



Real value in a changing world

Vision Bergen: building a *sustainable* future

One 'green' building at a time

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Agenda

- Intro to Jones Lang LaSalle (JLL)
- Bergen office market
- What is LEED?
- Greening of Empire State Building
- No cost - Low cost green activities
- Suggested next steps



Jones Lang LaSalle

- NYSE: JLL
- A full-service provider with 36,600 employees in 180 corporate offices operating in 750 locations in 60 countries
- More than 540 LEED® accredited professionals • 88 LEED® certified projects and 45M s.f. completed in the Americas
- In 2009, Jones Lang LaSalle's Energy and Sustainability team ...
 - Documented **\$100M** in energy savings
 - Reduced **465,000 tons** of greenhouse gas emissions
 - Saved **836,000,000 kWh**
 - Provided **20,000 facilities** with specialized energy services

Equivalent to removing 114,796 passenger vehicles from the road, for a year



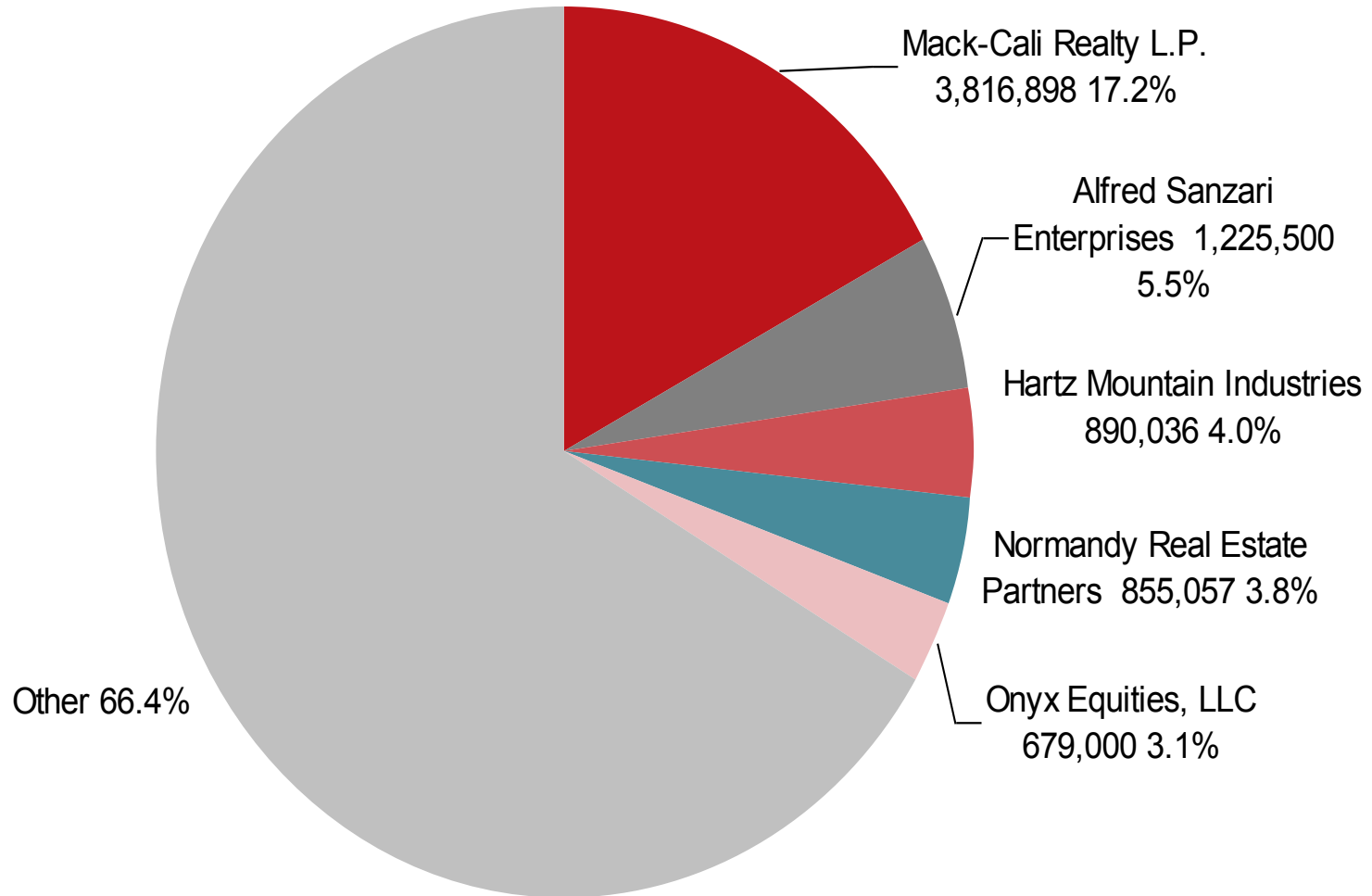
Bergen office market

	Class A	Class B	Total
Total Inventory (sf)	12,232,442 sf	10,043,019 sf	22,275,461 sf
# of Buildings	70	131	201
Vacancy Rate (%)	27.9%	23.1%	25.7%
Avg Building Age	23.9 years	31.5 years	28.8 years
Avg Building Size	174,749 sf	76,664 sf	110,823 sf
Avg Asking Rental Rate	\$26.36	\$22.66	\$25.06
# of LEED Buildings	0	0	0
# of Energy Star Buildings	7	4	11

- There are two LEED certified multi-tenanted office buildings in the NJ (none in Bergen County)
- There are 55 Energy Star office buildings in the NJ market (13 in Bergen County)

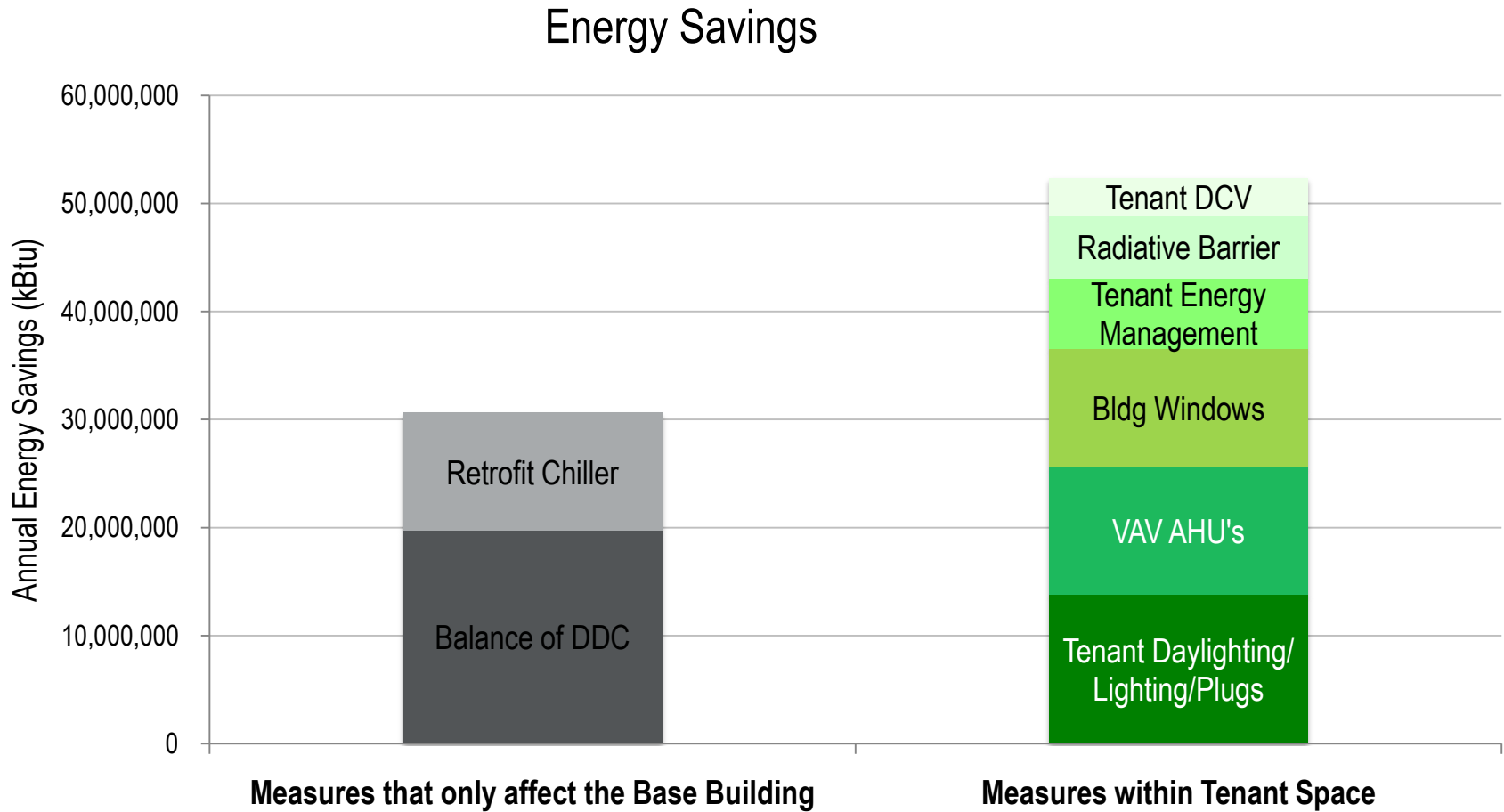
NJ statistical methodology: Inventory includes all Class A & B office properties > 30,000 s.f., excluding all condo, medical, and owner occupied buildings

