

# Friends of Benchmarking

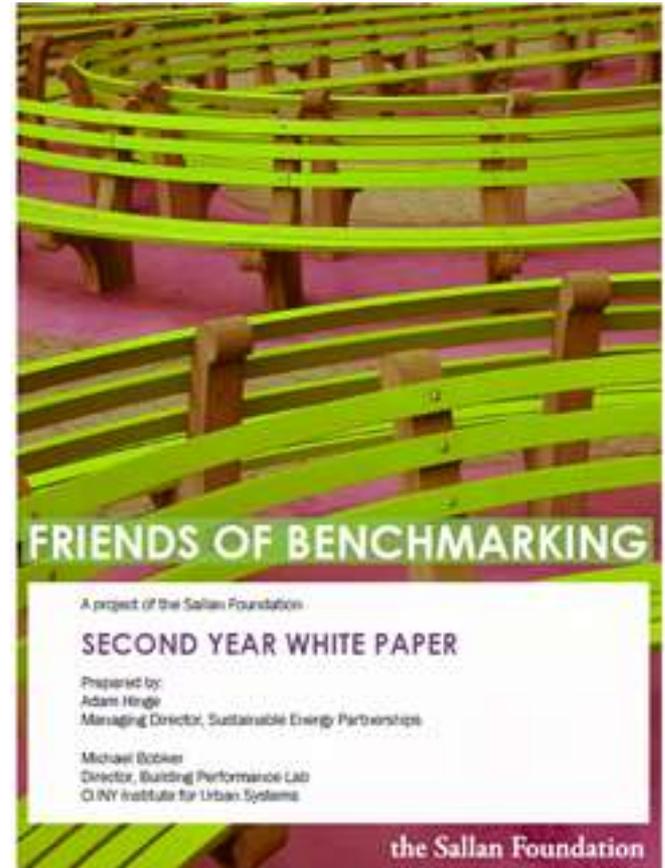
**Adam Hinge**

Sustainable Energy Partnerships

**Michael Bobker**

Building Performance Lab

CUNY Institute for Urban Systems

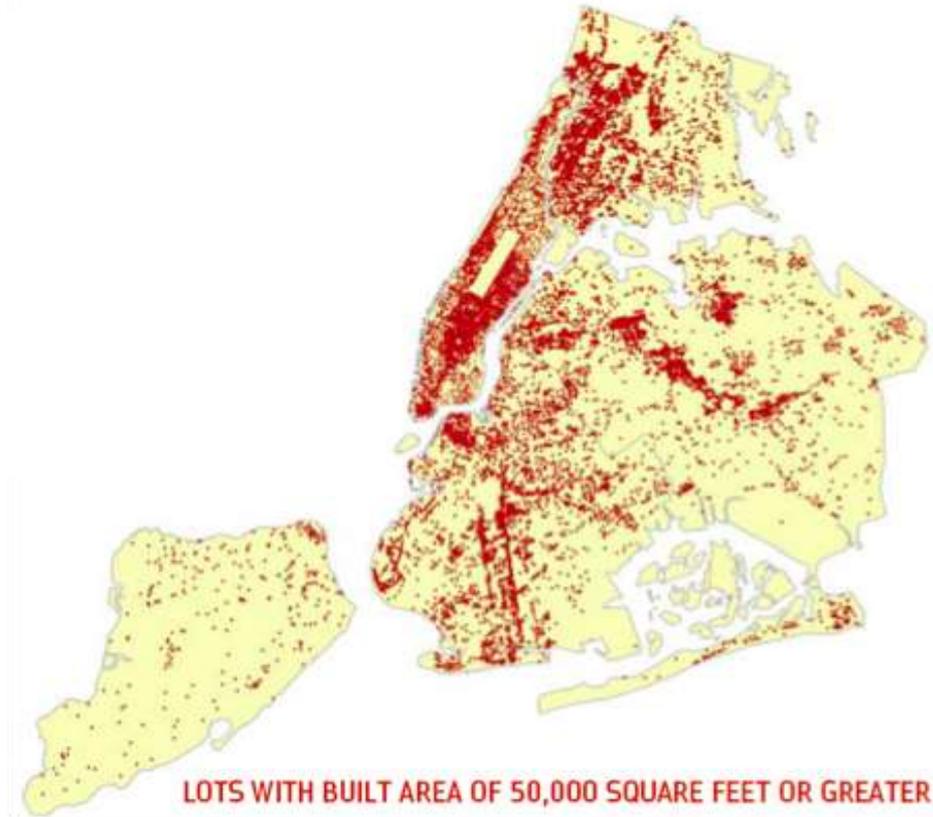


Building Energy  
Performance Disclosure...

