

# Financing AER's: Opportunistic Retrofits and the Tenant Improvement Process







# **BHUB** Energy Efficient Buildings Hub Finance and Real Estate Platform Meeting June 12, 2013

#### **Opportunistic Retrofits**

#### **Continuum of Care**

Over the service life of a facility

#### **Not Energy-Driven**

Layers EE onto normal facility operations, maintenance, repair and renovation activities **EE Roadmap is Important** 

What to do when to optimize capital that is being expended anyway





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Office Building, 2 Story			50-Year M&R Cos	
Gross Square Feet:		83,000	50 Ye Task Type Total (	
Height in Ft:		24		
Exterior:	(	Clay Brick	PM & Minor Repair \$2,644 Unscheduled Maintenance \$1,995	
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HVAC: Chilled Water, C	Sas Boiler, Mul			
Capacity:		N/A	Total \$12,931	,30
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Note: For alternative locations use the Local Indexes shown in Chapter 3





Washington, D.C.

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2.65 2.0%

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2.74

2.43 1.9% 2.45 1.9%

\$2.00

\$3.12

M&R Task

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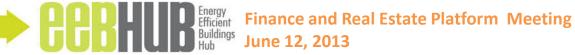
\$2,544,72 \$8,291,022

ribution of M&R Costs

Painted, Interior Door Locks

2 500 lbs. 3 5 Floor, 200 htm

2,500 km, 3 5 Floor, 200 tpm

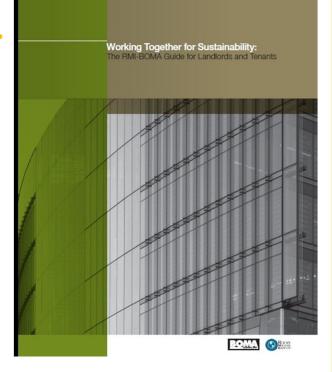


#### **Opportunistic Retrofits**

#### **Multiple Opportunities**

- 1. Make Energy Use and Costs More Transparent
- 2. Engage Building Occupants in Saving Energy
- Incorporate Energy Efficiency in Tenant Fit-Outs
- 4. Plan Ahead for Deep Energy Retrofits
- 5. Structure Agreements to Benefit Both Parties





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#### **Tenant Improvements: A Working Definition**

Changes made to the interior of a commercial or industrial property by its owner to accommodate the needs of a tenant such as floor and wall coverings, ceilings, partitions, air conditioning, fire protection, and security. Who bears what portion of TI costs is negotiated between the lessor and the lessee, and is usually documented in the lease agreement.



Source: businessdictionary.com







#### Why Focus on Tenant Improvements?

Until now, an overlooked sector of the EE building market, but... Growing recognition that the TI process presents significant opportunities for cost-effective energy savings at relatively little incremental cost.

The Big Areas of Focus

Lighting – Design, Products and Controls HVAC Plug Loads

Metering and Monitoring













#### **Thought Leaders**

US Department of Energy Commercial Building Partnerships



#### Natural Resources Defense Council

Center for Market Innovation



#### **Office of the Future Consortium**

Multiple Utilities New Buildings Institute

## **nbi** new buildings institute

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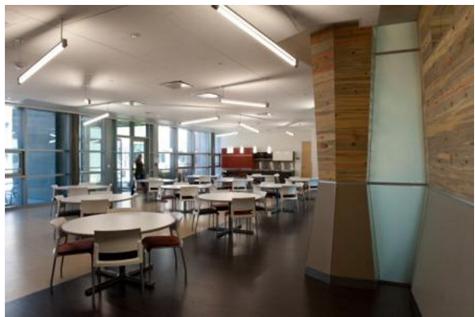


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**Key Energy Saving Strategies during Tenant Improvement/Fit Out** 

#### Lighting: Still the Big Win

High Performance Lamps and Fixtures Increasing Applications for LED's = Potential Game Changer **Optimized Controls** Integrated Design Tying Fixtures, Controls and Space Planning Together Saves energy and improves quality of space







