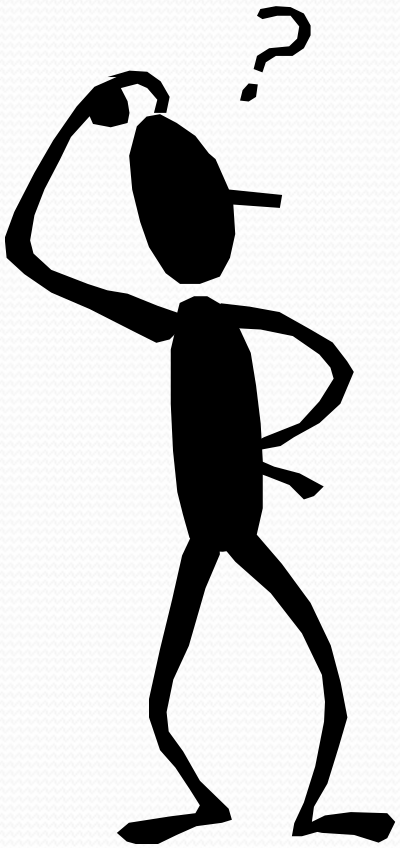
Overview of Energy Benchmarking

September 22nd, 2014

What is Energy Benchmarking?

- Comparing energy use of one building with a database of buildings
- As more buildings submit data, more useful comparisons can be drawn
- Energy use updated monthly will help track performance over time
- Ends mystery of “Is my building’s energy performance good or bad?”



Why Benchmark?

- Market transparency
- Identifies opportunities for reducing energy costs
- Assist municipal long-term energy infrastructure planning
- Help the City of Madison in achieving long-term sustainability goals
- Efficient Buildings = more comfortable = happy tenants