**So What???**...

**...and What's Next???**

# Local Law 84: Annual Energy & Water Benchmarking



- 22,000 Buildings
- 2% of NYC Buildings
- Half of city's total floor area
- In every borough



Graphic by CoStar Group

# How has public understanding evolved to date?

nytimes.com/2013/09/27/nyregion/a-fresh-set-of-grades-measures-energy-use-in-residential-buildings.html?\_r=1

www.nytimes.com/2012/12/25/science/earth/new-york-citys-effort-to-track-energy-efficiency-yields-some-surprises.html?pagewanted=

The New York Times N.Y. / Region

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | FOOD & DRINK | ARTS | STYLE | TRAVEL

December 24, 2012

**Beautiful** The Carole King Musical "A MUST-SEE!" -ABC-TV, NEW YORK

## City's Law Tracking Energy Use Yields Some Surprises

By MIREYA NAVARRO

In courting tenants over the last six years, 7 World Trade Center has trumpeted its gold LEED rating, an emblem of sound environmental citizenship.

But when it comes to energy efficiency, the young 52-story tower is far from a top performer, according to data released under a city law that tracks energy use in buildings.

On the other hand, two venerable show horses from the 1930s, the Chrysler Building and the Empire State Building, sailed to an 84 and an 80 as a result of their insulation and mechanical systems.

And the Met life Building, a 1960 bulk loomine over Grand Central Terminal? It scored 70. Still, some are at hand for Met life's success: the Greenest Building in the City.

Log in to see what your friends are reading on nytimes.com. Privacy Policy

What's Popular Now

The Art of Presence

www.nytimes.com/2013/09/27/nyregion/a-fresh-set-of-grades-measures-energy-use-in-residential-buildings.html?\_r=1&pagewanted=print

The New York Times

September 27, 2013

## A Fresh Set of Grades Measures Energy Use in Residential Buildings

By MIREYA NAVARRO

A small prewar co-op in Washington Heights in Manhattan gets an A.

But the mark for a modern luxury tower in Battery Park City that markets itself as "green"?

A dreaded D.

In its waning days, the Bloomberg administration is issuing a final batch of grades, this time to rate the energy use of the city's largest residential buildings. This new energy consumption data for large multifamily buildings, allowing residents to find out how their co-ops, condos and rental buildings compare with similar structures.

It was the first time any city in the country publicized such data, environmental groups said, and will be one of the most prominent legacies of Mayor Michael R. Bloomberg's agenda. The city has been tracking energy use among its largest buildings under a 2009 law intended to help reduce the city's greenhouse gas emissions, an issue that gained urgency after Hurricane Sandy.

The heating and cooling of buildings produces three-fourths of the city's emissions contributing to global warming and sea level rise, city officials said. The 2009 law

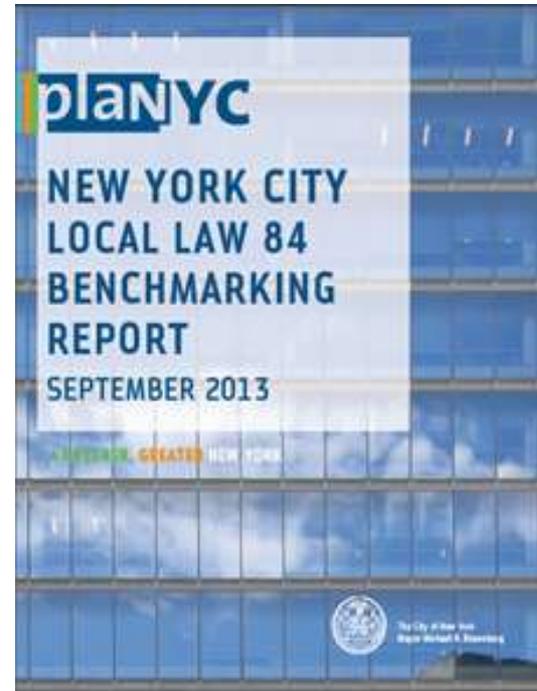
The Dakota, on the Upper West Side, retained an A from the city for its relatively low energy use.