**CREATING Strengy** Efficient Buildings Hub Finance and Real Estate Platform Meeting June 12, 2013

#### **Key Energy Saving Strategies during Tenant Improvement/Fit Out**

#### Plug Loads: An Increasing Part of the Energy Picture

**Control Devices Power Management Strategies Behavioral Strategies Purchasing Strategies** 









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Key Energy Saving Strategies during Tenant Improvement/Fit Out

#### **HVAC**

Minimize Part Load Conditions

Maximize Effective (Demand Controlled) Ventilation

## Metering and Monitoring: Keeping the EE Going

Acceptance Testing/Commissioning

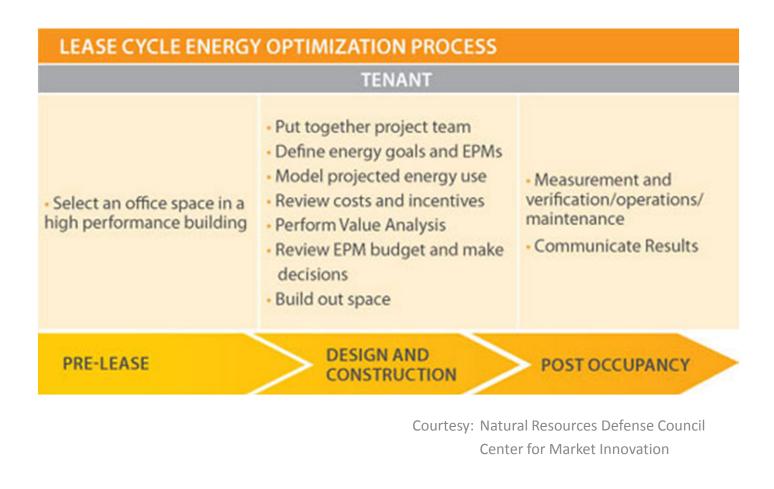
**Tenant Sub-Metering** 

Tenant Engagement

U.S. DEPARTMENT OF Energy Efficiency & ENERGY Renewable Energy **EERE Progress Alerts** 🖪 Follow EERE on Facebook 📑 Follow Energy Saver on Facebook Federal and Industry Partners Issue Challenge to Manufacturers June 6, 2013 A coalition that includes the U.S. federal government and over 200 major commercial building sector partners has issued a simple challenge to U.S. manufacturers: if you can build wireless sub-meters that cost less than \$100 apiece and enable us to identify opportunities to save money by saving energy, we will buy them. Full story









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#### Li & Fung USA – Empire State Building

#### Tenant

Li & Fung USA Multi-national corporation Strong commitment to sustainability Empire State Building Company, LLC (Malkin Holdings LLC) Also strongly committed to sustainability First Three of Nine Floors Leased (3-11) Floors 7, 8, 9



#### Measures

Daylight Harvesting Controls High Efficiency Lighting Optimized HVAC Demand Controlled Ventilation Plug Load Management

#### Value of Implementing Selected Measures

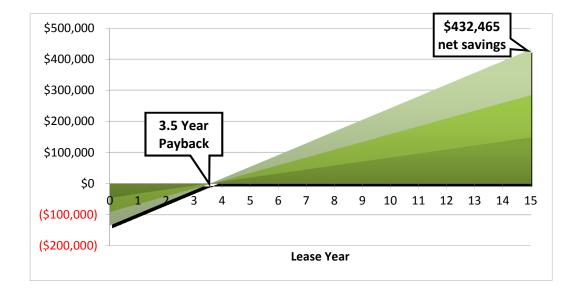
Total projected cost savings over 15-year lease \$566,594 Present value of savings (5% discount rate) \$392,002 Minus incremental cost (\$134,030) Net present value of project investment \$257,972 **192% ROI over 15-year least term or27% annualized Payback: 3.5 years** 