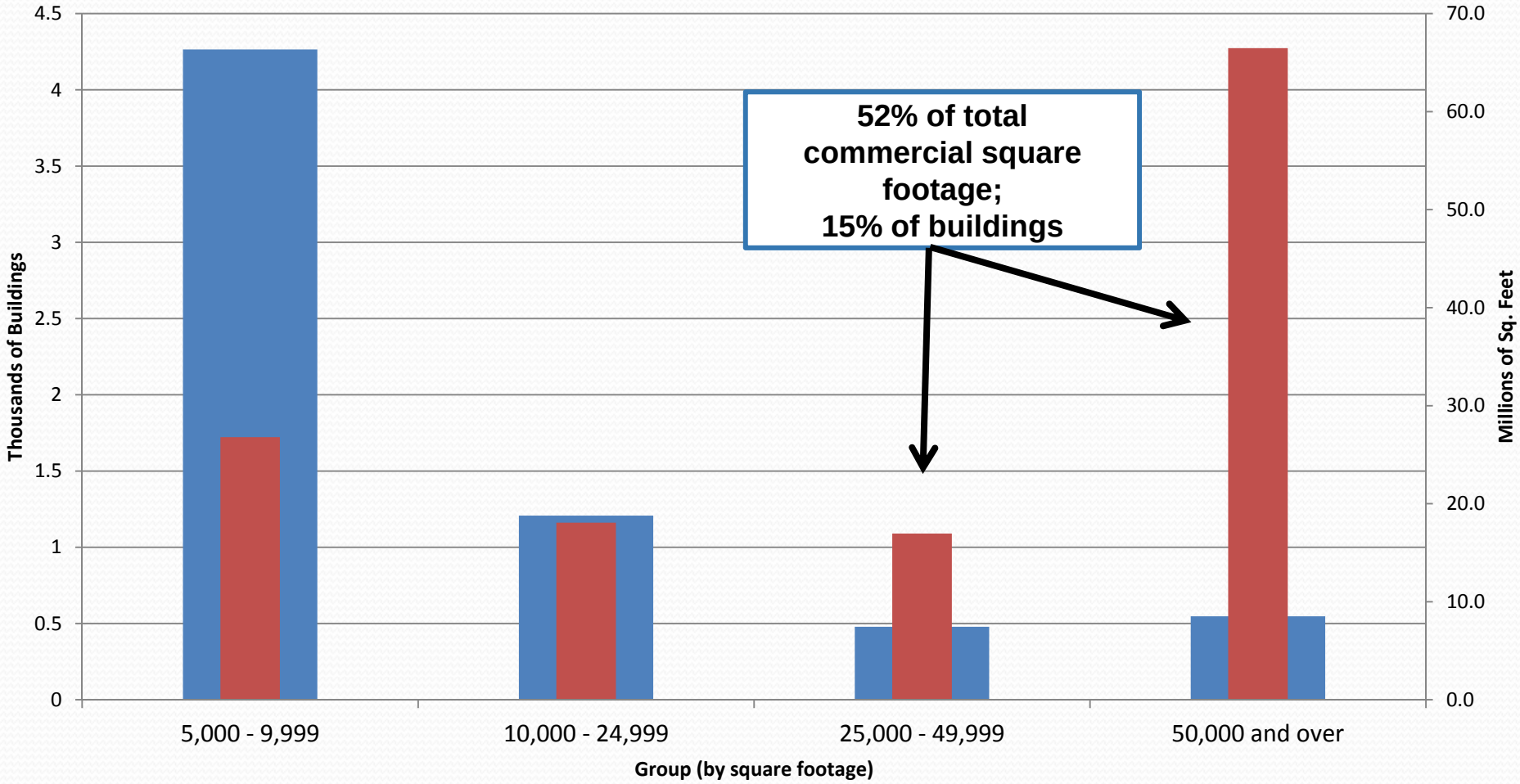
Benchmarking

- **Target Audience**
  - Building Owners, Potential Buyers, Renters and Brokers
- **Goals**
  - Acceleration of energy efficiency
  - Market-Driven energy performance
  - Energy performance and water use measurement
- **Submission**
  - Annual energy use data in Energy Star Portfolio Manager
- **Incrementally Phased Reporting**
  - Grace period

Benchmarking

- Inputting energy bills into Energy Star's Portfolio Manager, along with a few property details, to obtain an Energy Star Score (1-100) that acts as a comparison to similar buildings

City of Madison Buildings



Benchmarking commercial buildings over 25,000 sq ft has potential to save **215 billion Btu's** per year

Why employ a market-based approach for energy efficiency?

Nutrition Facts

Serving Size 1 cup (228g)
Servings per Container 2

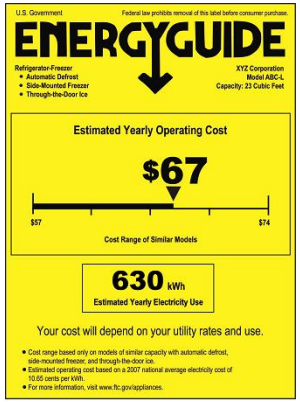
Amount Per Serving

Calories 280	**Calories from Fat** 120
	% Daily Value*
Total Fat 13g	20%
Saturated Fat 5g	25%
Trans Fat 2g	
Cholesterol 2mg	10%
Sodium 660mg	28%
Total Carbohydrate 31g	10%
Dietary Fiber 3g	0%
Sugars 5g	
Protein 5g	
Vitamin A 4% •	Vitamin C 2%
Calcium 15% •	Iron 4%

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4



U.S. Government — Federal law prohibits removal of this label before consumer purchase.

ENERGYGUIDE

Refrigerator-Freezer
- Automatic Defrost
- Side-Mounted Freezer
- Through-the-Door Ice

XYZ Corporation
Model ABC-L
Capacity: 23 Cubic Feet

Estimated Yearly Operating Cost

$67

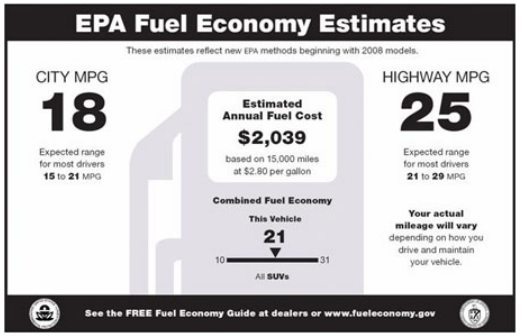
$57 — $74

Cost Range of Similar Models

630 kWh
Estimated Yearly Electricity Use

Your cost will depend on your utility rates and use.

- Cost range based only on models of similar capacity with automatic defrost, side-mounted freezer, and through-the-door ice.
- Estimated operating cost based on a 2007 national average electricity cost of 10.65 cents per kWh.
- For more information, visit www.ftc.gov/appliances.