By MIREYA NAVARRO

Published September 27, 2013

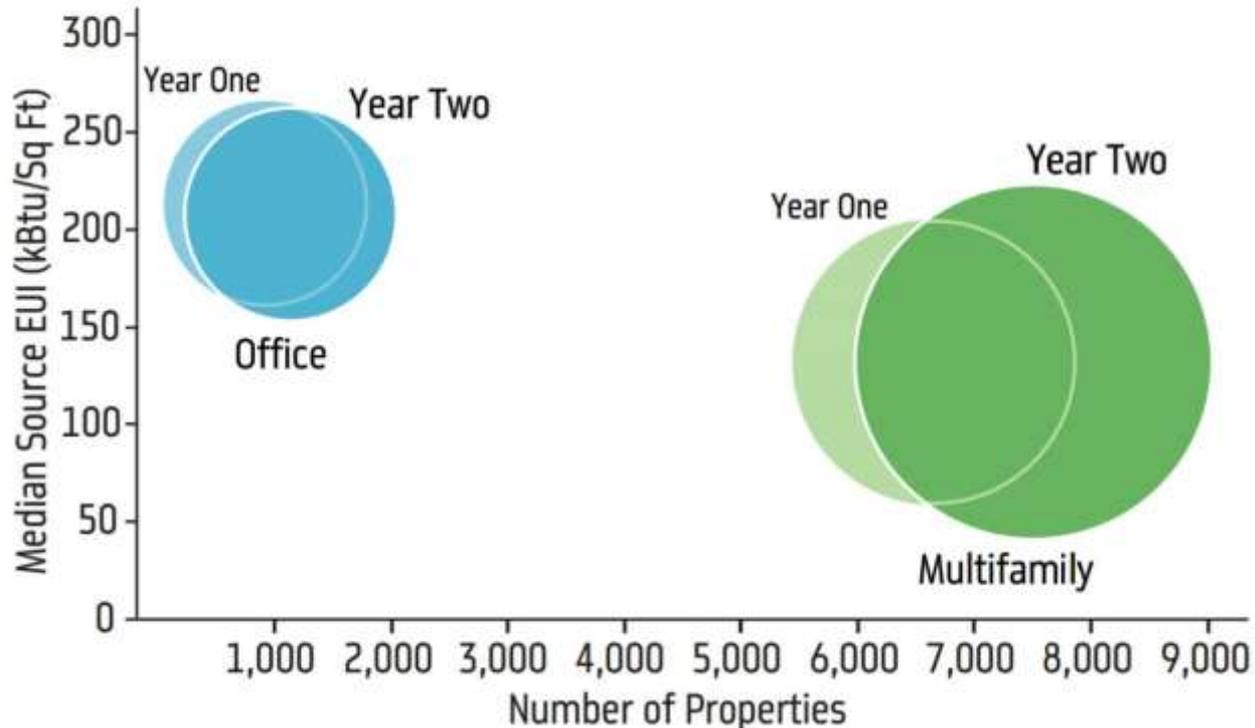
NY Times: 12/24/2012; 9/27/2013

# What do we know?



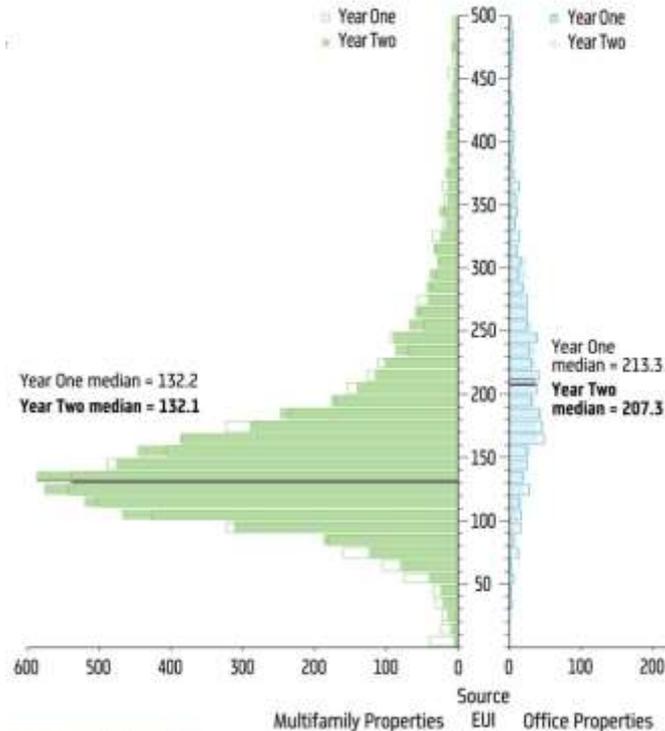
# More Buildings Reporting Year on Year

[Fig. 18] Year Over Year Comparison of Median EUI, Number of Properties, and Total Energy Per Sector<sup>19</sup>