Bergen County top owners (by s.f.)

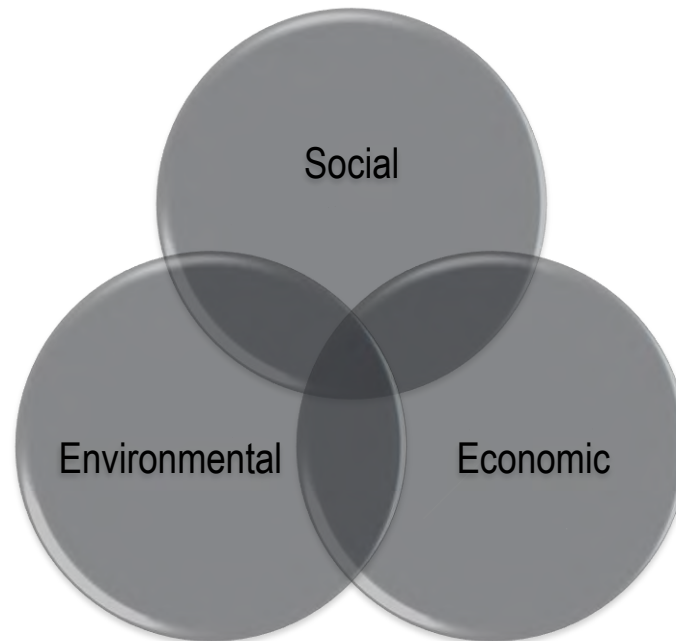


The business case – integrated approach

More than half the savings exist within tenant spaces



Defining sustainability



“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

Buildings and the environment survey



Key findings from joint CoreNet,
Jones Lang LaSalle survey:

89% consider sustainability in location decisions

41% always consider certifications in
leasing decisions

46% always consider energy labels in
leasing decisions

74% are willing to pay a premium for green retrofits

60% are adopting workplace strategies

What is LEED®?