EPA Fuel Economy Estimates

These estimates reflect new EPA methods beginning with 2008 models.

CITY MPG
18
Expected range for most drivers **15** to **21** MPG

Estimated Annual Fuel Cost
$2,039
based on 15,000 miles at $2.80 per gallon

Combined Fuel Economy
This Vehicle
21
10 — 31
All **SUVs**

HIGHWAY MPG
25
Expected range for most drivers **21** to **29** MPG

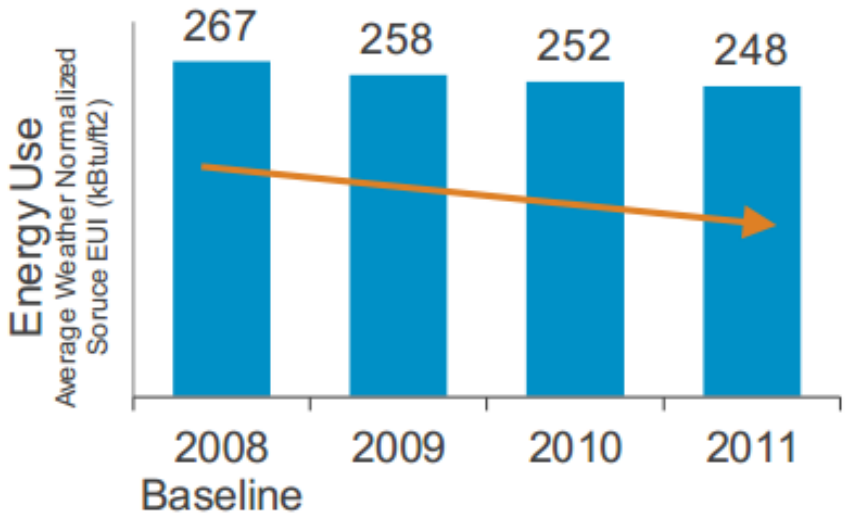
Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

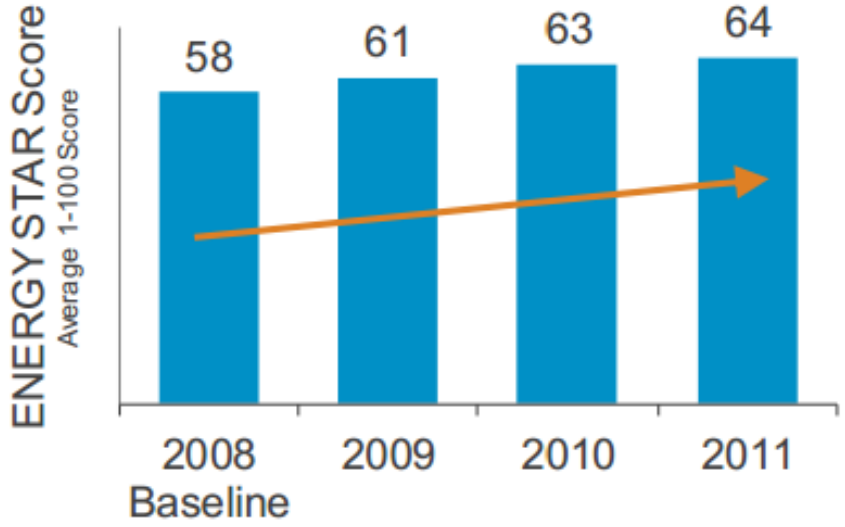
Governments are assessing what drives demand and competition in other industries

- How can markets work more effectively?
- How can demand for energy efficiency be increased?
- How can policy help reduce energy costs for businesses and consumers and create jobs?
- How can greenhouse gas reductions be achieved in existing buildings?

According to a 2012 EPA analysis, buildings that used Portfolio Manager to track energy usage between 2008 and 2011 realized an annual energy savings of 2.4% and a total energy savings of 7%.



