



Energy Benchmarking

**Wisconsin Green Building Alliance
Advocacy Committee**



What is Benchmarking & Why?

- Measuring a building's energy performance, water efficiency and carbon emissions and comparing it against that of similar buildings
- Well-established practice -National tool and database EPA Portfolio Manager
- Creates awareness of energy use and carbon footprint – first step toward reduction
- Energy savings = \$\$\$
- Adds value to real estate & city image
- Helps meet climate change and energy independence goals



Source: EnergyStar.gov



Which U.S. Cities have benchmarking programs?

U.S. Building Rating and Disclosure Policies



Source: Institute for Market Transformation/BuildingRating.org

nreionline

Includes:

- ❖ New York City, New York
- ❖ Boston, Massachusetts
- ❖ Seattle, Washington
- ❖ San Francisco, California
- ❖ Austin, Texas
- ❖ Washington, D.C.
- ❖ Chicago, Illinois*
- ❖ Minneapolis, MN
- ❖ Philadelphia, Pennsylvania

New York City, NY

- Ordinance enacted in 2011 as part of “Greener, Greater Buildings Plan”
- Annual data submission
- Benchmarks large non-residential and multi-family buildings
 - ≈16,000 buildings benchmarking
 - ≈1/2 square footage of the city



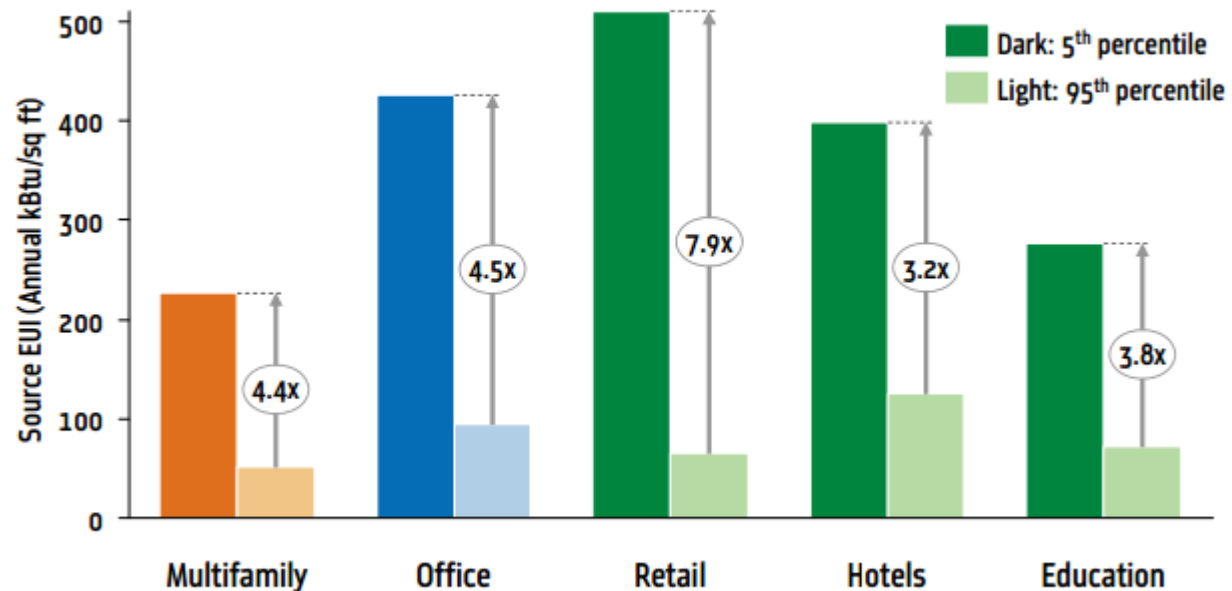
Empire State Building, NYC
Source: National Geographic



New York City, NY

Data Results after First Year of Benchmarking

Figure 10: Variation in Source Energy Use Intensity (EUI) Within Five Sectors



Source: NYC Mayor's Office



Boston, MA



Historic Boston Harbor
Source: National Geographic

- Ordinance enacted in 2010 as part of Boston Climate Action Plan: 25% decrease in GHG emissions by 2020
- Buildings \approx 70% of Boston's GHG emissions
- Utility Data access
- Four year introduction period



