

# Tracking Building Energy Performance:

The need to measure, track and benchmark energy performance for LEED Projects

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We will cover:

- ❖ What is energy benchmarking?
- ❖ Why is benchmarking important?
- ❖ How do I benchmark energy?
- ❖ What does this mean for LEED projects?
- ❖ Call to action for the Building Performance Partnership initiative



# What is energy benchmarking?

# A benchmark is...

- Numeric score for energy performance
  - The “energy saving potential” of your building
- Relative to similar buildings, use, climate
- Benchmark one or more (your entire portfolio)
- Benchmarks are baselines for
  - Energy and environmental goals
  - Investment decisions
  - Staff or contractor performance
  - Rewards and incentives

# Benchmarking is strategic

- Basic and advanced corporate decisions:
  - How much energy are we using?
  - Why are we using so much energy?
  - Is investing in energy efficiency worth it?
  - How well are our efficiency investments working?
  - Is that new utility rebate worth going after?
  - How well are operations staff and service contractors performing?



# Why is benchmarking important?

# Setting the Stage

- According to US DOE, commercial buildings could be made 80% more efficient with new and existing technology<sub>1</sub>
- Existing building stock represents the greatest opportunity for capturing low-hanging fruit for energy efficiency gains
- Energy savings has a direct impact to Net Operating Income (NOI) and Asset Value

## Energy cost is fastest growing operating expense for office properties

<b>Non-Residential Operation Cost Index</b>				<b>Year Over Year Change:</b>	
	<b>July 2010</b>	<b>June 2010</b>	<b>Percent Change</b>	<b>July 2009</b>	<b>Percent Change</b>
<b>December 2003 = 100</b>					
Non-Residential Facility Operations	120.9	120.6	0.20%	117.2	3.10%
<b>Index Components*</b>					
<b>Energy</b>	133.3	132.8	0.40%	124.8	<b>6.80%</b>
Real Estate Management	107	107.2	-0.20%	107.6	-0.60%
Custodial	110.2	110.2	0.00%	110.1	0.10%
Security	108.5	108.3	0.20%	108.4	0.10%
Telecommunications	100.9	100.9	0.00%	101.2	-0.30%
<b>Other Indexes</b>					
CPI-Urban Consumers, All Items	118.3	118.3	0.00%	116.8	1.20%

\*Five heavily weighted index components are shown.  
 Sources: U.S. Department of Commerce, U.S. Department of Labor, and Whitestone Research.  
 Note: Index values for recent data are preliminary. The Non-Residential Operation Cost Index is based on a two-story office building.



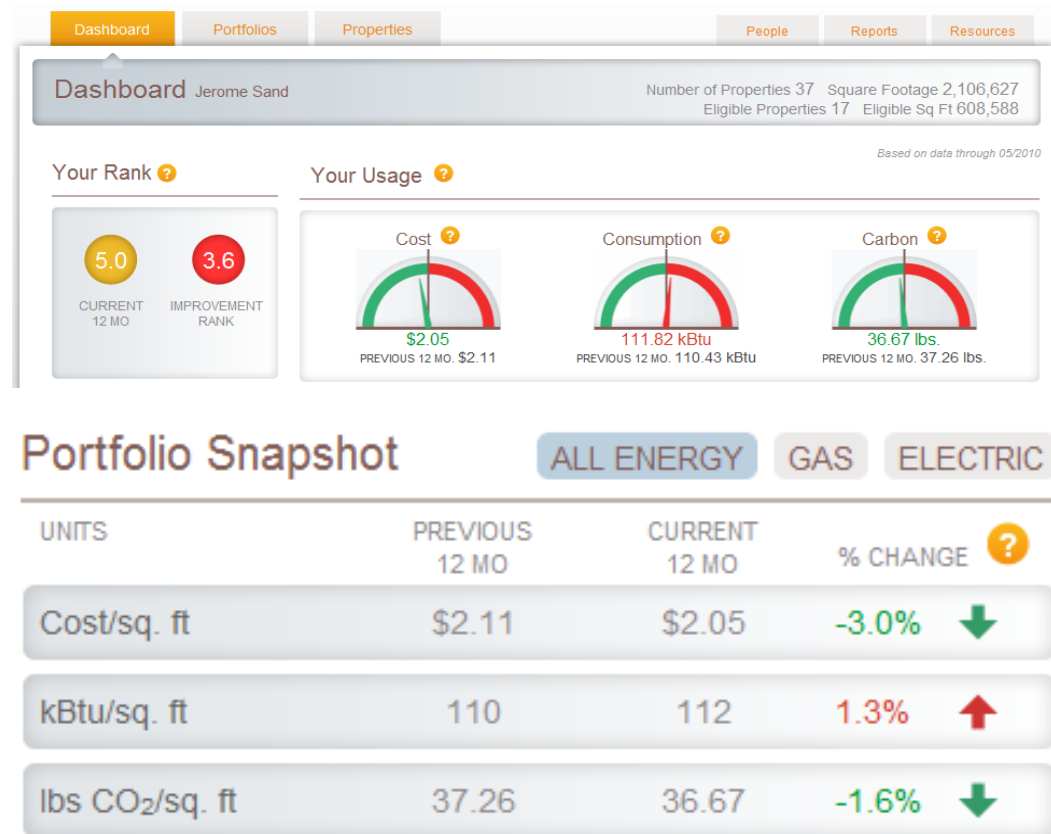
## Did you know?

