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Energy Efficiency as a Financing Tool:

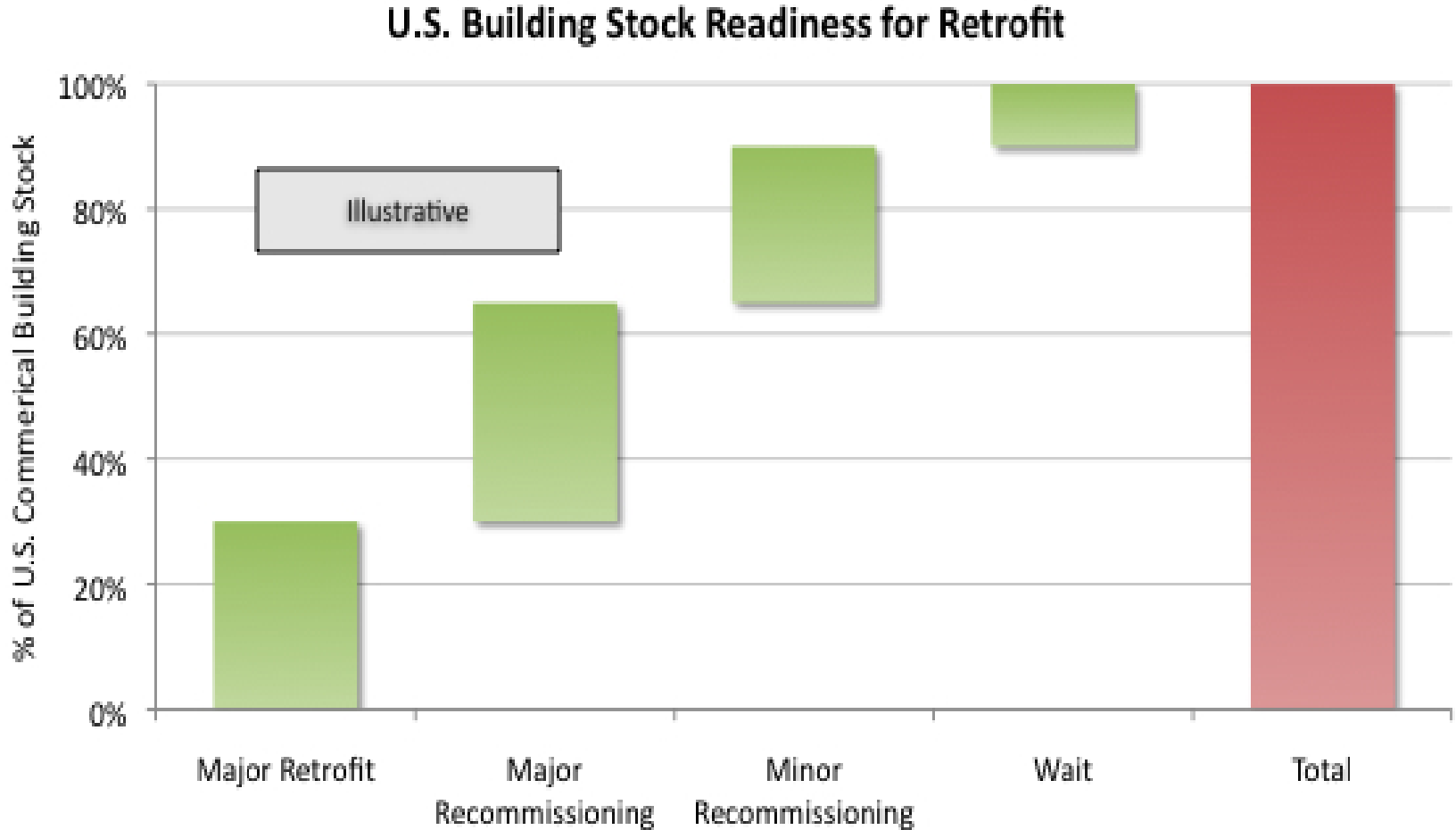
**Using Performance Contracting for Existing Building
Retrofits**

