

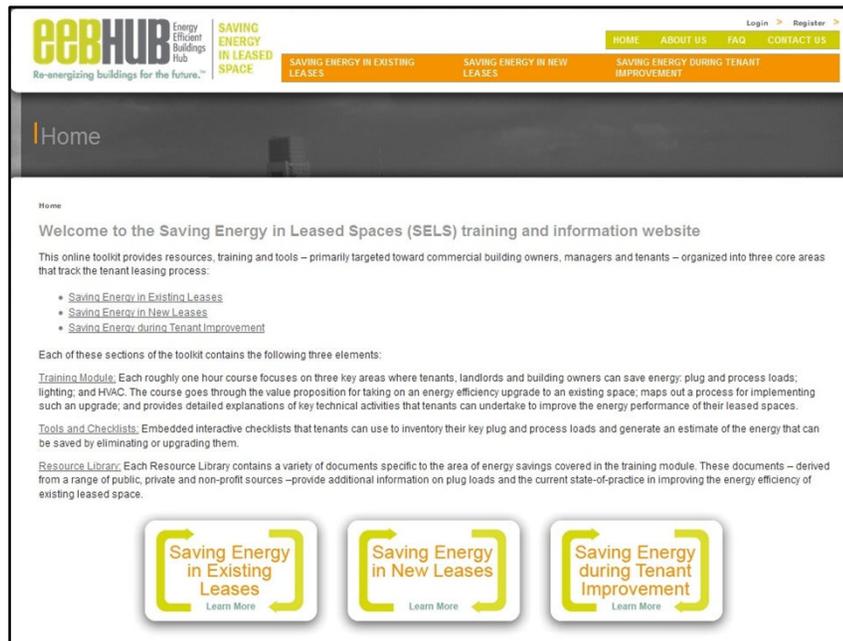
Financing AER's: Opportunistic Retrofits and the Tenant Improvement Process



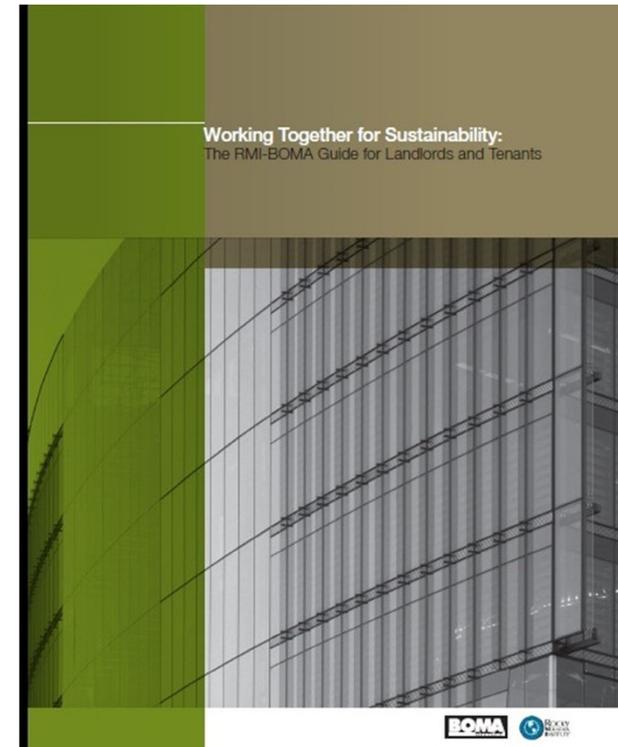
Opportunistic Retrofits

Multiple Opportunities

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



The screenshot shows the eebHUB website interface. At the top, there is a navigation bar with the eebHUB logo and the tagline "Re-energizing buildings for the future." Below the logo, there are three main categories: "SAVING ENERGY IN LEASED SPACE", "SAVING ENERGY IN EXISTING LEASES", "SAVING ENERGY IN NEW LEASES", and "SAVING ENERGY DURING TENANT IMPROVEMENT". The main content area is titled "Home" and contains a welcome message: "Welcome to the Saving Energy in Leased Spaces (SELS) training and information website". It describes the online toolkit and lists three core areas: "Saving Energy in Existing Leases", "Saving Energy in New Leases", and "Saving Energy during Tenant Improvement". Below this, it details the "Training Modules", "Tools and Checklists", and "Resource Library". At the bottom, there are three buttons: "Saving Energy in Existing Leases", "Saving Energy in New Leases", and "Saving Energy during Tenant Improvement", each with a "Learn More" link.