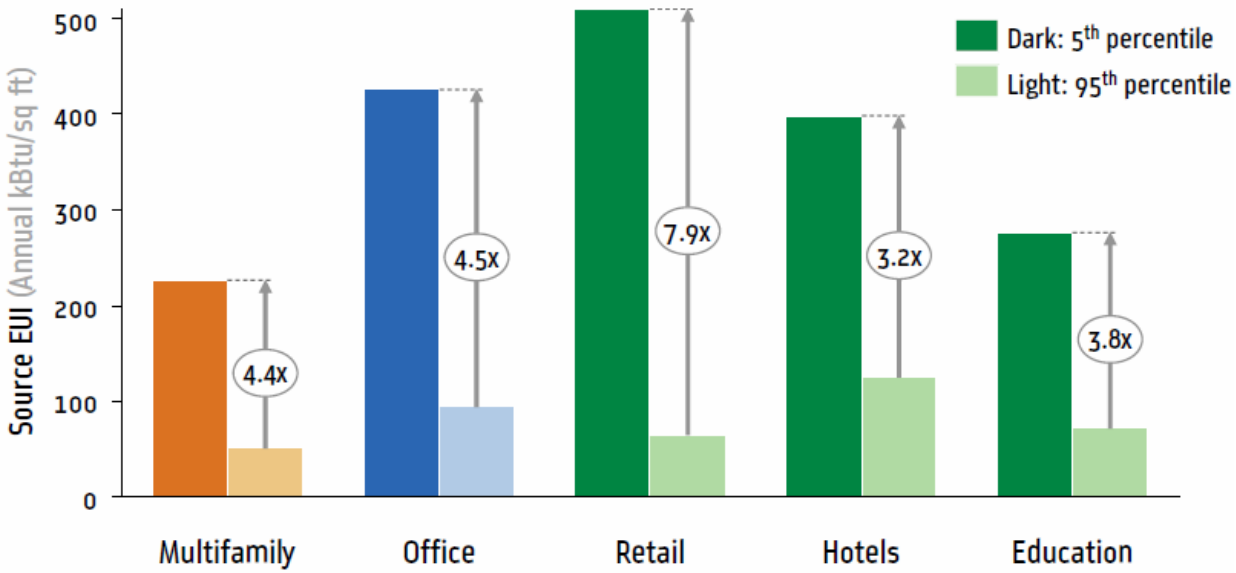
7% Savings



6 point increase

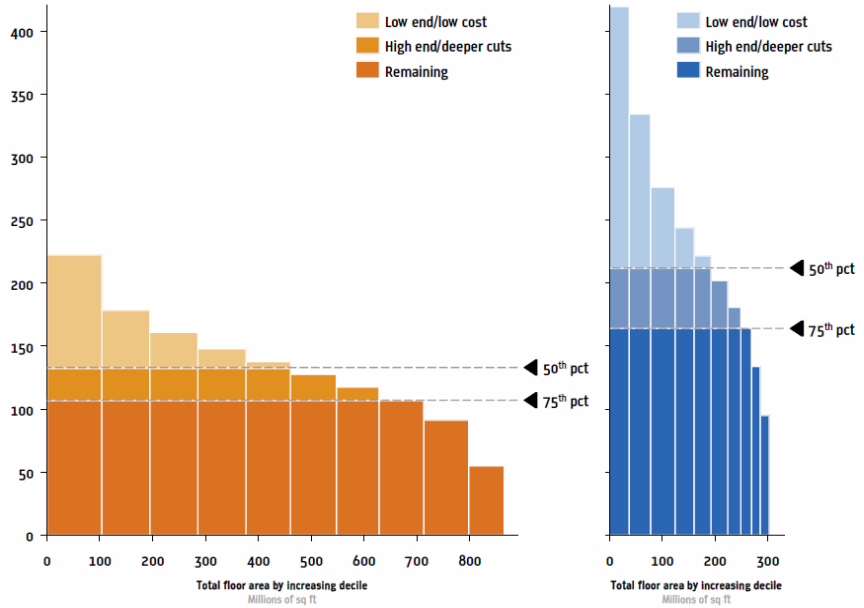
Source: EPA ENERGY STAR Portfolio Manager "Benchmarking and Energy Savings" Data Trends, October 2012.