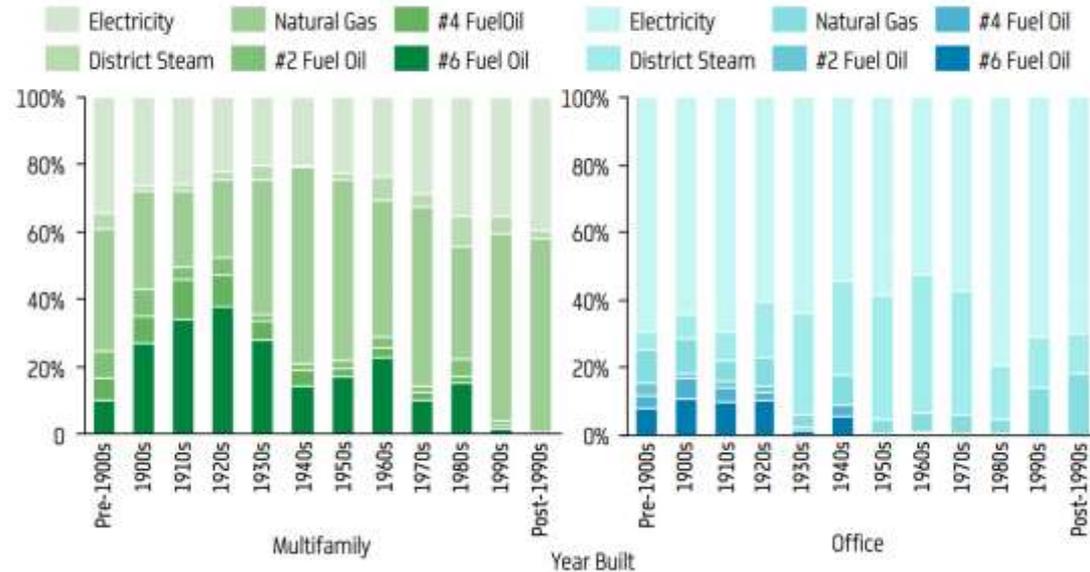
# Lots of Info about Energy Performance

[Fig. 19] Source EUI Histograms for Multifamily and Office Sectors



Source: New York University

[Fig. 25] Multifamily and Office Energy Mix by Year Built



Source: New York University and NYC Mayor's Office

# Informing Professional Dialogue

The screenshot shows a web browser window with the URL [www.buildinggreen.com/auth/article.cfm/2013/12/18/New-Energy-Data-Is-Changing-How-We-Judge-Efficiency-and-LEED/](http://www.buildinggreen.com/auth/article.cfm/2013/12/18/New-Energy-Data-Is-Changing-How-We-Judge-Efficiency-and-LEED/). The page features the BuildingGreen.com logo and a navigation menu with categories: NEWS, LEARN, CSI DIVISIONS, LEED CREDITS, GREEN PRODUCTS, CASE STUDIES, and BLOGS. The main article is titled "Environmental Building News" and "THE LEADING SOURCE FOR ENVIRONMENTALLY RESPONSIBLE DESIGN & CONSTRUCTION". The article title is "New Energy Data Is Changing How We Judge Efficiency—and LEED". Below the title is a social media sharing bar and a sub-headline: "Seeking lessons from New York City benchmarking data, researchers question everything we thought we knew about energy metrics." The author is "By Nadav Malin". The article text begins with "In the beginning, there was Energy Star." and "Supported by the online Portfolio Manager infrastructure and statistical models from the periodic Commercial Buildings Energy Consumption Survey (CBECS), the U.S. Environmental Protection Agency's Energy Consumption Survey (ECS)..." On the right side, there are sections for "ARTICLE CONTENTS" with links like "Going beyond Energy Star", "Stopping short of Energy Star", "Rethinking efficiency", "Btu per dollar", and "Many numbers, few conclusions". There is also a "DISCUSSIONS" section with a comment by "What Matters" from "Marcus Sheffer" dated "Dec 30, 2013". A "RELATED ARTICLES" section includes "NYC Buildings Gain Three Energy Star Points in Year Two" and "EBC: What's Happening - October 2013".

www.buildinggreen.com/auth/article.cfm/2013/12/18/New-Energy-Data-Is-Changing-How-We-Judge-Efficiency-and-LEED/

TRY IT RISK-FREE • For firms • For campuses • Speakers bureaus • Store • Membership • Login

BuildingGreen.com

NEWS LEARN CSI DIVISIONS LEED CREDITS GREEN PRODUCTS CASE STUDIES BLOGS

Environmental Building News  
THE LEADING SOURCE FOR ENVIRONMENTALLY RESPONSIBLE DESIGN & CONSTRUCTION

**New Energy Data Is Changing How We Judge Efficiency—and LEED**

Seeking lessons from New York City benchmarking data, researchers question everything we thought we knew about energy metrics.