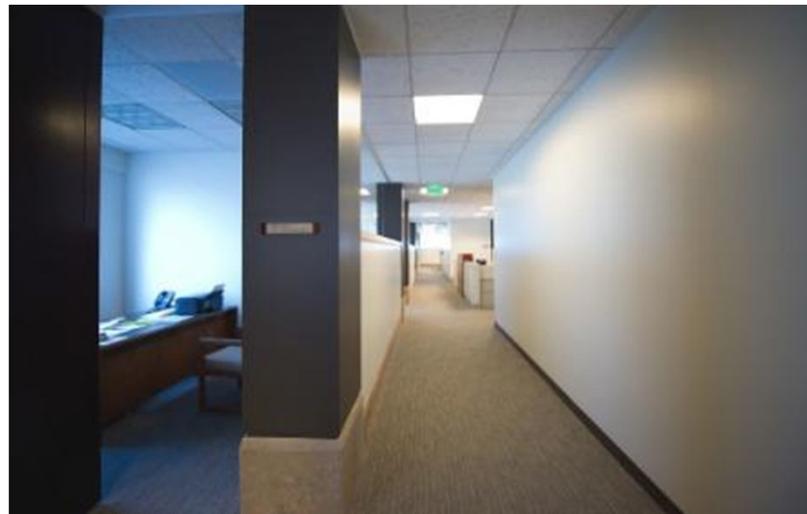


Tenant Improvements: A Working Definition

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



Key Energy Saving Strategies during Tenant Improvement/Fit Out

Lighting: Still the Big Win

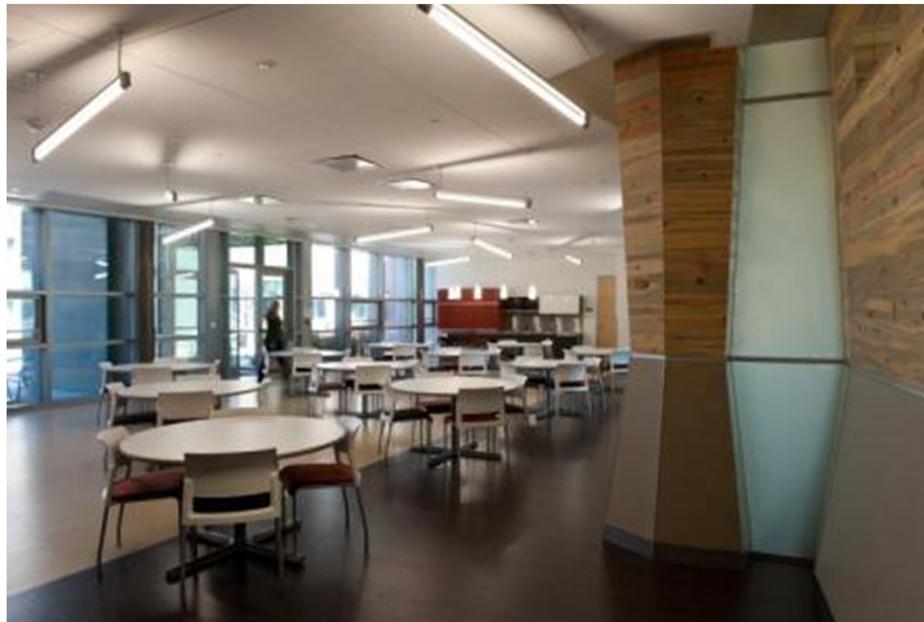
High Performance Lamps and Fixtures

Increasing Applications for LED's = Potential Game Changer

Optimized Controls

Integrated Design Tying Fixtures, Controls and Space Planning Together

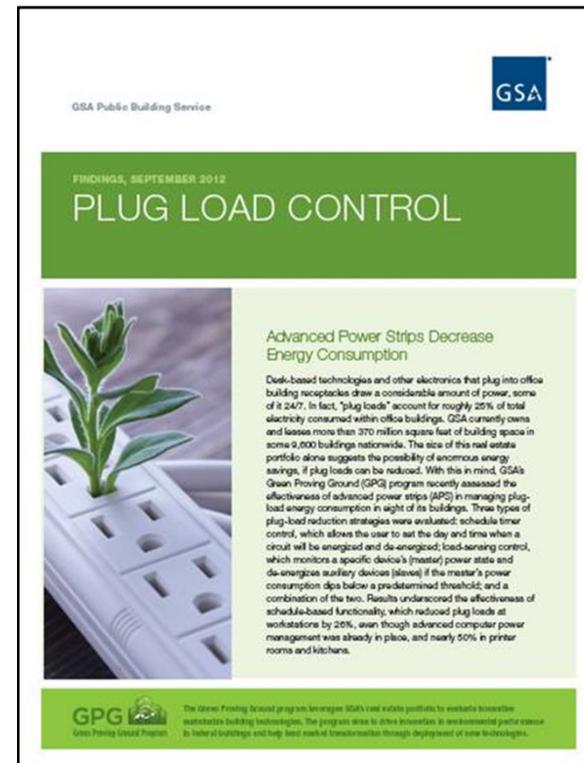
Saves energy and improves quality of space