Jonathan E. Furr

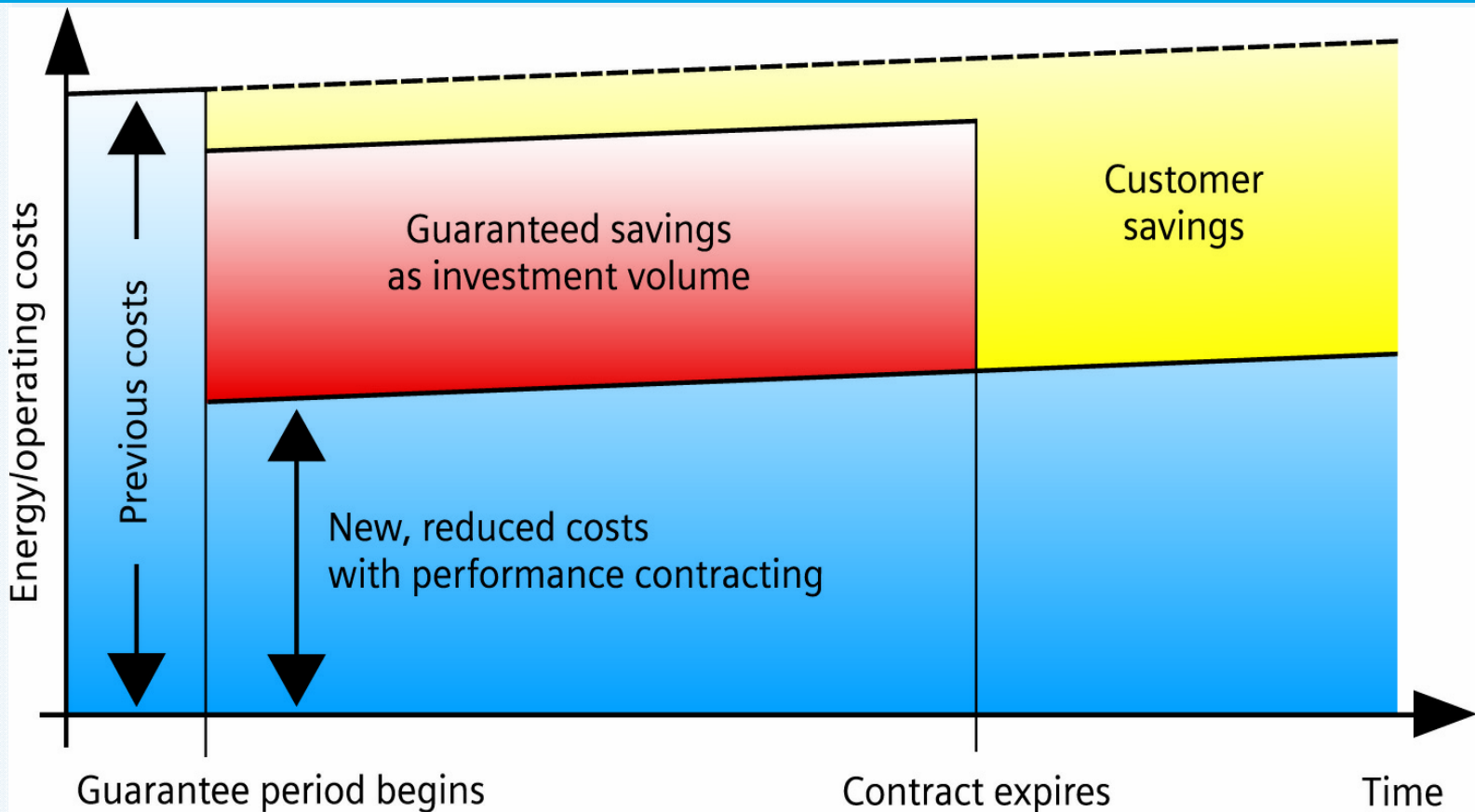
Buildex Chicago

June 15, 2010

What Retrofit is Appropriate?