By Nadav Malin

In the beginning, there was Energy Star.

Supported by the online Portfolio Manager infrastructure and statistical models from the periodic Commercial Buildings Energy Consumption Survey (CBECS), the U.S. Environmental Protection Agency's Energy Consumption Survey (ECS)...

ARTICLE CONTENTS

- [Going beyond Energy Star](#)
- [Stopping short of Energy Star](#)
- [Rethinking efficiency](#)
- [Btu per dollar](#)
- [Many numbers, few conclusions](#)

DISCUSSIONS

What Matters  
Marcus Sheffer  
Dec 30, 2013

More comments

RELATED ARTICLES

- [NYC Buildings Gain Three Energy Star Points in Year Two](#)
- [EBC: What's Happening - October 2013](#)

More related articles

# What are the “Right” Metrics?

- What is “Building Performance”?
- LL84 reports 1-100 Energy Star Score where applicable, and EUI
- Is “Energy Use Intensity” (EUI, energy per floor area) the best measure?
- What motivates “action”?

# Multifamily – No Energy Star 1-100 Score

Just EUI without context not helpful;  
Which One is “More Efficient”?



Harold Wilson for The New York Times  
The Dakota, on the Upper West Side, received an A from the city for its relatively low energy use.



Chris Higgins for The New York Times  
Solair in Lower Manhattan received a D, it has water recycling and fresh air systems.

# EnergyScoreCards Tailors Info



	Building Source EUI (kBtu/sqft/yr)	
	Master-Metered	Resident-Paid Electricity
<b>A</b>	≤ 120	≤ 108
<b>B</b>	120 - 142	108 - 126
<b>C</b>	142 - 171	126 - 150
<b>D</b>	171 ≤	150 ≤

Bright Power's EnergyScoreCards; see [www.energyscorecards.com](http://www.energyscorecards.com)

# Which Office Building is “Greener”?



# ENERGY

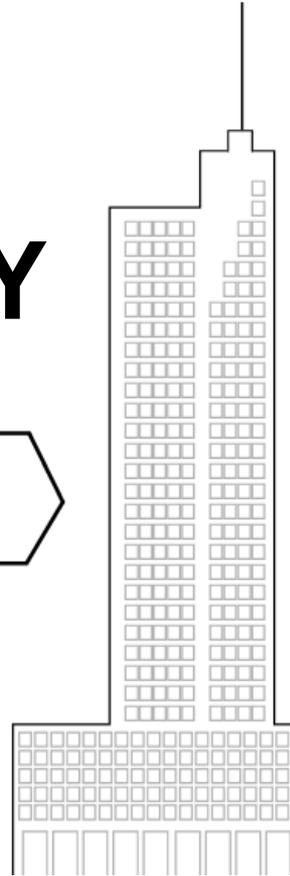


**SOURCE EUI**  
(kBtu/sf-yr)

# ECONOMY



**BUILDING ECONOMIC  
INTENSITY INDEX (BEII)**



$$\eta_{\text{BUILDING}} = \frac{\text{ECONOMY}}{\text{ENERGY}}$$

*BEI*

*EUI*

*(Weather Normalized Source)*

# Is LL84 Having an Impact?

From Tishman Speyer – “How LL 84 Has Changed the Way We Operate”:

## **New Technologies:**

- Using Pulse Meters to track energy consumption in 15-minute intervals
- Provides greater transparency and clarity on how we can improve

## **More Energy Efficiency Projects:**

- Leasing, ECM, and Asset Management teams take more notice now that the information is public
- Increasing number of tenants are inquiring about EnergyStar scores
- Increasing number of investors are inquiring about current and historical EnergyStar scores

# Could it be Better?

Again; Tishman Speyer view - Positive and Negative:

## Positive Example: Chrysler Building / MetLife Building

- Chrysler Building showed that not all energy efficient buildings had to be brand new; was recently certified as LEED Gold for EB
- MetLife building score improved from a 42 to a 47 after major renovation and energy efficiency project

## Negative Example: Rockefeller Center

- Many space types that don't exist within EnergyStar
- No comps
- Campus layout – everything is interconnected
- High-energy tenants (NBC)

Building	ES Score
11 West 42 <sup>nd</sup> Street	44
520 Madison Avenue	77
300 Park Avenue	86
Chrysler Building	86
Chrysler East	71
CitySpire	85
MetLife Building	47

# Next Steps for More “Actionable” Metrics

- Can we make data more “Accessible”?
- Would Other Metrics Help?
- What is the right information to drive Action?