- Commercial office buildings account for almost 20% of the national annual greenhouse gas emissions
- Businesses typically spend 30% more than needed on energy
- Owners are paying a higher percentage of operating expenses due to lower occupancy
- Low cost/no cost changes can yield immediate results – up to 15%
- ROI can be measured and justified for larger expenditures and successful projects repeated

**Sustainability = Energy Savings**

# Visualize, Understand and Manage “3 C’s”

- Cost
- Consumption
- Carbon

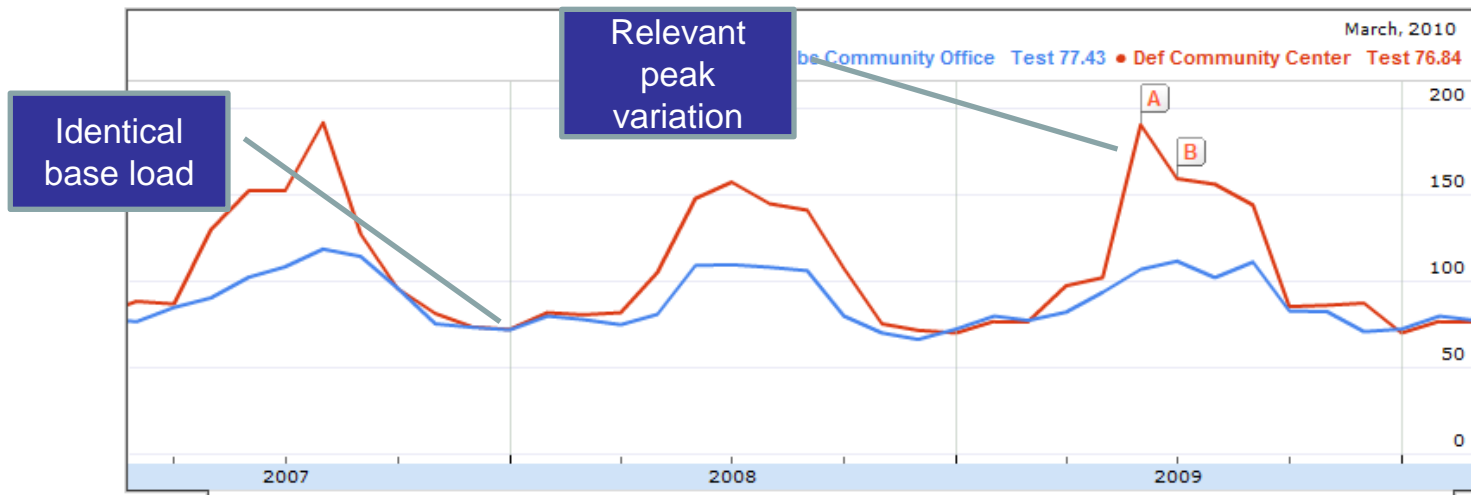


# Identify Anomalies

- Variation during peak summer months

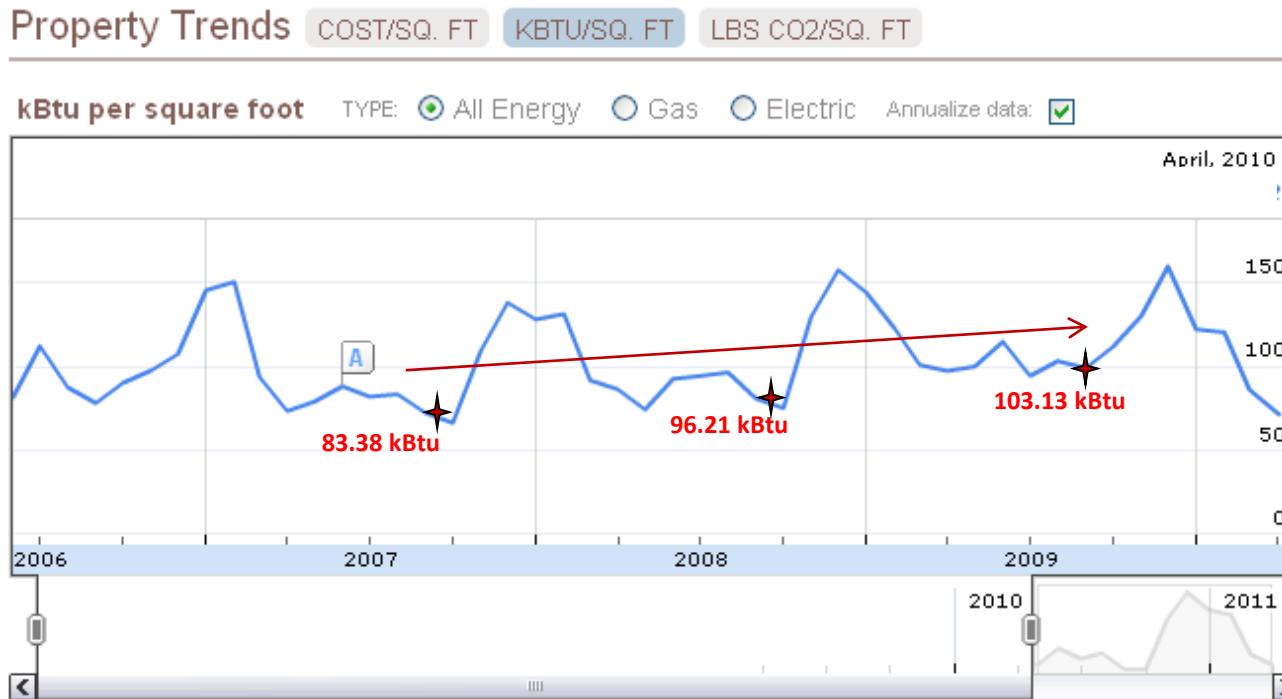
Property Trends COST/SQ. FT KBTU/SQ. FT LBS CO2/SQ. FT

kBtu per square foot (Electric) TYPE:  All Energy  Gas  Electric Annualize data:

