



SUSTAIN
ABILITY



DC

You Can't Manage What You Can't Measure: Energy Benchmarking

Marshall Duer-Balkind

Energy Administration
District Department of the Environment

<http://ddoe.dc.gov/energybenchmarking>

DCRA Green Building Symposium
Washington, DC

September 24, 2013



Why Benchmarking?

Sustainable DC



Overall Vision:

In just one generation—20 years—the District of Columbia will be the healthiest, greenest, and most livable city in the United States.

Energy Target:

By 2032, cut citywide energy use by 50% and increase use of renewable power to 50%



Benchmarking:

Tracking a building's energy and water use and using a standard metric to compare the building's performance against past performance and to its peers nationwide.

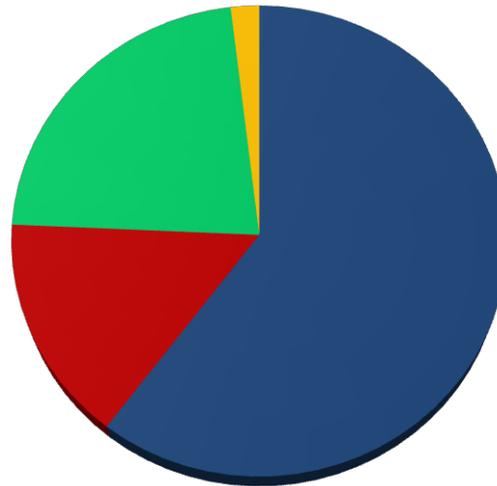
Why Benchmark?

Utilities are the largest non-fixed expense for DC building owners.



Source: BOMA

Buildings are DC's largest source of Greenhouse Gas Emissions:

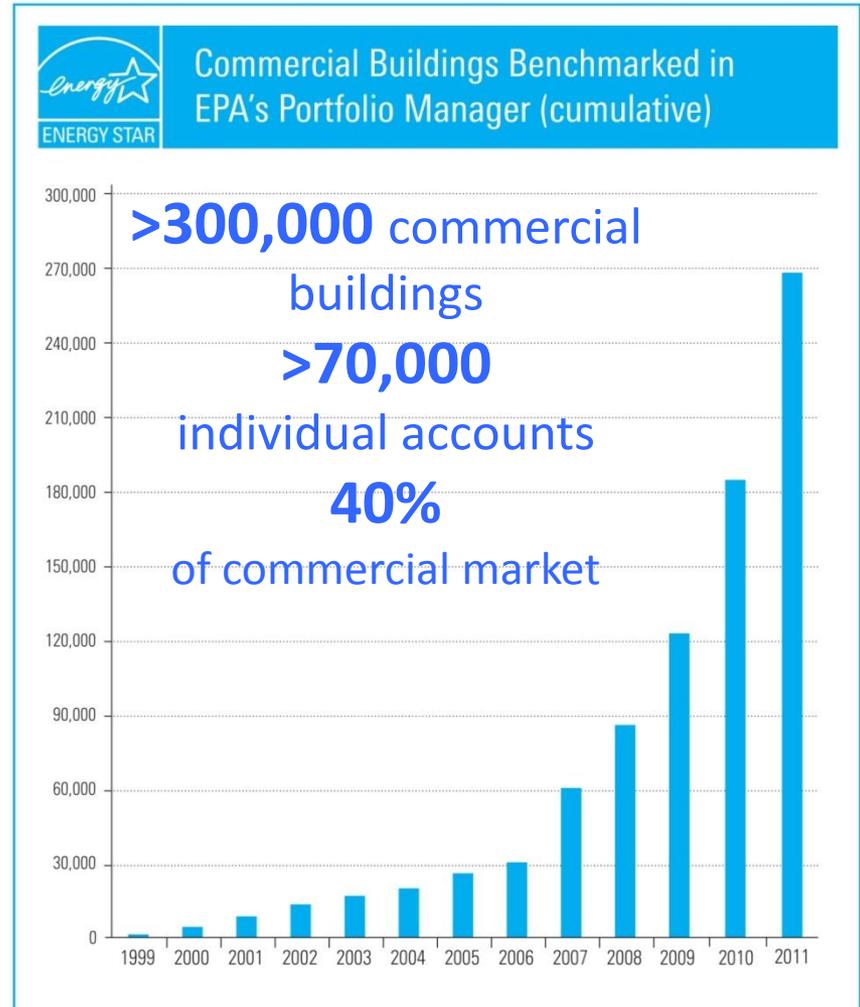


- **Commercial/Government Buildings (60%)**
- **Single Family Buildings (15.5%)**
- **Transportation (22.5%)**
- **Waste (2%)**