Early Energy Intensity Findings in New York City



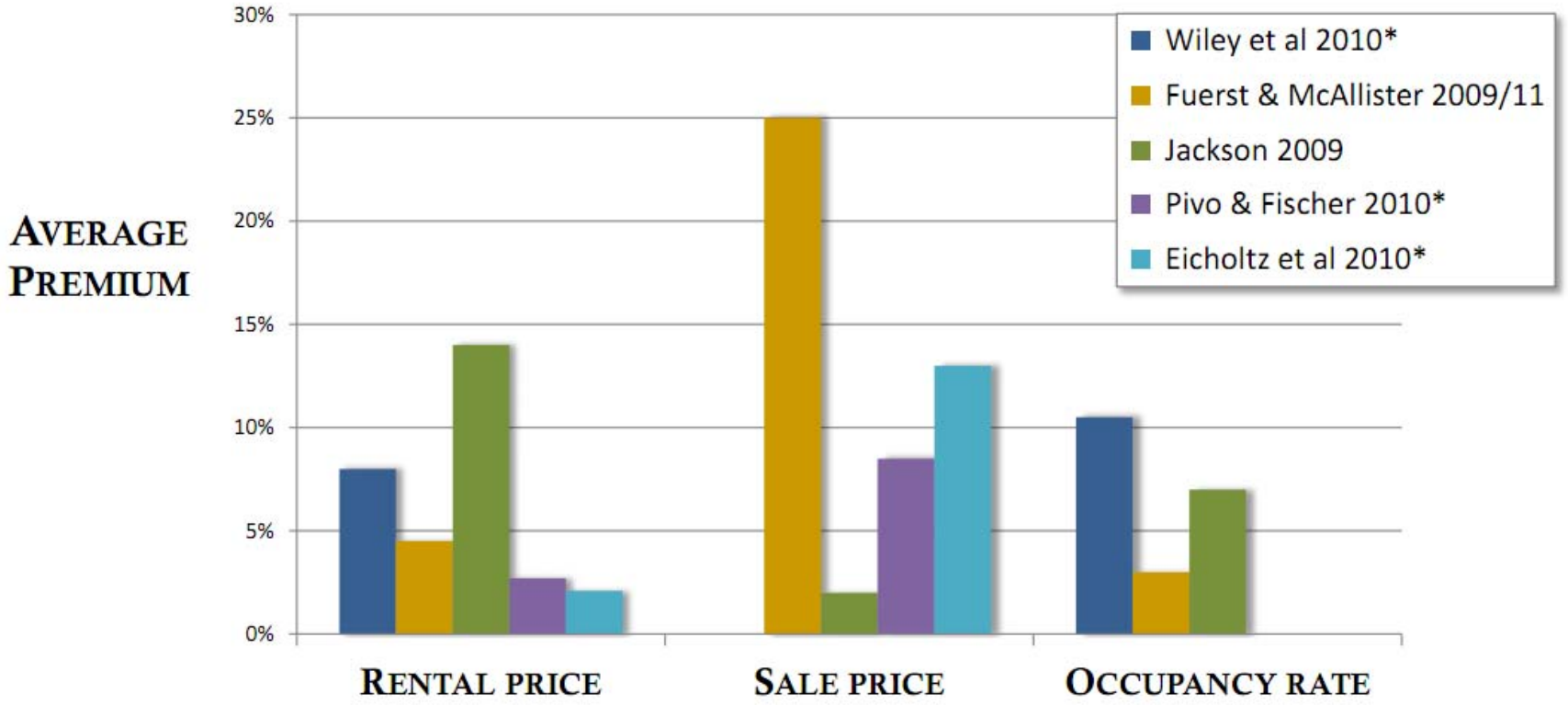
The poorest performing buildings **use 4 to 8 times the energy** of the highest performing buildings.

By improving the poor performers **citywide energy reductions of 18% to 31%** could be achieved.