- **L**eadership in **E**nergy & **E**nvironmental **D**esign = rating system
 - LEED® is a tool for green design to help design teams and owners (clients):
 - Determine project goals
 - Identify green strategies
 - Measure and monitor progress
 - Document success
- **LEED**® is a leading edge system to design, construct, operate and certify the world's greenest buildings

LEED® products



- LEED® covers many different types of buildings and construction. These are covered under the following LEED® products:
 - **LEED-NC:** LEED® for New Construction and Major Additions & Renovations (for commercial and institutional buildings, 2000)
 - **LEED-EB:** LEED® for Existing Buildings (released 2004)
 - **LEED-CI:** LEED® for Commercial Interiors (released 2004)
 - **LEED-CS:** LEED® for Core and Shell (public release: 2005)
 - **LEED-H:** LEED® for Homes (public release: 2006)
 - **LEED RE:** LEED® for Retail (pilot in late 2006)
 - **LEED-ND:** LEED® for Neighborhood Developments (pilot 2006)

Green Globes

An online certification tool

- Green Globes is a web-based, questionnaire driven tool to help property and portfolio managers address energy and sustainable management principles for individual buildings and portfolios
- Once the questionnaire is completed, a detailed report is produced that includes:
 - Scores
 - Achievements
 - Recommendations

The image displays several screenshots of the Green Globes web application interface. The top screenshot shows the 'Your Project List' table with columns for Project, City, and Status. Below it is a progress bar for 'Albairtel HO - Office (General)' showing 65% completion. The middle screenshot shows a questionnaire for 'Modeling and simulation of building energy performance' with questions about energy simulation and space optimization, each with a points value. The bottom screenshot shows a 'RECOMMENDATION' section with 'Recommendations' and 'Supplementary Information' for water-saving fixtures and energy-efficient lighting.

Project	City	Status
Albairtel HO - Office (General)	Albairtel	65%
...

Question	Answer	Points
Has a preliminary building energy simulation been carried out on each of the concept options?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	100
Objective to minimize building energy demand	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	50
Will space use be optimized to maximize energy efficiency?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	5
Will the building be designed to minimize energy demand?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	5

Recommendation	Supplementary Information
Water-saving fixtures (low-flow faucets, showerheads, and toilet flush valves)	Contact your local water company for advice on water conservation and possibly low-flow fixtures. Energy Policy Act 1992 and federal guidelines mandate that all factory and white faucets and aerators manufactured after January 1, 1994, must use no more than 2.2 gallons/min. Showerheads must use no more than 2.0 gallons/min. Low-flow faucets must flow at a rate of 1.0 gallon/min. These fixtures are typically aerated or aerator-free. Another device, a water-saving public facilities is an electronic infrared sensor lavatory faucet, which is not only a water-saving fixture, but also allows hands-free operation. Another simple and effective device widely adopted by U.S. Government buildings is the "low-flow" push-button valve. Low-flowing, metering faucets are also available. They can be adjusted to shut off between 5 and 15 seconds after the handle is depressed.
Energy-efficient lighting (LED lighting)	Other water-saving plumbing fixtures and appliances include 2.0 gallon/min. bidet flow fixtures, hand-held showerheads which use 10.0 gal per cycle or less, and commercial dishwashers (dormitory) which use 1.28 Gals.

Greening of The Empire State Building

Repositioning an Icon as a model of energy efficient investment



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CLINTON
CLIMATE
INITIATIVE



The Empire State Building – the business case

Develop a cost effective energy efficient retrofit through verifiable operating costs reductions and payback analysis



102 stories and **2.8 million** s.f.

4.0 million visitors per year

\$11 million in annual energy costs

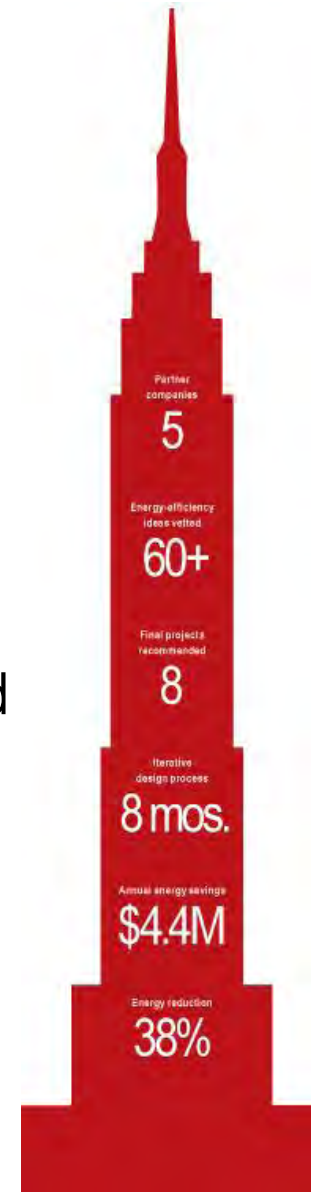
Peak **electric** demand of **11.6 MW**

88 kBtu per s.f. per yr. for the office building

CO₂ emissions of **25,000 tons** per year (22 lbs./s.f.)