Source: DC 2011 GHG Inventory
(2006 Inventory results were similar)

ENERGY STAR® PortfolioManager®

- Operational Rating
- Management tool
- Free, online, user-friendly
- All New Design
- 1-100 score for many buildings
- Certification option
- Strong support from EPA
- Strong brand recognition
- 12-year track record
- Electronic Reporting
- Industry-standard

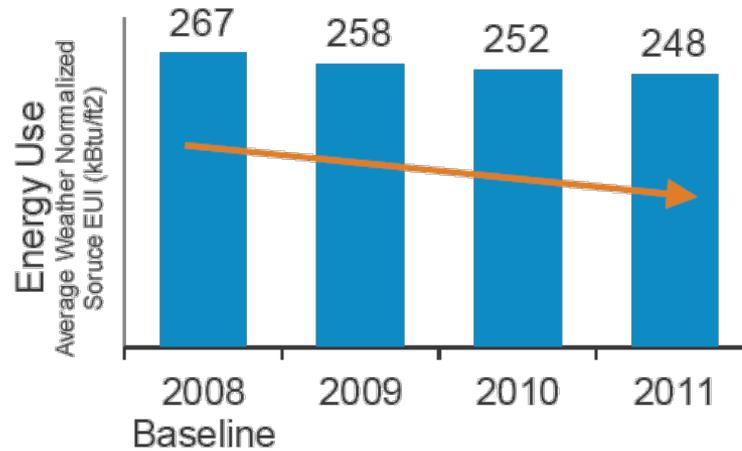


Value of Benchmarking

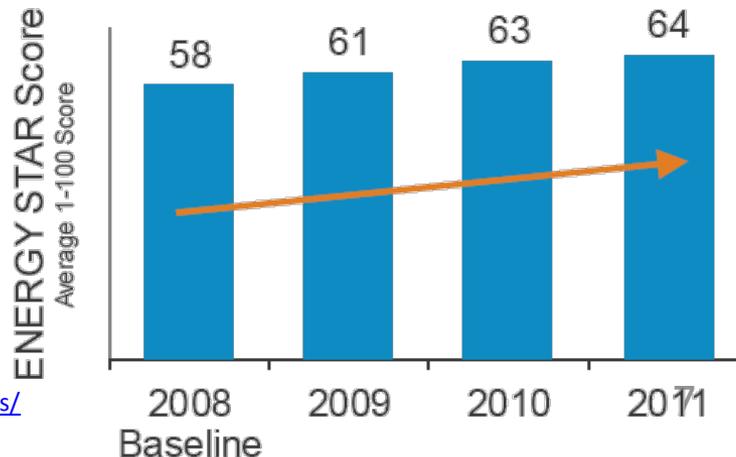


Consistent benchmarking in buildings results in energy savings and improved performance.

Energy Savings in Portfolio Manager



7% Savings



6 point increase

Source: http://www.energystar.gov/ia/business/downloads/datatrends/DataTrends_Savings_20121002.pdf?8d81-8322

The Benchmarking Law



Green Building Act of 2006

Clean and Affordable Energy Act of 2008

(D.C. Official Code § 6-1451.03(c), 20 DCMR 3513)

- **ENERGY STAR Portfolio Manager** benchmarking & public reporting
 - DC Government Buildings >10,000 sq. ft.
 - Private Buildings >50,000 sq. ft, **each April 1**
- **ENERGY STAR Target Finder** modeling for new buildings >50,000 sq. ft.