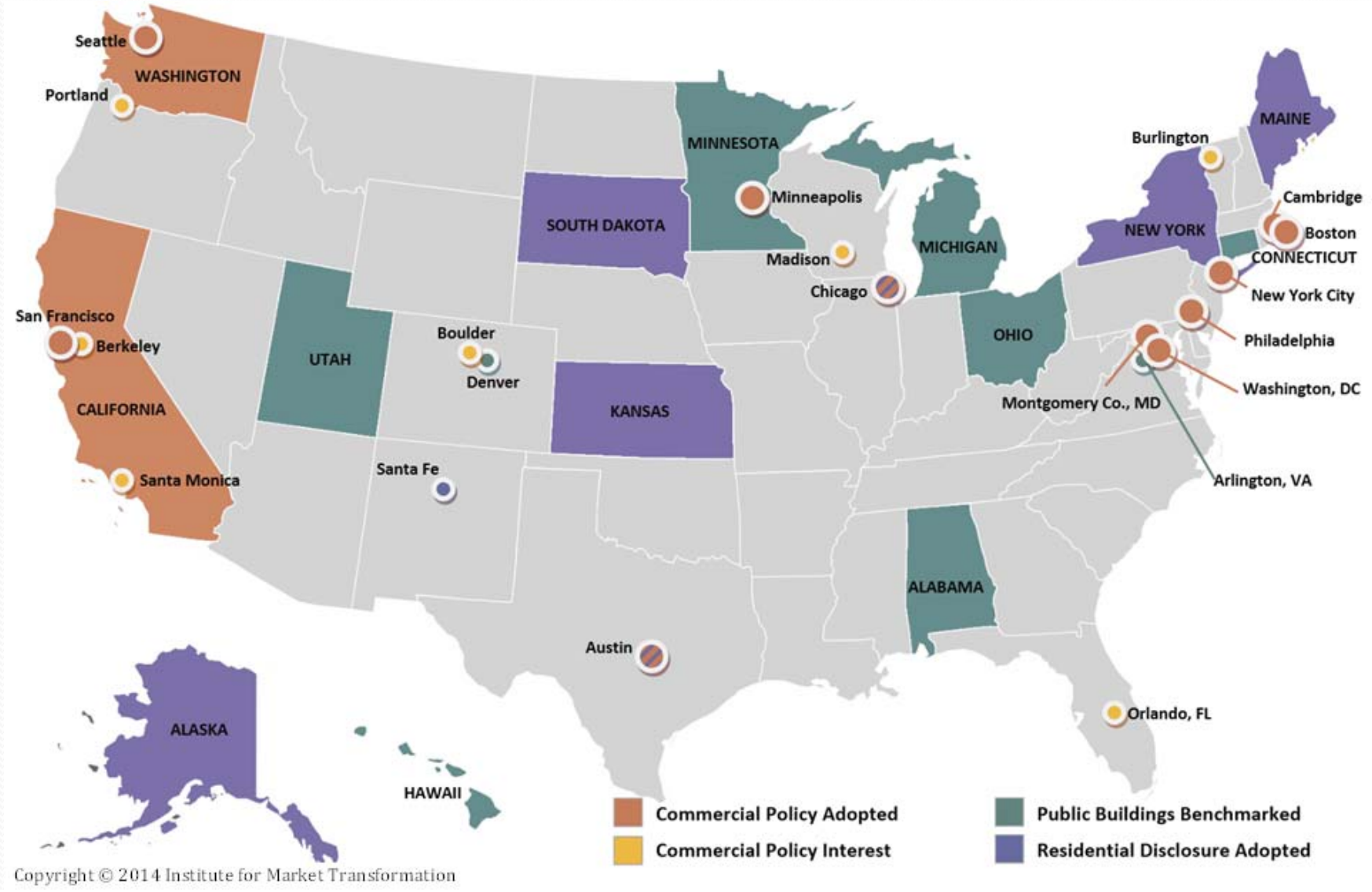


Many studies now correlate Energy Star-certified buildings to rental and occupancy premiums, increasing net operating income for owners

Added Value of ENERGY STAR-Labeled Commercial Buildings in the U.S. Market



Experience in Other Cities



Mandatory State & Local Benchmarking Policies

Jurisdiction	Enacted	Public Buildings	Private Buildings	Disclosure	Utility Requirement
Chicago, IL	Sep 2013	√	√	Annual	
Boston , MA	May 2013	√	√	Annual	
Minneapolis, MN	Feb 2013	√	√	Annual	
Philadelphia, PA	June 2012	√	√	Annual	
Austin, TX	June 2011	√	√	Transactional	
San Francisco, CA	Feb 2011	√	√	Annual	
Seattle, WA	Jan 2010	√	√	Transactional	√
New York, NY	Dec 2009	√	√	Annual	
Washington	May 2009	√	√	Transactional	√
District of Columbia	July 2008	√	√	Annual	
California	Oct 2007	√	√	Transactional	√