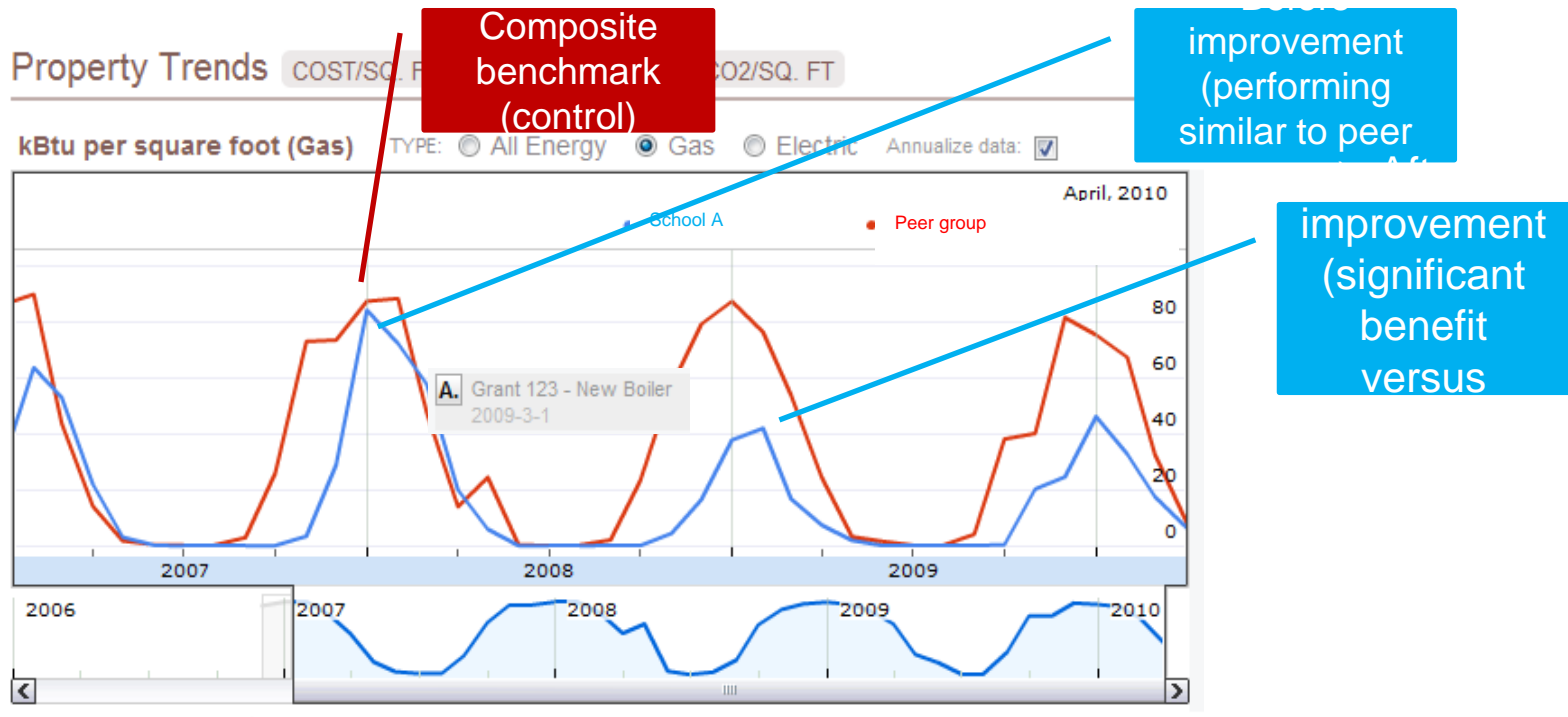


# Identify Negative Trends

- Energy baseload increasing year-over-year



# Prove that capitol and operational improvements were successful





# How do I benchmark energy?

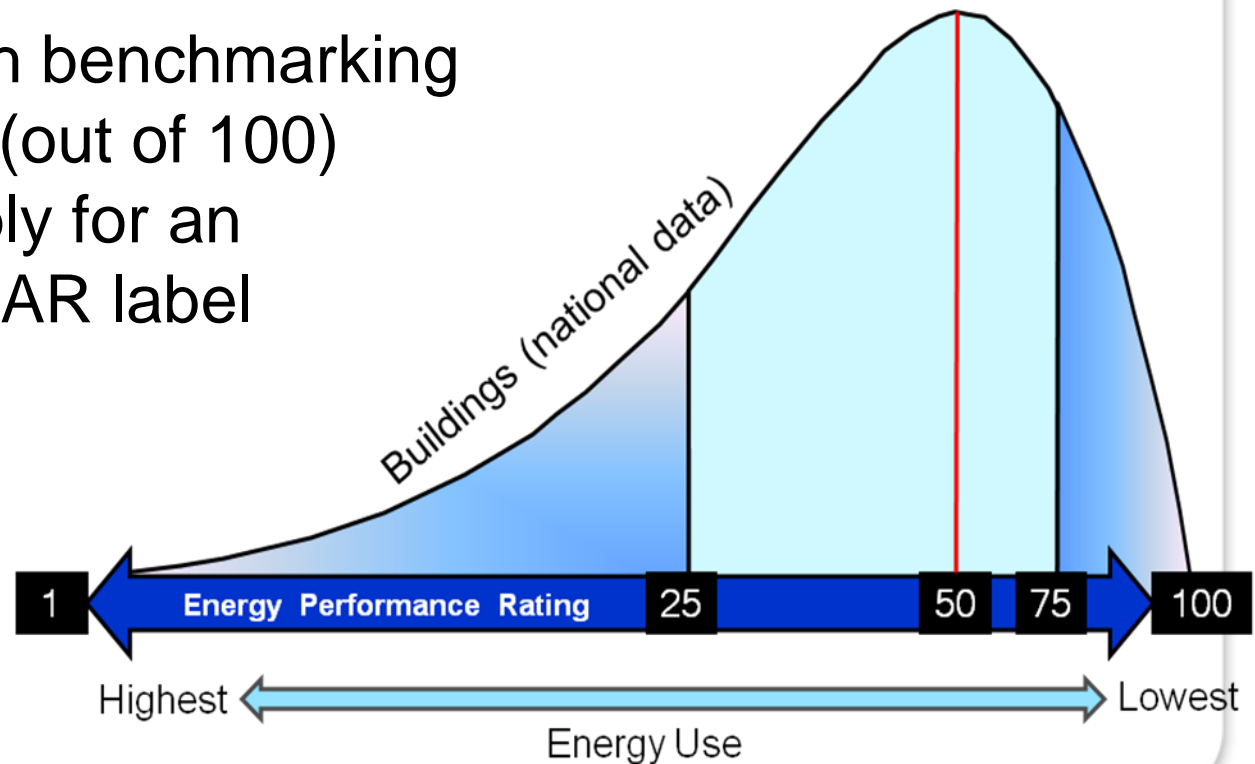
# U.S. EPA ENERGY STAR

- A standard method for developing and running corporate energy management programs.
- Provides
  - Guidelines
  - Professional engineer guide