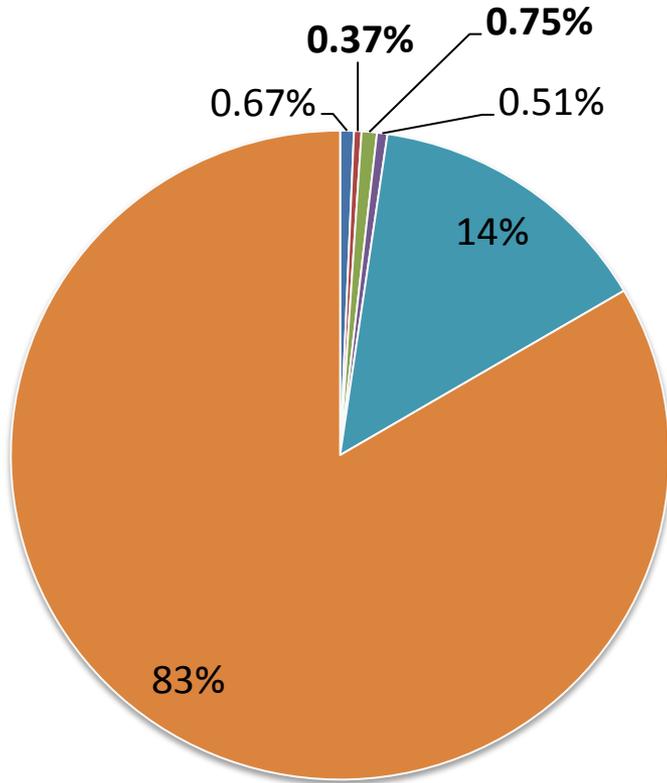


Building Stock: Effective Scale

2000 buildings, 357 million sq. ft. =
1.6% of the Buildings; 49% of the area

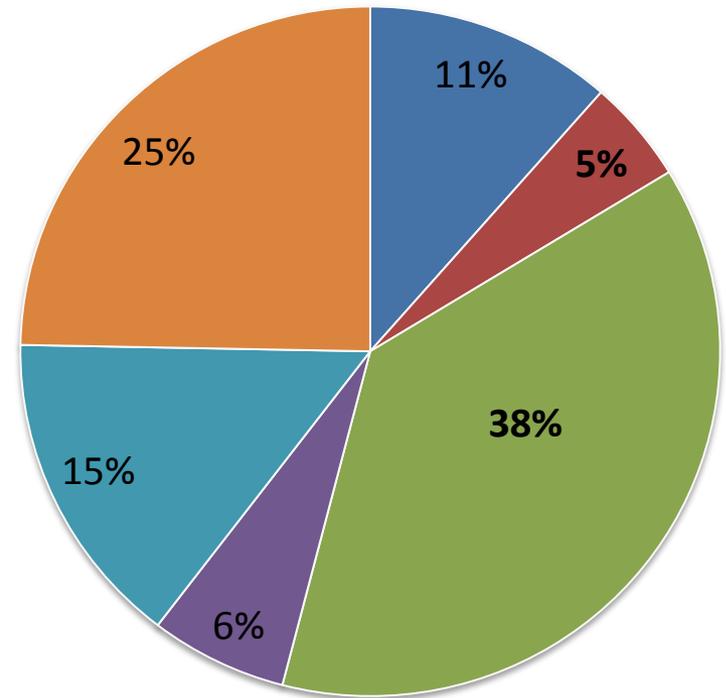


Buildings



128 thousand buildings