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



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 | Energy Efficiency & Renewable Energy

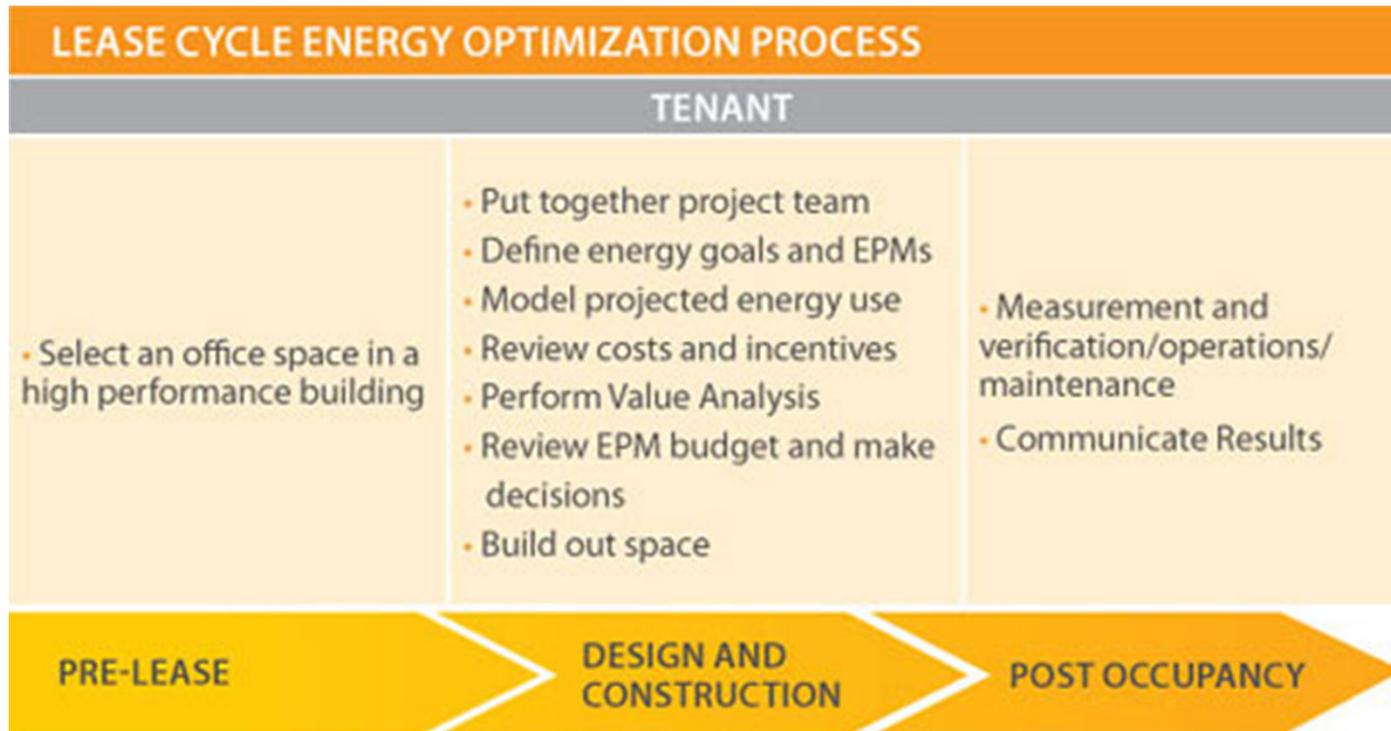
EERE Progress Alerts

[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](#)