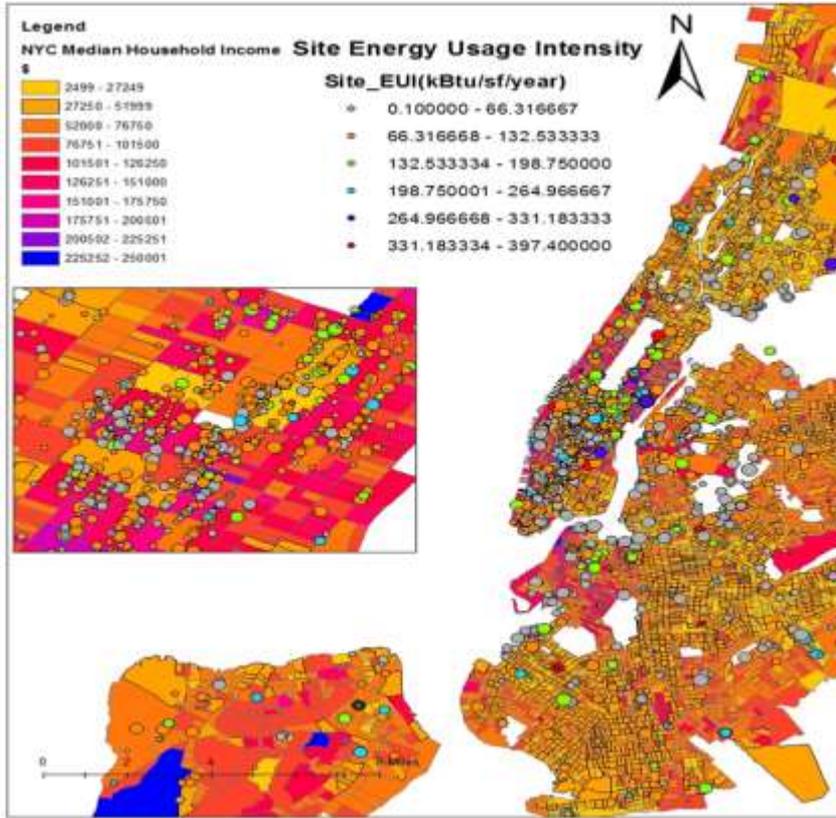
# Not Necessarily “Accessible”

2011\_nyc\_bld\_disclosure - Microsoft Excel

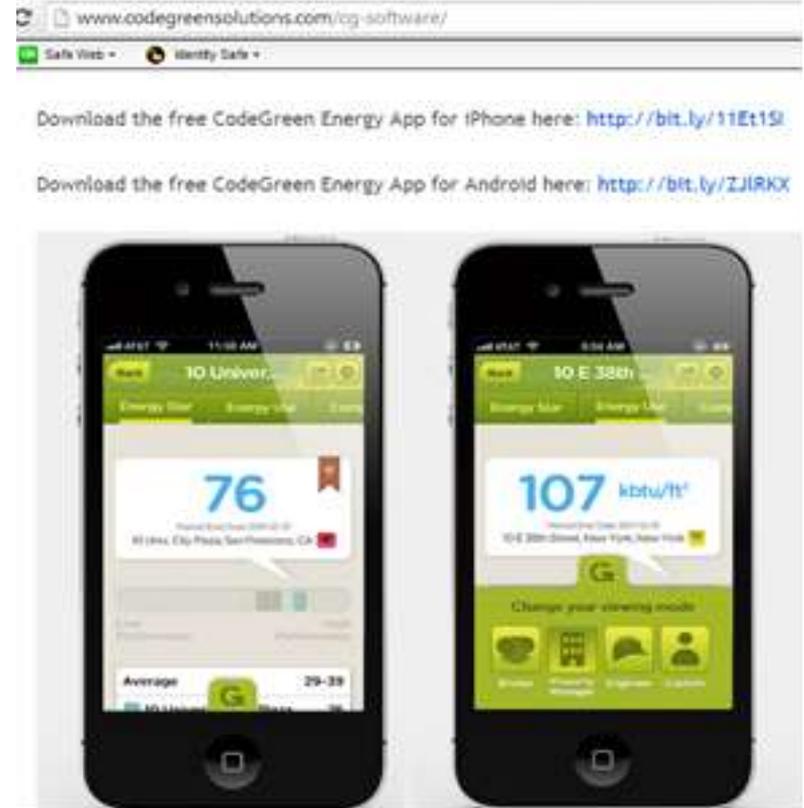
BBL	Street Number	Street Name	Borough	Zip	Benchmarking Submission	Entry Number	Site EUI (kBtu/sqft)	Weather Normalized Source EUI (kBtu/sqft)	Indoor Water Accessity (All Water Sources) (gpcu/sqft)	Reported Water Method	ENERGY STAR Score	Total GHG Emissions (MCO <sub>2</sub> e)	Property Floor Area (Buildings and Parking) (sqft)	Primary Property Type - Self Selected	Number of Buildings	Regs
1000010010	1	GOVERNORS ISLAND	MANHATTAN	10004	No Record as of 08/1/13										1	
1000020001		MARGINAL STREET	MANHATTAN	10004	No Record as of 06/1/13										0	
1000047501	1	WATER STREET	MANHATTAN	10004	Yes	41	552	267.9	18.57	Manual	75	25932.88	1428125	Office	1	1000005
1000057501	125	BROAD STREET	MANHATTAN	10004	Yes	3871	119.8	261.5		Manual	70	11687.42	1338000	Office	1	1000008
1000620001	134	AVENUE D	MANHATTAN	10008	Yes	8912	90.3	85.7	1.57		N/A	13708.99	1007812	Multifamily housing	1	1077504.1 9.1077540 941.10775 77948.107 1077549.1 7.1077551 555.10775 77896.107 1078047.1 8.1078050 952.10780 28055.107
1000090001	34	WHITEHALL STREET	MANHATTAN	10004	Yes	8579	99.5	902.8		Manual	55	7771.18	852840	Office	1	1000018
1000090014	17	STATE STREET	MANHATTAN	10004	Yes	795	79.7	210		Manual	82	4018.53	174095	Office	1	1000020
1000090020	34	WHITEHALL STREET	MANHATTAN	10004	Yes	99	139.4	295.2	11.06	Manual	41	10508.19	859807	Office	1	1000021