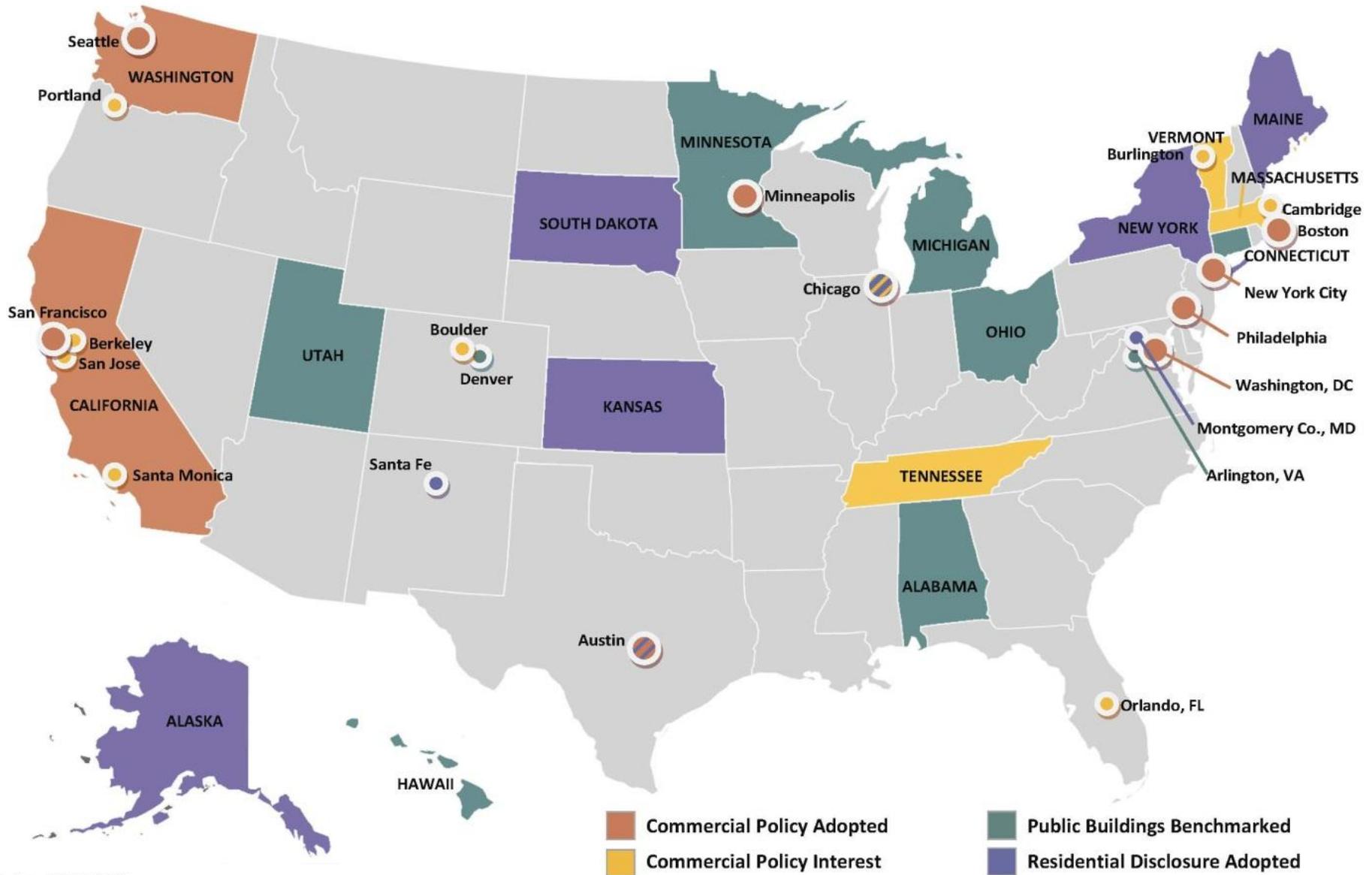
Building Area



730 million gross square feet



U.S. Building Benchmarking and Disclosure Policies





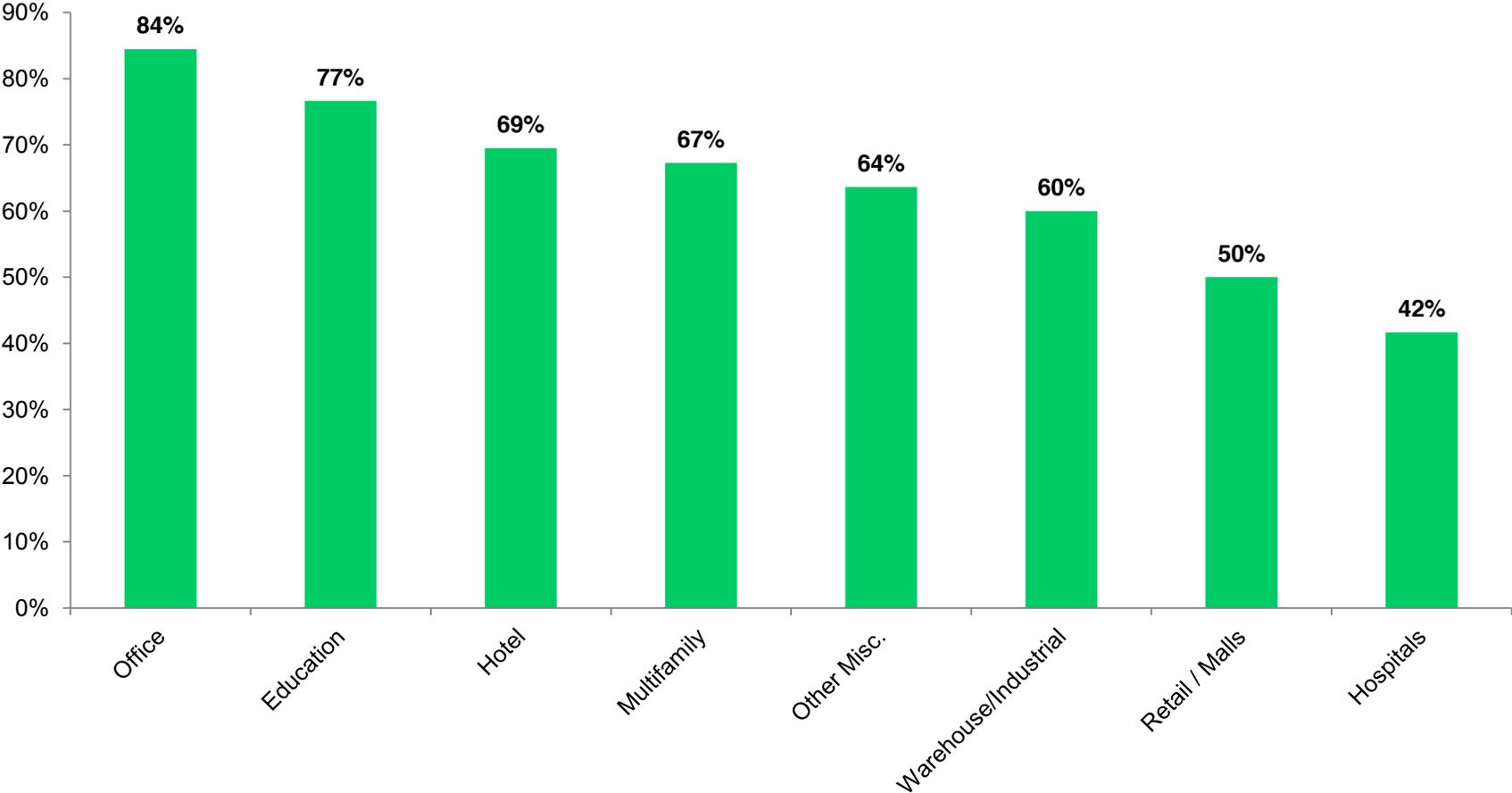
Findings

(as of September 18, 2013)