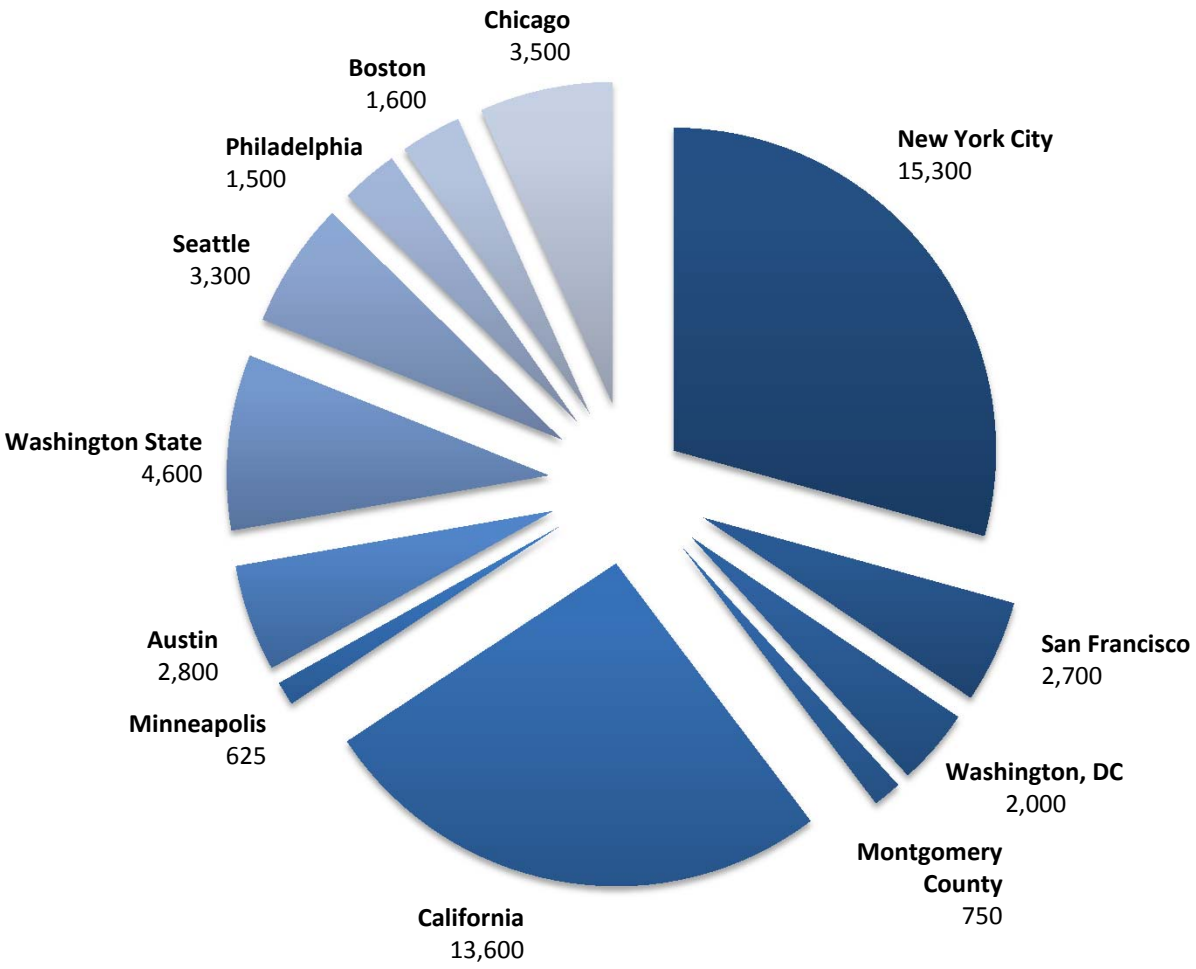
Each year, existing policies will impact more than

51,000 properties

A Madison ordinance would include approx. 1,000 properties*

*Based on available data from 2012 property tax roll. Needs further refinement.