2011 NYC Benchmark Data | 2013 Data Dictionary

# What's Needed to Raise Awareness?

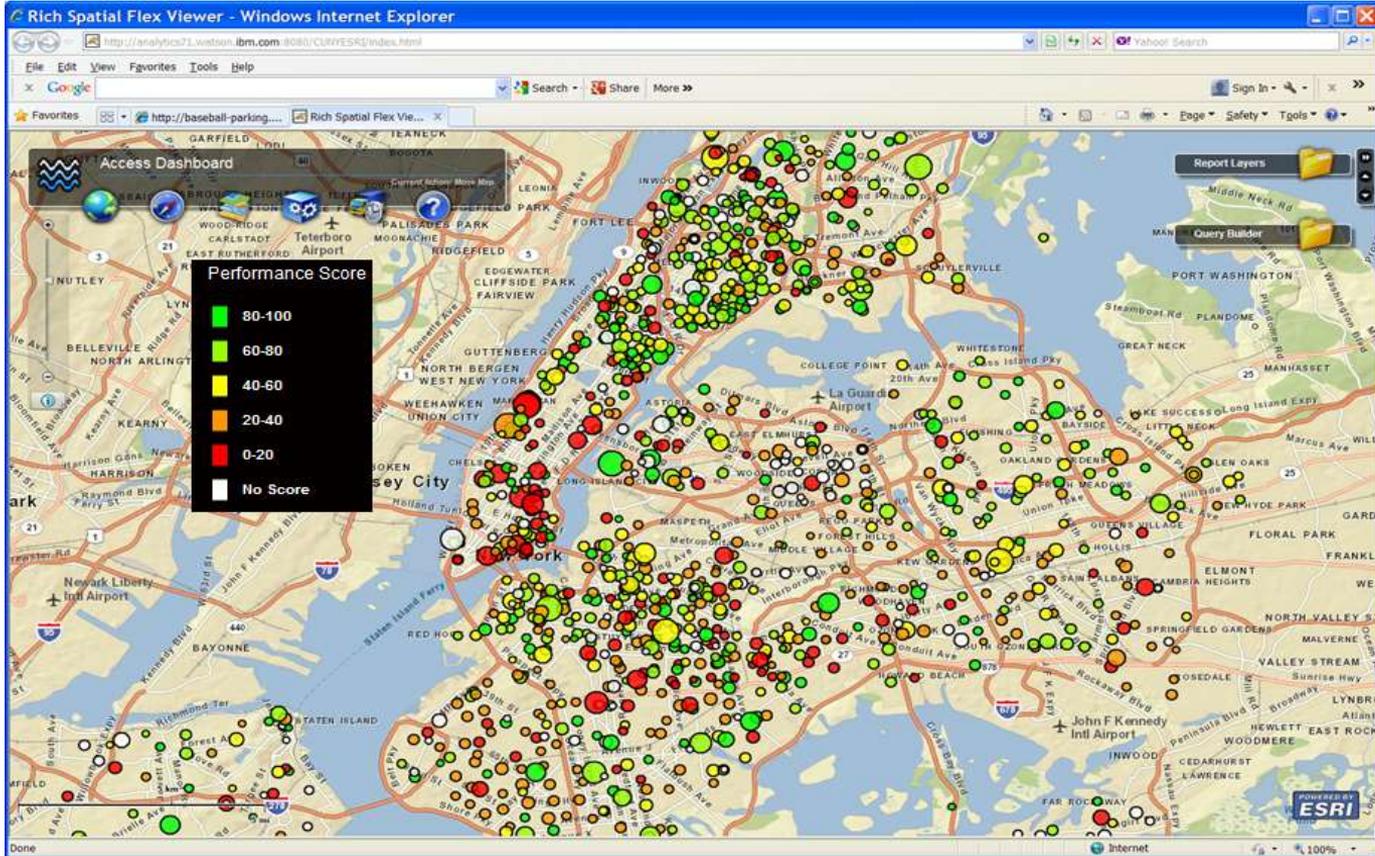


CUNY Building Performance Lab



From Code Green Solutions

# Energy Performance Score: All Energy



IBM Analysis of NYC Schools Energy Performance

# Opportunities for “Visualization”?

projects.propublica.org/nyc-flood/

## New Maps and a New Plan for New York

By Jeff Larson and Al Shyu, ProPublica  
June 20, 2013

2007 FLOOD ZONES SANDY STORM SURGE 2013 PRELIMINARY FLOOD ZONES

In Wednesday, FEMA released new, preliminary flood insurance maps for New York City. The maps specify how likely areas are to flood, and the minimum elevation that structures must be to avoid higher insurance rates. The new maps, which replace maps that used data from 1983, double the number of structures in flood zones. Yesterday, the Bloomberg administration unveiled a \$20 billion plan for protecting the city's waterfront.

[Related story -](#)

### Financial District

While ProPublica's offices on lower Broadway lost power for less than a week after Sandy, those on lower ground weren't as lucky. The Daily News building