Compliance Rate: 75%



Compliance Rate by Sector

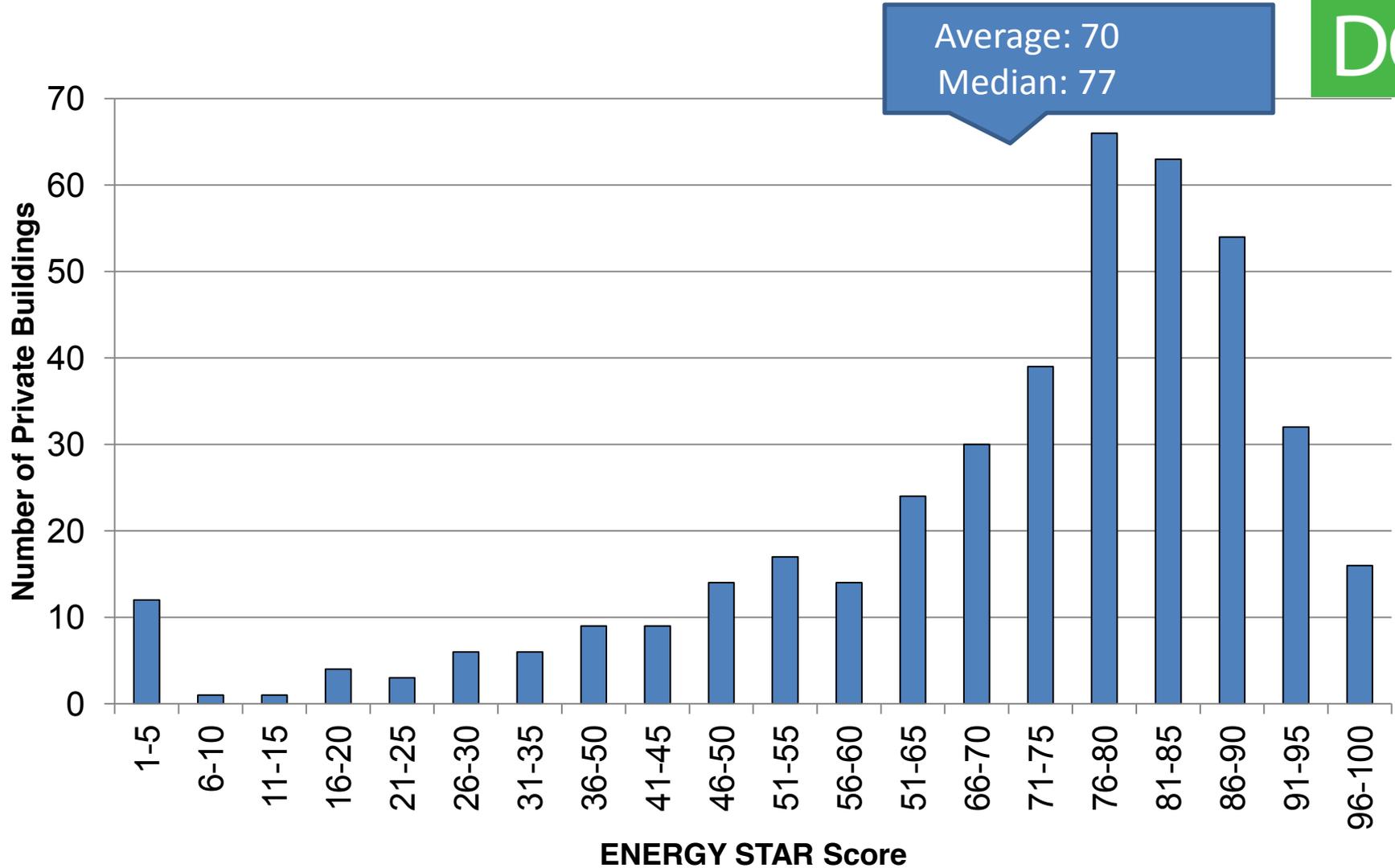


ENERGY STAR Scores (2012)