Seattle, WA



Seattle Space Needle
Source: National Geographic

- Ordinance enacted in 2008 as part of “20% by 2020” plan
- Educational tool emphasis
- Utility participation
- Automated transfer
- Public buildings >10,000SF; private buildings >20,000SF



San Francisco, CA

- Ordinance enacted in 2010
- 45% of the City's emissions in 2005 were from buildings
- The City plans to cut commercial building energy use 50% by 2050

Source: Wikimedia



- Energy Audit Verification buildings > 10,000SF
- Benchmarking and Disclosure lag



Austin, Texas

- Ordinance enacted in 2011
- Multi-year progression for reporting: 30,000SF currently, > 10,000SF in 2014
- Educational aid and voluntary goals



Austin Skyline
Source: Globe Images

Washington, D.C.



Source: Foley & Lardner

- Ordinance enacted as part of Green Building Act of 2006
- Public disclosure
- 75% of GHG emissions from buildings
- Benchmarking compliance for public >10,000 SF; private > 100,000SF



Chicago, IL

- High building energy consumption
- Resolution introduced



- #1 in U.S. for LEED
- Retrofit Chicago's Commercial Building Initiative
- Federal Better Buildings Challenge



Minneapolis, MN



Source: Wikimedia

- Ordinance passed February 2013
- Commercial buildings = 35% emissions
- Public building >25,000 SF report June 2013
- Private buildings >100,000 SF begin reporting 2014



Milwaukee

- Better Buildings Challenge – USDOE national program
- Goal: reduce energy use 20% by 2020
- MKE commits 5 million Gross SF - public & private
- 2012 Results nationally:
 - 2.5% energy reduction
 - \$58 million in energy savings



Summary of Programs

	Ordinance Name	Current buildings affected	2014 additions
New York City, NY	2011 Greener, Greater Buildings Plan – Local Law 84	Non-residential and Multi-family>50,000 ft ² and city buildings>10,000 ft ²	
Boston, MA	2010 Boston Climate Action Plan	All city buildings	Commercial buildings>50,000 ft ²
Seattle, WA	2008 Ordinance 123226 and 123993	Non-residential and Multi-family>20,000 ft ² and city buildings>10,000 ft ²	
San Francisco, CA	2010 The Existing Commercial Buildings Energy Performance Ordinance	All buildings>10,000 ft ² and public disclosure of rating for buildings>25,000 ft ²	All buildings>10,000 ft ² and public disclosure for all buildings
Austin, TX	2011 The Energy Conservation Audit and Disclosure Ordinance	All buildings>30,000 ft ²	All buildings>10,000 ft ²
Washington, D.C.	2006 The Green Building Act of	Public Buildings>10,000 ft ² and private buildings>50,000 ft ²	
Minneapolis, MN	2013 City Council Ordinance	Public Buildings>25,000 ft ²	Private commercial buildings>100,000 ft ² w/disclosure in 2015
Philadelphia, PA	2012 Bill No. 120428	Non-residential>50,000 ft ² w/disclosure in 2014	



Overlapping Program Characteristics

1. Use of the EPA's Energy Star Portfolio Manager
2. Required participation of designated square footages and types of buildings
3. Annual reporting of Portfolio manager data
4. Fines for lack of compliance
5. Integration of benchmarking into bigger picture of energy savings programs
6. Encouraging active participation of utilities and building owners



Benefits of Benchmarking in Madison, WI

- Financial advantage for buildings owners: property values, occupancy rates and satisfaction increases
- Proven method
- You can't manage what you can't measure"
- Engages private sector in order to attain Madison's 80% carbon reduction goal by 2050
- Fortifies Madison's "green" image to attract businesses and residents
- Encourages conservation
- Complements UW-Madison's sustainability work
- Simple economics
- Improved health, economy and resiliency



Question

- If the City of Madison were to set up a Benchmarking program, how might that best be accomplished?
 - ☐ Ordinance?
 - ☐ Pilot program, demonstration, mayoral challenge?
 - ☐ Federal Better Buildings Challenge?
 - ☐ Other?