Number of Properties Covered Annually



Source: IMT

Totaling approximately

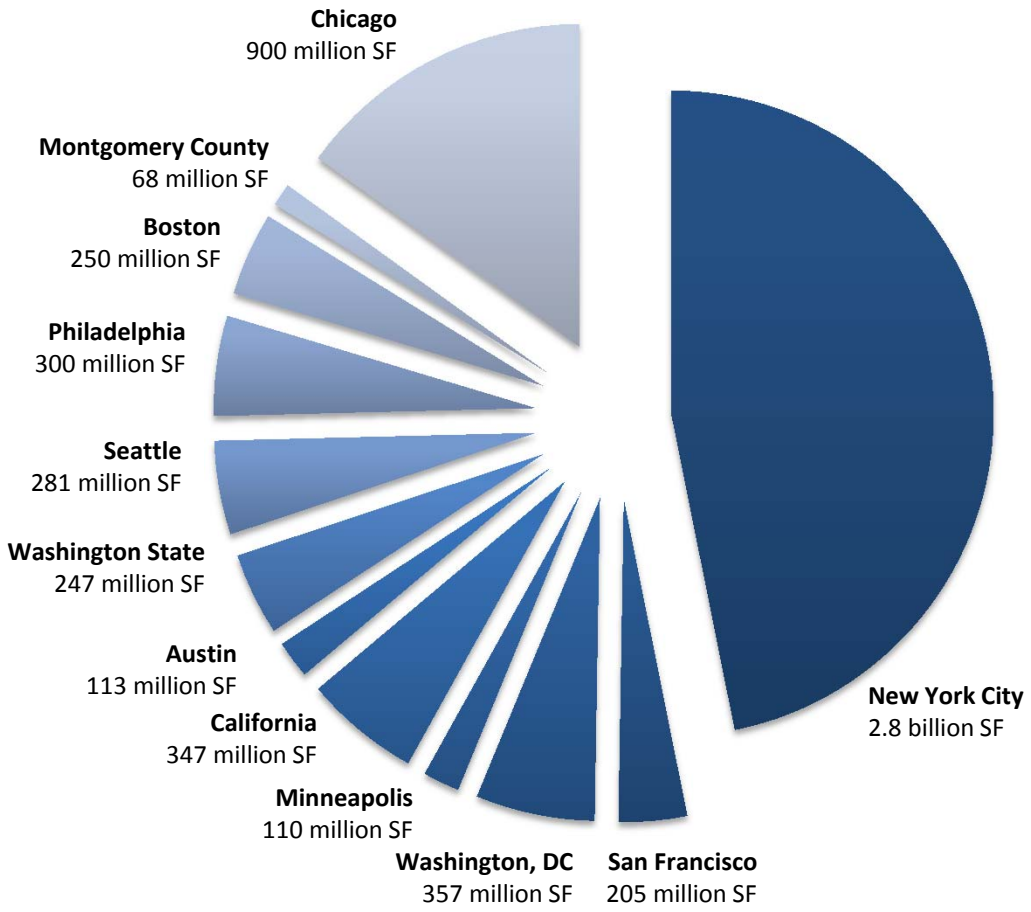
5.8 billion SF

of floor space in major real estate markets

A Madison ordinance would include approx. 84 million SF*

*Based on available data from 2012 property tax roll. Needs further refinement.

BUILDING AREA (IN SQUARE FEET) COVERED ANNUALLY



Source: IMT

Overview of "Placed on File" Ordinance

Energy Benchmarking

- Public and Commercial Buildings ≥ 25,000 SF required to track energy consumption
- Multi-Family Residential Rental Buildings > 35 units
- Energy data entered into Energy Star Portfolio Manager (free, web-based)
- Phased implementation based on building size. Benchmark 1 year energy use. Report by:
  - City owned buildings: **starting May 1, 2014**
  - Buildings ≥ 50,000 SF: **2015**
  - Buildings ≥ 25,000 SF: **2016**
  - Multi-Family Rentals > 35 units: **2017**

Data Verification

- Every 3 years, building energy data to be verified by City of Madison
- Verification improves data quality and levels the playing field
- No cost to building owner for data verification

Reporting and Disclosure

- Buildings report energy use annually, using automated Portfolio Manager tool
- City reports annually to the public on energy efficiency trends
- City makes energy scores public after 2 year grace period; allows time to improve scores.
- Disclosure schedule:
  - City owned buildings: **starting July 30, 2014**
  - Buildings ≥ 50,000 SF: **2016**
  - Buildings ≥ 25,000 SF: **2017**
  - Multifamily residential buildings > 35 units: **2018**

Portfolio Manager Demo

Questions?