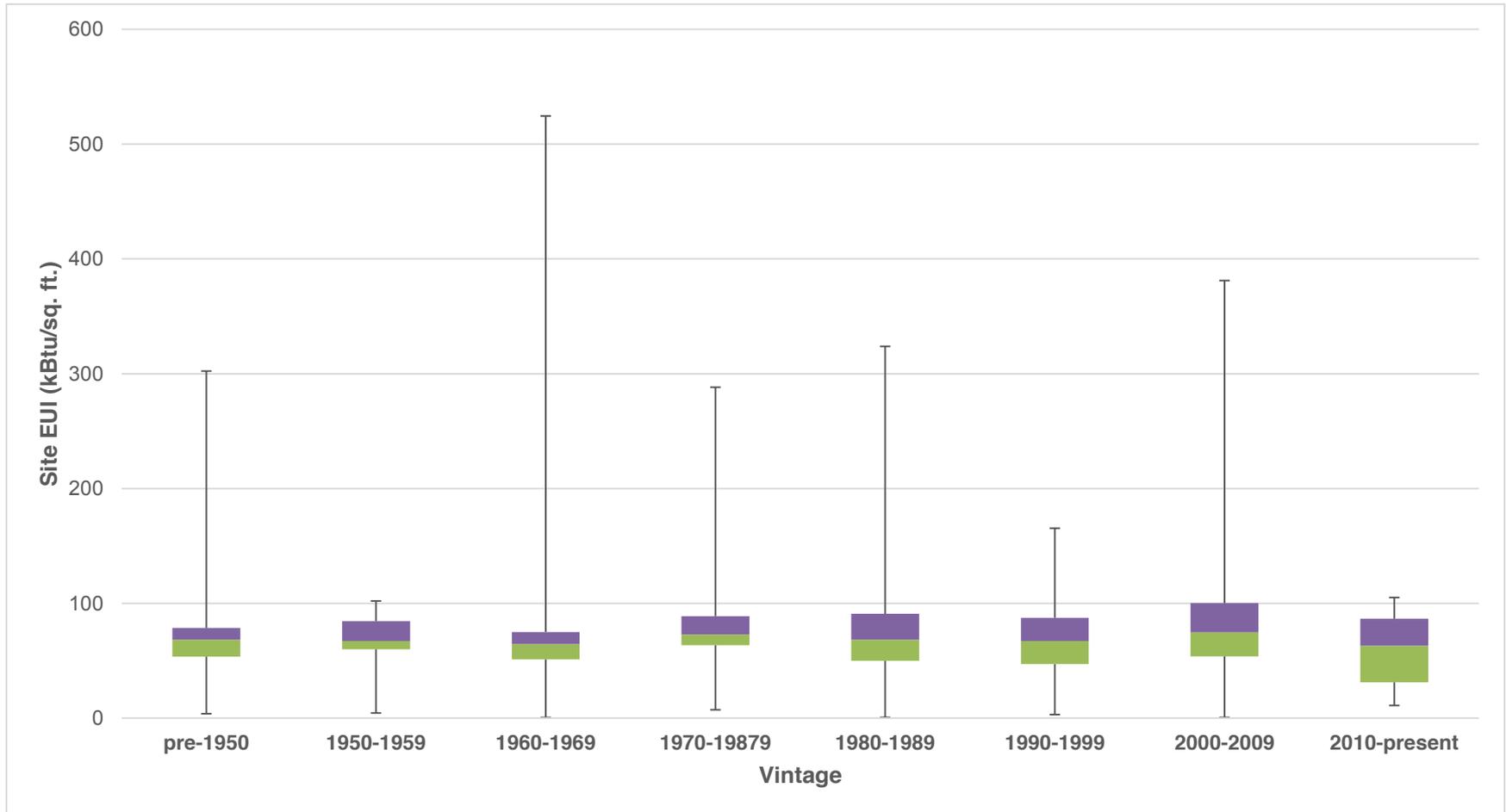
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ABILITY