Energy Performance Contracting



Bottom Line: Reduce Energy Use and GHGs with *no net increase in annual capital or operating expenses.*

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Graphic Courtesy of Clinton Climate Initiative

BOMA/CCI Building Energy Retrofit Program

- Partnership between BOMA International and the Clinton Climate Initiative (CCI)
- Collaboration with major real estate companies and energy services companies (ESCOs)
- Standardized energy services performance contracting model:
 - Advice on best practices in project development and execution
 - Series of model documents that can be used to streamline the project development process
 - Additional resources that can be accessed for assistance in executing an energy efficiency project

Project Development Process

- Define Project & Owner/Operator Criteria
- Selection of ESCO
 - Daley Center: 2 Phase RFQ Process:
 - Phase 1: General information on qualifications, experience with similar projects, general approach to performance contracting, and financing capabilities/approach.
 - Phase 2: Selected two ESCOs for Phase 2 response. Included Preliminary Energy Analysis, interview and presentation, project team information, financing proposal, and form contract exceptions.
- Investment Grade Audit Contract
 - Daley Center: (i) 90% of estimated annual and total savings; (ii) savings sufficient to cover all project costs; and (iii) equal to or less than preliminary GMP.
- Determine Final Project Scope
- BOMA Energy Performance Contract and Conduct Building Retrofit

Energy Performance Contract: Critical Issues

- Clear description of “Installation Period” and “Guarantee Period” services
- Performance Guarantee:
 - Guaranteed annual savings
 - Clear process and owner agreement on savings calculations
 - Guarantee based on energy units, not utility savings at current rates
 - Example calculations
- Measurement and Verification (M&V)
 - Defined formulas and inputs
 - Clearly defined “causes for adjustment”
 - Clearly defined owner maintenance responsibilities
- All members of the Project team must clearly understand the M&V methodology!!!

“The World’s Most Famous Office Building”



Graphics courtesy of Empire State Building Company L.L.C., www.esbsustainability.com

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Empire State Building

- First project to use the BOMA Energy Performance Contract
- \$20 million project included within the EPC
- 15 year guarantee term
- \$36 million in guaranteed savings over the guarantee term
- Coordinated with other energy efficiency measures:
 - Replacement of Air-Handling Units (AHUs) with Variable Air Volume (VAV) AHUs
 - Tenant Design Guidelines
- Overall:
 - 38% reduction in energy use
 - 7,000 metric tons of carbon dioxide saved each year (equivalent to CO2 produced by 1,300 cars or 1,000 homes)
 - \$4.4 million in annual savings (\$2.4 million resulting from the EPC)
- Tied to pursuit of LEED-EB certification at the Gold level

Empire State Building: Energy Conservation Measures

- **Window Retrofit:** re-manufacturing of 6514 double-hung windows with Suspended Coated Film (SCF)
- **Chiller Plant Retrofit:** Recycling existing chillers to provide increased capacity and higher efficiency
- **Radiator Insulation:** Thermal barrier and seal openings behind the existing radiators
- **Building Automation System:** Installation of new controls and integration with new system to optimize the HVAC system and provide electrical monitoring
- **Tenant Energy Management Metering:** Provide 15 minute meter data and a data base of tenant energy use to support profiling, reporting, and integration with property management software

Energy Conservation Measures in Other Projects

Daley Center:

- Lighting retrofit
- Water conservation
- Boiler controls
- Induction system retrofit
- Chilled Water Variable Flow
- Building Automation System Optimization

Chicago Public Schools Headquarters:

- New Steam Heating system
- New chilled water system
- Chilled water distribution piping automation
- Building automation system
- Lighting retrofit
- New windows

Financing Options

- Internal sources of capital
- Capital leases
- Tax-exempt lease purchase agreements
- Property Assessed Clean Energy (PACE) Bonds
- Special Purpose Entity (SPE) financing
- * Layer in tax credits, rebates, and incentives from utilities and federal, state, and local governments!

Performance Contracting and Office Leases

- Pass-through of Performance Contracting costs as an Operating Expense
 - Most likely considered a capital improvements which in general are not passed through
 - The purpose is to reduce other Operating Expenses which is often a capital improvement that can be passed through
 - Sophisticated tenants may have negotiated "only to the extent of the savings"
 - Retrofits may also reduce a tenant's separately metered utility usage
 - Bottom line: Tenant will pay no more because of retrofit and may even pay less and be in more valuable space than what its net rent would indicate
- Empire State Building: No pass through; project is intended to allow higher net rental rates
- More tenants are demanding a specific Energy Star rating or LEED certification and Energy Performance Contracting will cover some of those requirements

Questions?

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www.esbsustainability.com

www.boma.org/resources/bepc/