  - Marketing resources
  - Lots of other resources



# U.S. EPA ENERGY STAR

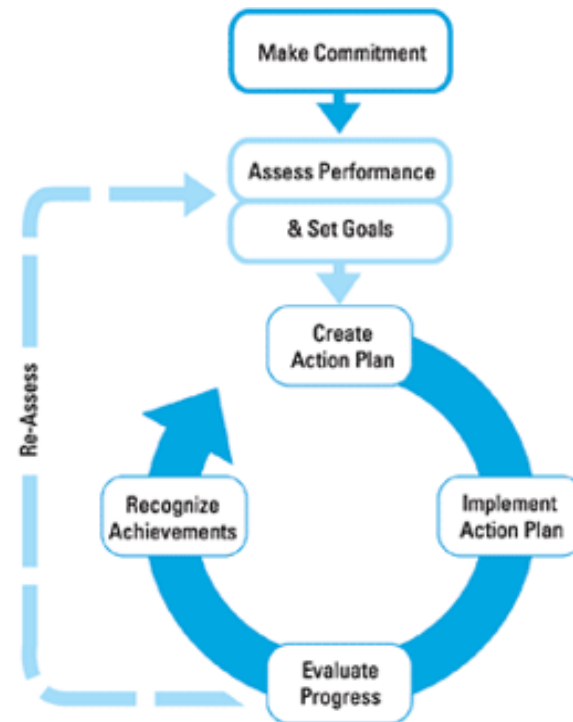
- 10+ years
- Buildings with benchmarking scores of 75 (out of 100) earn can apply for an ENERGY STAR label





# ENERGY STAR process

1. Make a commitment
2. Benchmark your building
3. Based on benchmark - set goals
4. Create action plan
5. Implement action plan
6. Evaluate progress
7. Recognize achievements