DC



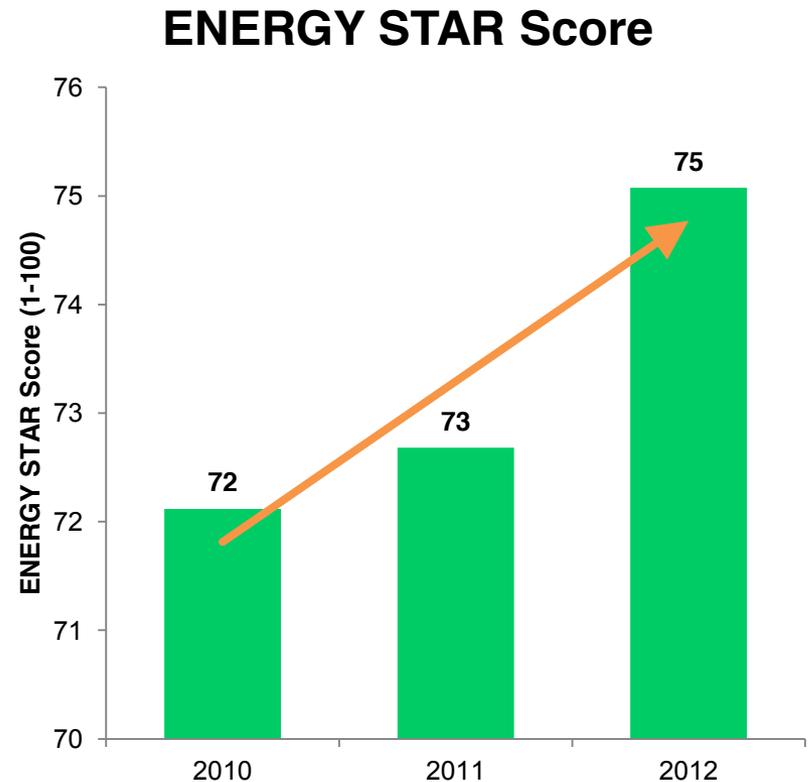
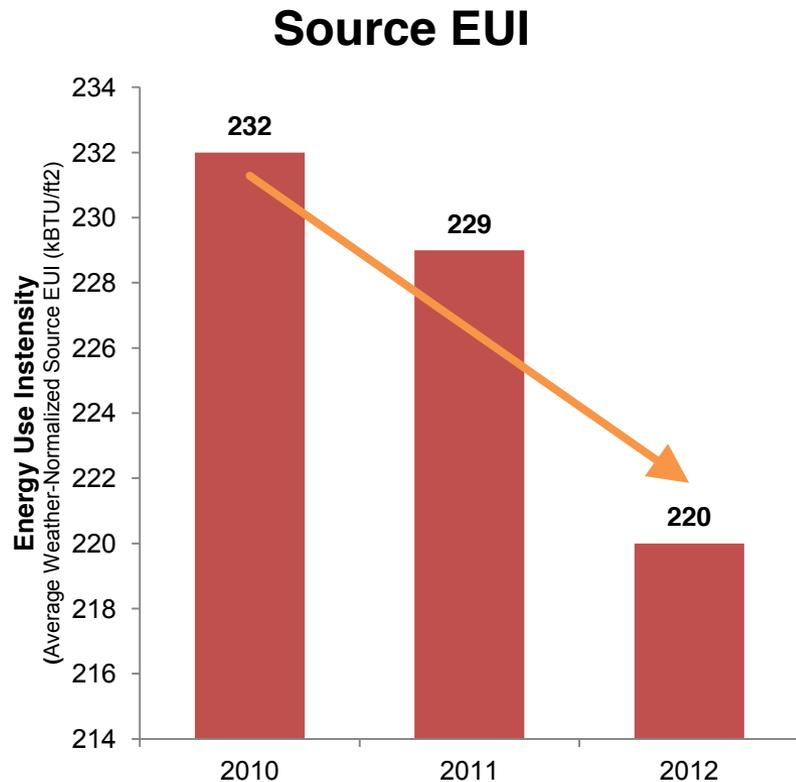
Age Doesn't Matter!