The Empire State Building – our role

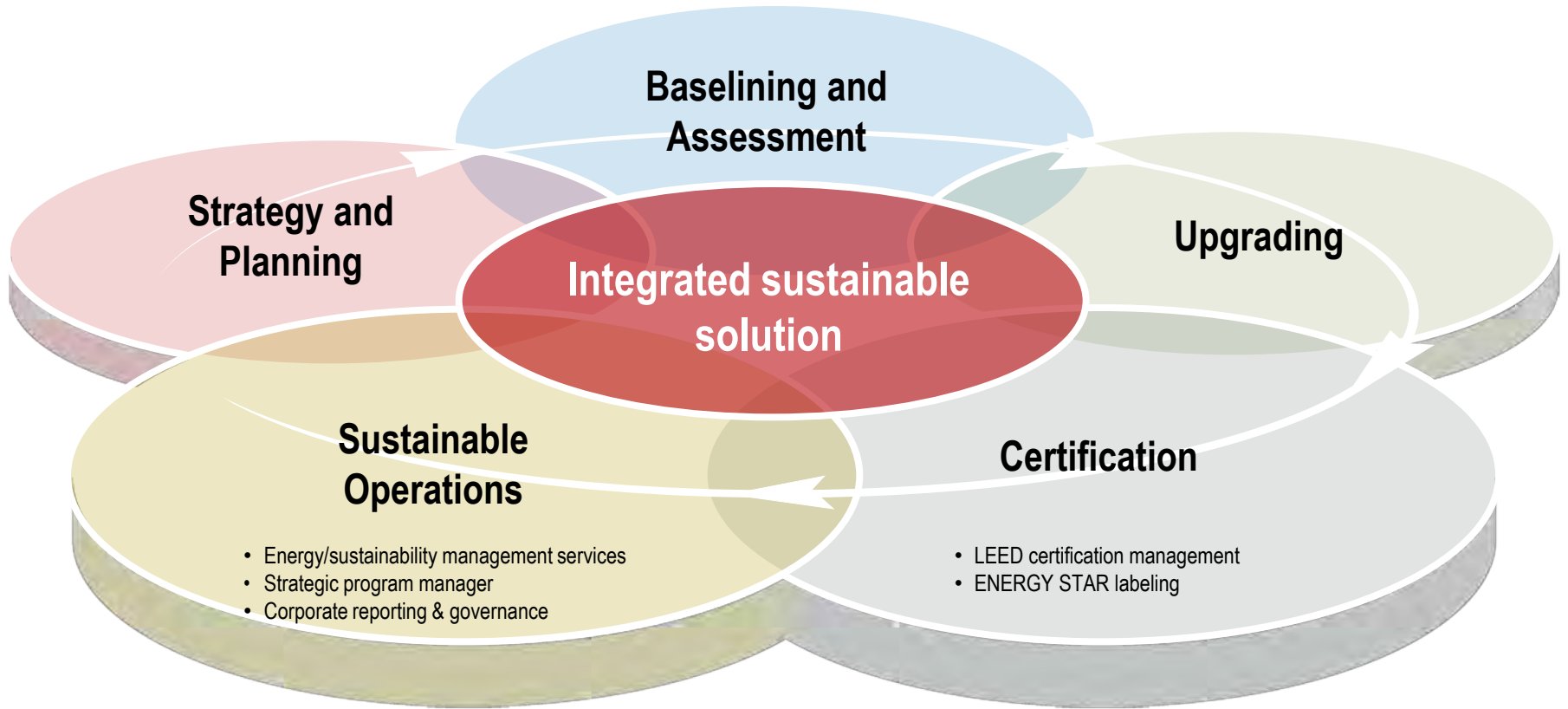
- Served as the owner's representative ensuring program aligned with business objectives
- Lead a team of diverse consultants, built consensus and accelerated progress
- Managed development of broad and complex strategy delivering an actionable, result-driven plan in 8 months
- Applied best practices from industry-leading projects from around the world (Bank of America Tower in Bryant Park, HSBC Tower in Mexico City and Shanghai)
- **Lead the \$20 million retrofit program to reduce energy consumption by up to 38%, saving 105,000 metric tons of CO₂ over 15 years**