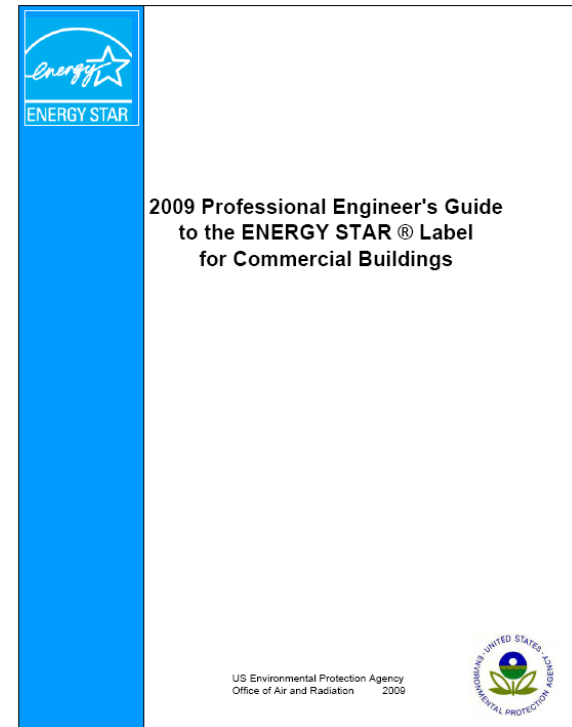


# Prerequisites

- US or US Territory
- Occupancy Rate >50% Office or >55% Hotel
- Space Type >50% (excluding parking) is...
  - Bank, Courthouse, Hospital, Hotel, House of Worship, K-12 School, Medical Office, Office, Residence Hall/Dorm, Retail Store, Supermarket, Warehouse
- 12 Months Available Data
- >90% Owned or Managed

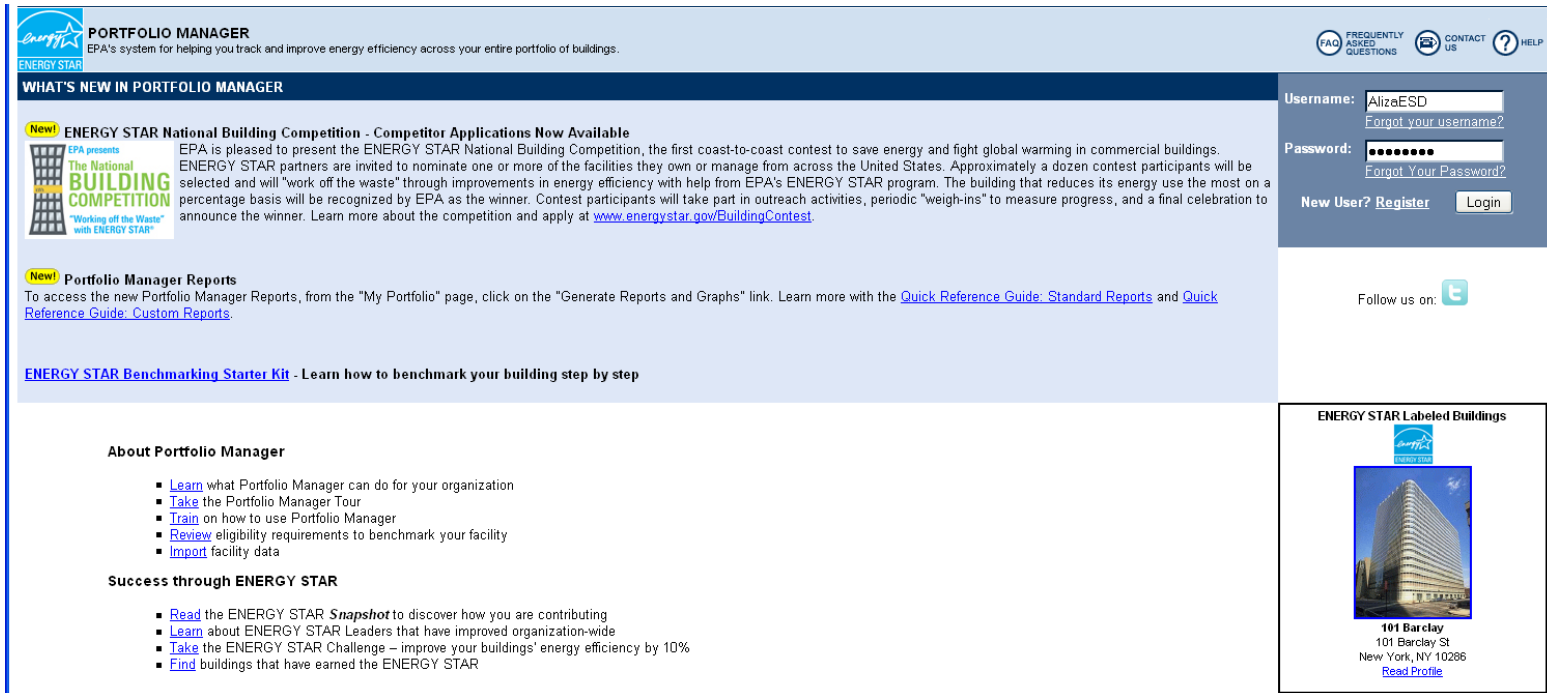
# What to do before Portfolio Manager?