The Big Steps: Li & Fung Case Study

#### **Perform Value Analysis**







## US Department of Energy 20,000 Square Foot Tenant Improvement in Denver

#### Stakeholders

Building Owner: CB Richard Ellis Tenant: International Law Firm One full floor – approximately 22,000 sf. EE Technical Support: National Renewable Energy Laboratory (NREL)

#### Approach

Analyze current energy use

Explore potential energy efficiency alternatives

Develop preliminary list Narrow the list based on costs and benefits

Implement the final plan

Monitor and verify savings

#### Summary Results

Estimated Savings: 34% over baseline Estimated Incremental Cost: \$1.62/sf Estimated Payback: 3 years









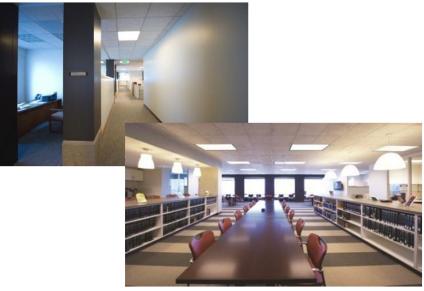
# US Department of Energy

#### 20,000 Square Foot Tenant Improvement in Denver

#### What Improvements Were Made?

Add variable frequency fans on air handling units Upgrade thermostats (add 3 degree deadband) Balance corridor lighting (lighting power density reduction) Upgrade downlight lamps Install vacancy sensors Reduce night light and plug loads











## US Department of Energy 20,000 Square Foot Tenant Improvement in Denver

#### **Costs and Benefits**

Total cost of energy improvements	\$42,323
Approximate rebate from local utility	<u>\$( 5,132)</u>
Net cost of improvements	<b>\$37,191</b>
Expected utility savings per year	\$12,202
Potential savings over 10 year lease	\$122,015
Payback time	3 years

#### **Special Note on Costs**

Cost of EE improvements per square foot Roughly <u>10% of TI Allowance</u> EE improvements accomplished at no additional expense to tenant or owner More than 60% of savings due to lighting improvements

\$ 1.62/sf













# THE ENERGY ALIGNED CLAUSE: SOLVING THE SPLIT INCENTIVE PROBLEM

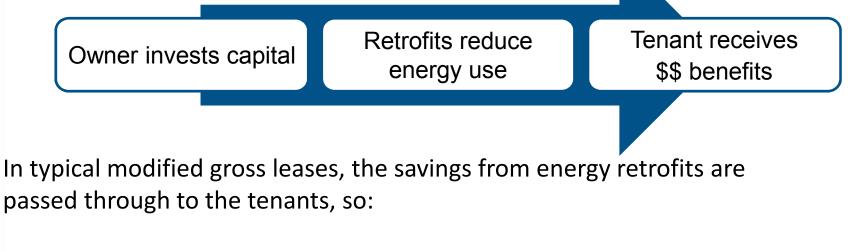




# THE "SPLIT INCENTIVE" PROBLEM

**Misaligned or split incentive -** a transaction where the benefits do not accrue to the person who pays for the transaction.

Here, the building owner pays for retrofits but cannot recover savings from reduced energy use that accrue to the tenant.



 It is not in the owners' immediate interest to invest capital in improvements.

Thus savings and other benefits are left on the floor.
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Re-energizing buildings for the future.<sup>™</sup>



Owner's need: a clear payback period - recover savings predicted by an engineer. Tenant's concern: risk of paying more predicted savings might not match actual savings.

## Engineers' accuracy:

industry experience shows actual savings are generally +/- 20% of predicted savings.

**Solution:** Base owners' cost recovery on predicted savings as long as tenants are protected against underperformance.

## **Energy Aligned Clause**

Base owners' cost recovery on predicted savings, but limit owners' capital expense pass-through to 80% of such predicted savings in any given year. This is called the 20% "Performance Buffer."

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# Financing AER's: Opportunistic Retrofits and the Tenant Improvement Process

# **Thank You**