The Empire State Building – the 8 projects

- **Window Light Retrofit:** Refurbishment of approximately 6,500 thermopane glass windows, using existing glass and sashes to create triple-glazed insulated panels and dramatically reduce summer heat load and winter heat loss.
- **Radiator Insulation Retrofit:** Introduction of insulation behind radiators to reduce heat loss and more efficiently heat the building perimeter.
- **Tenant Lighting, Daylighting and Plug Upgrades:** Introduction of improved lighting designs, daylighting controls, and plug load occupancy sensors in common areas and tenant spaces to reduce electricity costs and cooling loads.
- **Air Handler Replacements:** Replacement of air handling units with variable frequency drive fans to allow increased energy efficiency in operation and improved comfort for individual tenants.
- **Chiller Plant Retrofit:** Reuse of existing chiller shells while removing and replacing “guts” to improve chiller efficiency and controllability, including the introduction of variable frequency drives.
- **Whole-Building Control System Upgrade:** Upgrade of existing building control system to optimize HVAC operation as well as provide more detailed sub-metering information.
- **Ventilation Control Upgrade:** Introduction of demand control ventilation in occupied spaces to improve air quality and reduce energy required to condition outdoor air.
- **Tenant Energy Management Systems:** Introduction of individualized, web-based power usage systems for each tenant to allow more efficient management of power usage.

Energy and Sustainability Services



Jones Lang LaSalle services

Property services	Portfolio services	Sustainability program services
<p>Assessments</p> <ul style="list-style-type: none"> - Design team charrettes - LEED gap assessments - Sustainability and energy assessments <p>Energy or sustainability consulting</p> <p>Energy project management</p> <p>LEED services for New Construction, Commercial Interiors and Existing Buildings</p> <ul style="list-style-type: none"> - LEED certification management - LEED construction and project management <p>Retro-commissioning service</p>	<p>Assessments</p> <p>Portfolio energy management service</p> <p>Portfolio environmental sustainability management service</p>	<p>Alternative energy–site studies</p> <p>Brownfield disposition and redevelopment</p> <p>Carbon emission reduction strategy</p> <p>Corporate reporting/governance</p> <p>Employee engagement</p> <p>Employee sustainability training</p> <p>Portfolio and occupancy strategies</p> <p>Site selection/location Advisory</p> <p>Sustainability program management</p> <p>Sustainable workplace strategy</p>

Some things YOU can do...

Low cost / no cost *green* activities

- Use low voc paints, adhesives, furniture
- Use FSC certified wood products
- Use green cleaning products
- Use organic lawn care
- Use rainwater collection for landscaping irrigation, if any
- Use native and adapted plantings that require minimal if any watering or fertilization
- Use integrated pest management
- Install new windows insulation, weatherization
- Install efficient HVAC infrastructure
- Use digital controls
- Live near mass transit and basic services (drive as little as possible)

Practical next steps

What you can do to take action

- 1) Triage your building portfolio based on renovation cycle
- 2) Create a sustainability master plan including retrofit projects, design standards, lease structure changes, tenant energy management programs, and marketing initiatives
- 3) Commit to an integrated, whole-building retrofit approach: Conduct whole-building audits rather than single measure projects
- 4) Require performance guarantees with ongoing measurement and verification of savings to reduce risk
- 5) Engage tenants, employees, and building occupants in energy savings efforts through training, tools, technology
- 6) Create concrete successes at the building and pre-built level to build momentum and enthusiasm



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Thank you

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