- Inform Tenants
- Read PE Guide for ENERGY STAR
- Create a Username/Password
- Collect Information
  - Space Type
  - Square Footage (GSF)
  - Operating hours/week
  - Occupant and PC counts
  - Energy Data



# ENERGY STAR Portfolio Manager can be accessed via

[www.energystar.gov/istar/pmpam/](http://www.energystar.gov/istar/pmpam/)



**ENERGY STAR PORTFOLIO MANAGER**  
EPA's system for helping you track and improve energy efficiency across your entire portfolio of buildings.

**WHAT'S NEW IN PORTFOLIO MANAGER**

**New! ENERGY STAR National Building Competition - Competitor Applications Now Available**  
EPA is pleased to present the ENERGY STAR National Building Competition, the first coast-to-coast contest to save energy and fight global warming in commercial buildings. ENERGY STAR partners are invited to nominate one or more of the facilities they own or manage from across the United States. Approximately a dozen contest participants will be selected and will "work off the waste" through improvements in energy efficiency with help from EPA's ENERGY STAR program. The building that reduces its energy use the most on a percentage basis will be recognized by EPA as the winner. Contest participants will take part in outreach activities, periodic "weigh-ins" to measure progress, and a final celebration to announce the winner. Learn more about the competition and apply at [www.energystar.gov/BuildingContest](http://www.energystar.gov/BuildingContest).

**New! Portfolio Manager Reports**  
To access the new Portfolio Manager Reports, from the "My Portfolio" page, click on the "Generate Reports and Graphs" link. Learn more with the [Quick Reference Guide: Standard Reports](#) and [Quick Reference Guide: Custom Reports](#).

[ENERGY STAR Benchmarking Starter Kit](#) - Learn how to benchmark your building step by step

**About Portfolio Manager**

- Learn what Portfolio Manager can do for your organization
- Take the Portfolio Manager Tour
- Train on how to use Portfolio Manager
- Review eligibility requirements to benchmark your facility
- Import facility data


**Success through ENERGY STAR**

- Read the ENERGY STAR *Snapshot* to discover how you are contributing
- Learn about ENERGY STAR Leaders that have improved organization-wide
- Take the ENERGY STAR Challenge – improve your buildings' energy efficiency by 10%
- Find buildings that have earned the ENERGY STAR


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Password:   
[Forgot Your Password?](#)

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**ENERGY STAR Labeled Buildings**



**101 Barclay**  
101 Barclay St  
New York, NY 10286  
[Read Profile](#)

# Starting a Facility

- General Information
- Facility Performance
- Space Use
- Energy Meters
- Water Meters
- Renewable Energy Certificates


**PORTFOLIO MANAGER**

[ACCOUNT INFORMATION](#)
[CONTACTS](#)
[FAQ](#)
[FREQUENTLY ASKED QUESTIONS](#)
[CONTACT US](#)
[HELP](#)
[LOGOUT](#)

[Home](#) > [My Portfolio](#) > **TEST FACILITY**

Facility Summary: **TEST FACILITY**  
[How do I use this page?](#)

Building ID: 2056102  
 Level of Access: Building Administrator

Electric Distribution Utility: Exelon - Commonwealth Edison Co  
 Regional Power Grid: [RFC West](#)  
[Select my Power Generation Plant](#) to calculate my electric emissions rate  
 Electric Emissions Rate (kgCO<sub>2</sub>e/MBtu): 205.5 ([what is this?](#))

General Information <a href="#">Edit</a>	
Address: 175 W. Jackson , Chicago, IL 60604	
Year Built: 2006	
Property Type: Single Facility	
Baseline Rating: <span style="color: red;">N/A</span>	Current Rating: <span style="color: red;">N/A</span>
<input type="checkbox"/> View Period Ending Dates	
<b>Water Period Ending Dates</b> Current: N/A Baseline: N/A	<b>Energy Period Ending Dates</b> Current: N/A Baseline: N/A
Eligibility for the ENERGY STAR	
N/A	

