

How to get it all done!

• Owner leads the way
• PC project leads the way
• Turn-key project
Owner Leads the Way

Demonstrated commitment to sustainability – developing and adopting policies

- Sustainable Purchasing
- Recycling
- Green cleaning
Owner Leads the Way

Demonstrated commitment to sustainability – *implementing best practices*

- Building exterior and hardscape management plan
- Integrated pest management plan
- Erosion control plan
- Landscape management plan
- Alternative transportation (survey)
- Occupant comfort (survey)
- IAQ management plan for facility alterations
- Green cleaning practices
Owner Leads the Way

Demonstrated commitment to sustainability –

But needs facility performance improvements from the PC project to meet LEED-EB: O&M requirements.
Possible Project Scenarios

How to get it all done!

- Owner leads the way
- PC project leads the way
- Turn-key project
PC Project Leads the Way

Owner uses PC project to inaugurate sustainability program.

• Facility performance improvements come first and help the facility meet LEED requirements.
• Owner-led LEED credit accomplishments may come well after PC project completion.
Possible Project Scenarios

How to get it all done!

• Owner leads the way
• PC project leads the way
• Turn-key project
Turn-key Project

Owner wants a LEED-EB: O&M certification for the project building in conjunction with the PC project.

• Facility management team works closely with the ESCO team to understand project roles and responsibilities.
• PC project milestones are coordinated with LEED certification milestones.
Project Process

- Education & training
- LEED Certification Assessment
- Audit and Project Development Plan
- Energy Services Agreement
- Post equipment installation services
LEED Certification Assessment

- Focus on prerequisites
- Use of Building Information Modeling (BIM) in pre-project phase
- Use of building energy modeling during audit phase
- Can be accomplished by owner or ESCO
Project Economics and Feasibility
Economics & Feasibility

- Whole project perspective
- Project measures bundling
- How many non-utility savings measures can be added?
- Supplemental funding and financing
- Internally funded measures
# Project Economics

<table>
<thead>
<tr>
<th>Project Measure</th>
<th>1 Cost to Implement (Operating Budget)</th>
<th>2 Cost to Implement (Capital Budget)</th>
<th>3 Added Annual Costs (Operating Budget)</th>
<th>4 Annual Savings (Operating Budget)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop Environmental Preferable Purchasing (EPP) Policy and Training (MRp1)</td>
<td>$2,500</td>
<td>$900</td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>2. Develop Erosion Control, and Landscape Management Plan &amp; Training (SSc3)</td>
<td>$2,000</td>
<td></td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>3. Modification of Landscape Features to Include Native Plants (SSc5)</td>
<td>$5,300</td>
<td></td>
<td>$400</td>
<td></td>
</tr>
<tr>
<td>4. Install Faucet Aerators and New Dual Flush Toilet Valves (WEc2)</td>
<td></td>
<td>$22,000</td>
<td>$2,190</td>
<td></td>
</tr>
<tr>
<td>5. Conduct ASHRAE Level II Audit (EAc2.1)</td>
<td>$6,800</td>
<td></td>
<td>$0</td>
<td></td>
</tr>
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## Project Economics

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<tbody>
<tr>
<td>7. Conduct Waste Stream Audit and Complete Report (MRc6)</td>
<td>$4,500</td>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>8. Establish Recycling Program, Purchase Bins, and Record Keeping Process (MRc7.2-7.2)</td>
<td>$5,700</td>
<td>$1,200</td>
<td>$1,680</td>
<td></td>
</tr>
<tr>
<td>9. Conduct IAQ Audit and Complete Report (EQc1.1)</td>
<td>$6,500</td>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>10. Test and Balance All O/A Intakes and Exhaust Systems and Report (EQp1)</td>
<td>$8,500</td>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td><strong>Project Totals:</strong></td>
<td><strong>$41,800</strong></td>
<td><strong>$518,339</strong></td>
<td><strong>$2,100</strong></td>
<td><strong>$73,145</strong></td>
</tr>
<tr>
<td><strong>Total Project ROI:</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>12.7%</strong></td>
</tr>
<tr>
<td><strong>Simple Payback:</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>7.9 years</strong></td>
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</table>

Total project cost: **$560,139**  
Total net savings:  **$71,045**  
Total project ROI:  **12.7%**  
Simple Payback:  **7.9 years**
Project Economics

Key Points

• Utility savings measures shown in Capital Budget (to be funded, partially funded, or financed)
• Other measures shown in Operating Budget (could be rolled into financing package)
• Some measures incur an increase in annual operating costs
• However, bundled as a whole the overall project economics is attractive
USGBC Resources
USGBC Resources

• LEED-EB: O&M Rating System
• Green Operations & Maintenance Reference Guide
• LEED Training Workshops
• The Paid-from-Savings Guide to Green Buildings (To be published soon)
Green PC Summary

- Overview of LEED for Existing Buildings: Operations & Maintenance
- Possible Project Scenarios
- Project Economics and Feasibility
- USGBC Resources
Thank you for participating!

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Have a safe and fun Labor Day weekend.