Courtesy: Natural Resources Defense Council
Center for Market Innovation



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

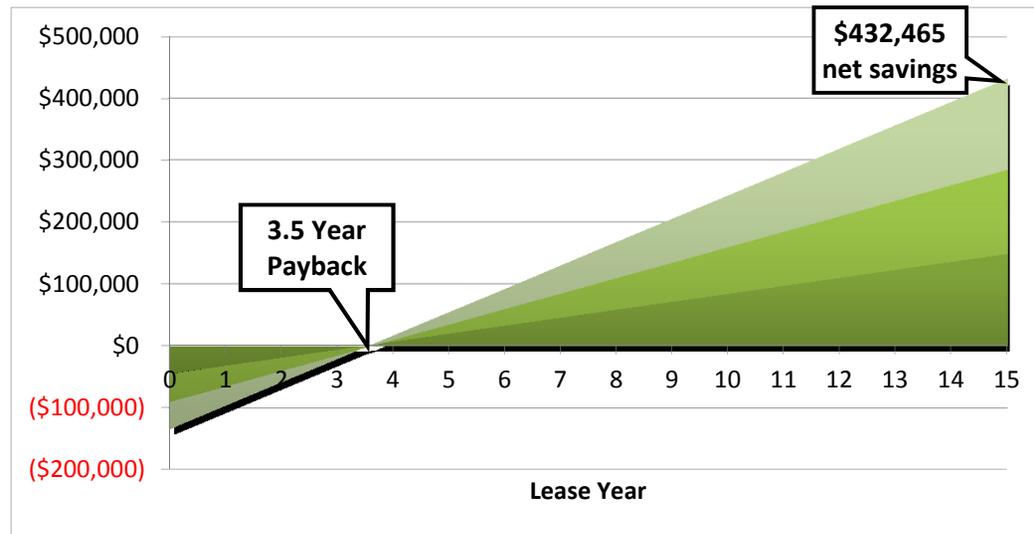
Total projected cost savings over 15-year lease
\$566,594
Present value of savings (5% discount rate)
\$392,002
Minus incremental cost
(\$134,030)
Net present value of project investment
\$257,972

**192% ROI over 15-year least term or 27% 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	\$37,191
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 \$ 1.62/sf
 Roughly 10% of TI Allowance
 EE improvements accomplished at no additional expense to tenant or owner
 More than 60% of savings due to lighting improvements





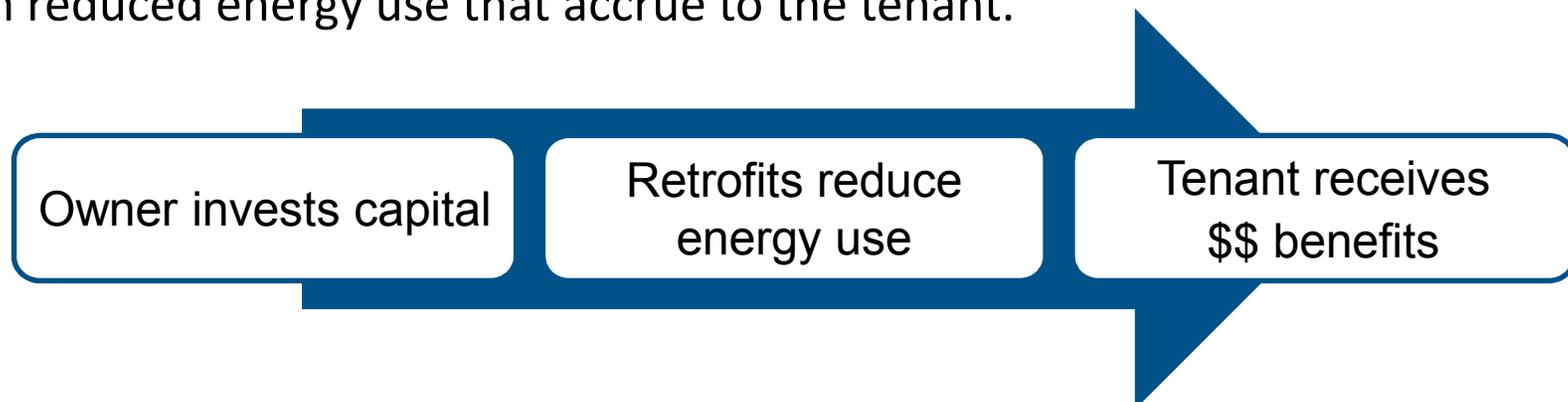
THE ENERGY ALIGNED CLAUSE: SOLVING THE SPLIT INCENTIVE PROBLEM



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.



In typical modified gross leases, the savings from energy retrofits are passed through to the tenants, so:

- It is not in the owners’ immediate interest to invest capital in improvements.
- Thus savings and other benefits are left on the floor.

BUILDING A SOLUTION

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."

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

Thank You