**Facility Performance** [Set Baseline Periods](#) | [Set Energy Performance Target](#)

Select View: Manager [Create View](#) | [Edit View](#)

12 Months Ending	Building Owner	Current Rating (1-100)	Eligibility for the ENERGY STAR	Total Floor Space (Sq. Ft.)	Service and Product Provider	Shared By	City
[Select Date ▼]		[1]	[1]	[1]		[1]	[1]
[Select Date ▼]							
Change							
<a href="#">REFRESH VIEW</a>							

**Space Use** [Add Space](#)

Space Name	Space Type	Floor Area (Sq. Ft.)	% Floor Area	Alerts
No Space Defined				

Due to rounding, the % Floor Area Total may not always equal 100%.

**Energy Meters** [Add Meter](#) | [Update Multiple Meters](#) | [View All Meter Data in Excel](#)

Meter Name	Energy Type	Space(s)	Last Meter Entry (End Date)	Alerts
No Meters Defined				

**General Facility Administration**

[Track](#) Energy Performance Improvements  
[Delete](#) this Facility from Portfolio Manager  
[Contact](#) us

**Sharing Data**

[Add](#) user to share this Facility  
[Modify](#) list of users  
[Transfer](#) Facility to another user  
[View](#) entire Access List for this Facility



# What does this mean for LEED projects?

since the release of LEED for Existing Buildings: Operations & Maintenance in 2008, buildings are required to demonstrate achievement of quantitative performance targets in order to earn LEED EB certification.

Minimum Requirement 6 – Project must share water and energy usage data with USGBC for a period of 5 years

# Building Performance Partnership

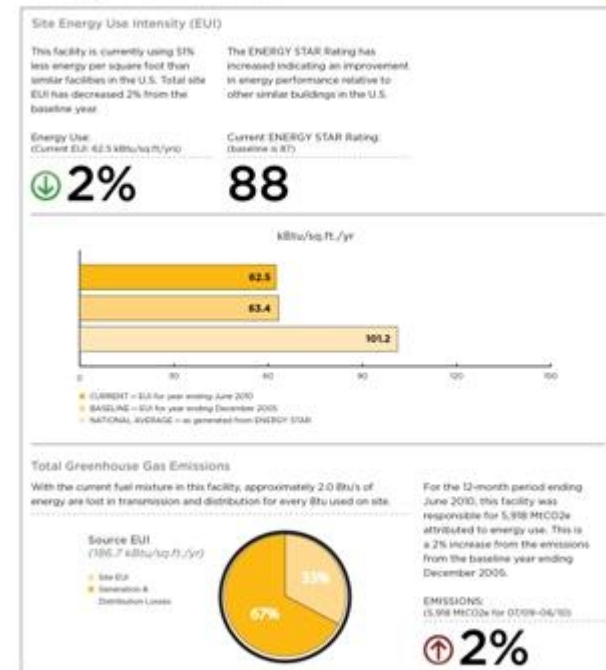
- Launched in November 2009
- An initiative to gather energy data from LEED buildings
- Only for whole-building LEED Projects
- Goal set to prove LEED projects outperform non-LEED project
- Help LEED projects identify opportunities within their buildings to be more energy efficient
- Utilizes the existing ENERGY STAR system to track and share energy data



# Benefits in participating in BPP

- Help USGBC create a database of LEED project energy performance
- Prove your LEED project is a high performer
- Receive an annual performance report highlighting your building's efficiency against other LEED and non-LEED projects

## Energy Performance



Sample Building  
 100% RECYCLED, 100% GREENWASH, 100% RECYCLED  
 UTILITY DATA CURRENT AS OF JUNE 2010





# Call to action for the Building Performance Partnership initiative

# Help MN USGBC be the leader in the BPP Initiative

104 registered LEED projects in MN  
- 12 projects currently enrolled in BPP

**96 un-enrolled LEED projects in MN**

**The MN USGBC chapter needs your help to reach our 2011 goal of 26 enrollments**

# How can you help...

- Review handout of MN LEED projects
- Share information about USGBC BPP with contacts
- Start tracking your energy in ENERGY STAR
- If any questions, please contact myself or our BPP Task Force:

**Matt Arneson, EnergyPrint**

**651-357-9022**

**[Matt.arneson@energyprint.com](mailto:Matt.arneson@energyprint.com)**