at 4 New York Plaza was inundated, and the paper still hasn't returned to its headquarters. Flood lines in the Financial District have encroached slightly from the 2007 maps, but still track closely to the original shape of the island.



**DAMAGE TO BUILDINGS BY SANDY**

- NONE
- AFFECTED
- MINOR
- MAJOR
- DESTROYED

**BASE FLOOD ELEVATIONS**

- 0-10 FEET
- 1-10 FEET
- HIGH VELOCITY WAVE 1% ZONES

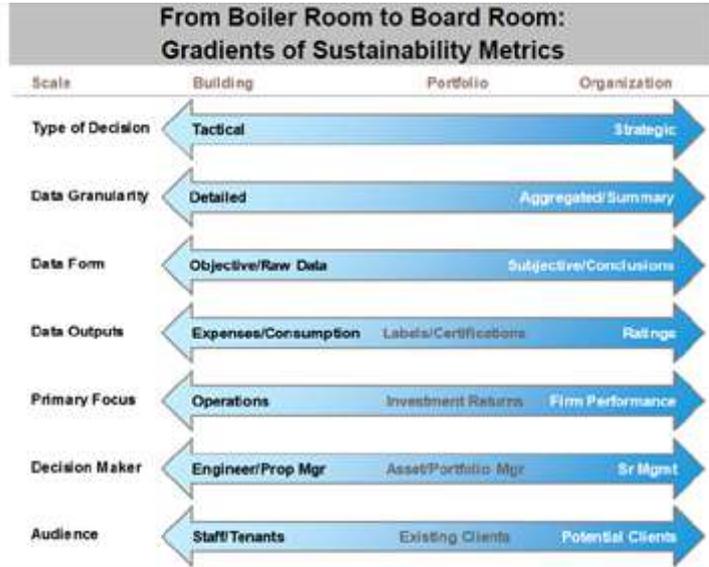
Select a neighborhood highlighted above and use the buttons on the right to zoom in/out and to navigate in 3D. Use the buttons on the far right above to compare FEMA maps and actual Sandy damage.

# Separate Landlord/Tenant Ratings?

- Could separate ratings drive more action?
- Some jurisdictions have landlord ratings
- Comes with its own set of challenges...



# Different Metrics for Different Audiences?



- Investors will want different metrics than building operators
- Hard to get “one size fits all”

From “Building Labels vs. Environmental Metrics;” RREEF Real Estate; [www.rreef.com](http://www.rreef.com)

# One View of NYC Office Energy Performance



Based on 2011 LL84 Submissions