Energy Savings

DGS, 2010-2012: 7% Energy Savings

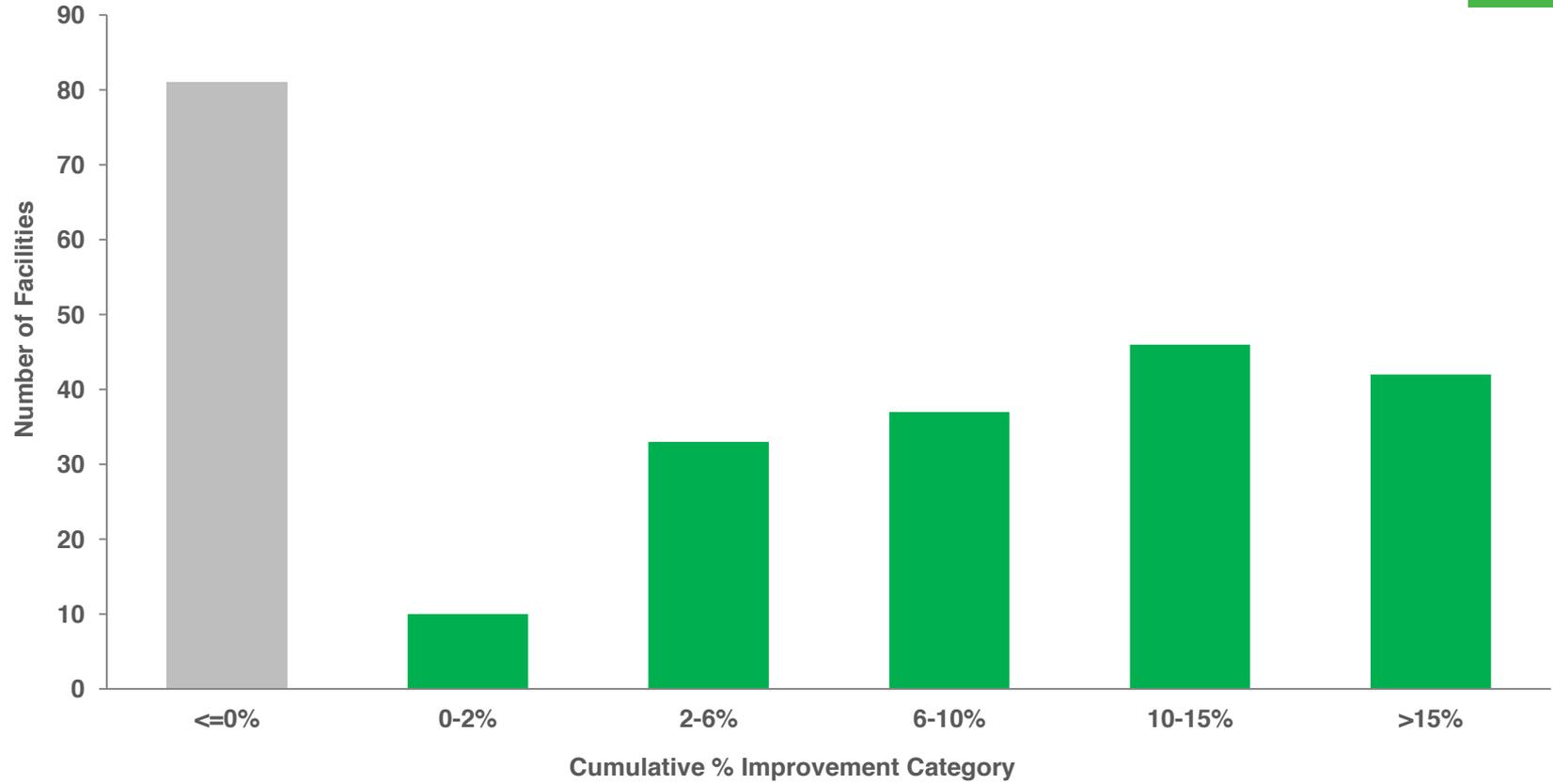
Private Buildings, 2010-2012: 6% Energy Savings!



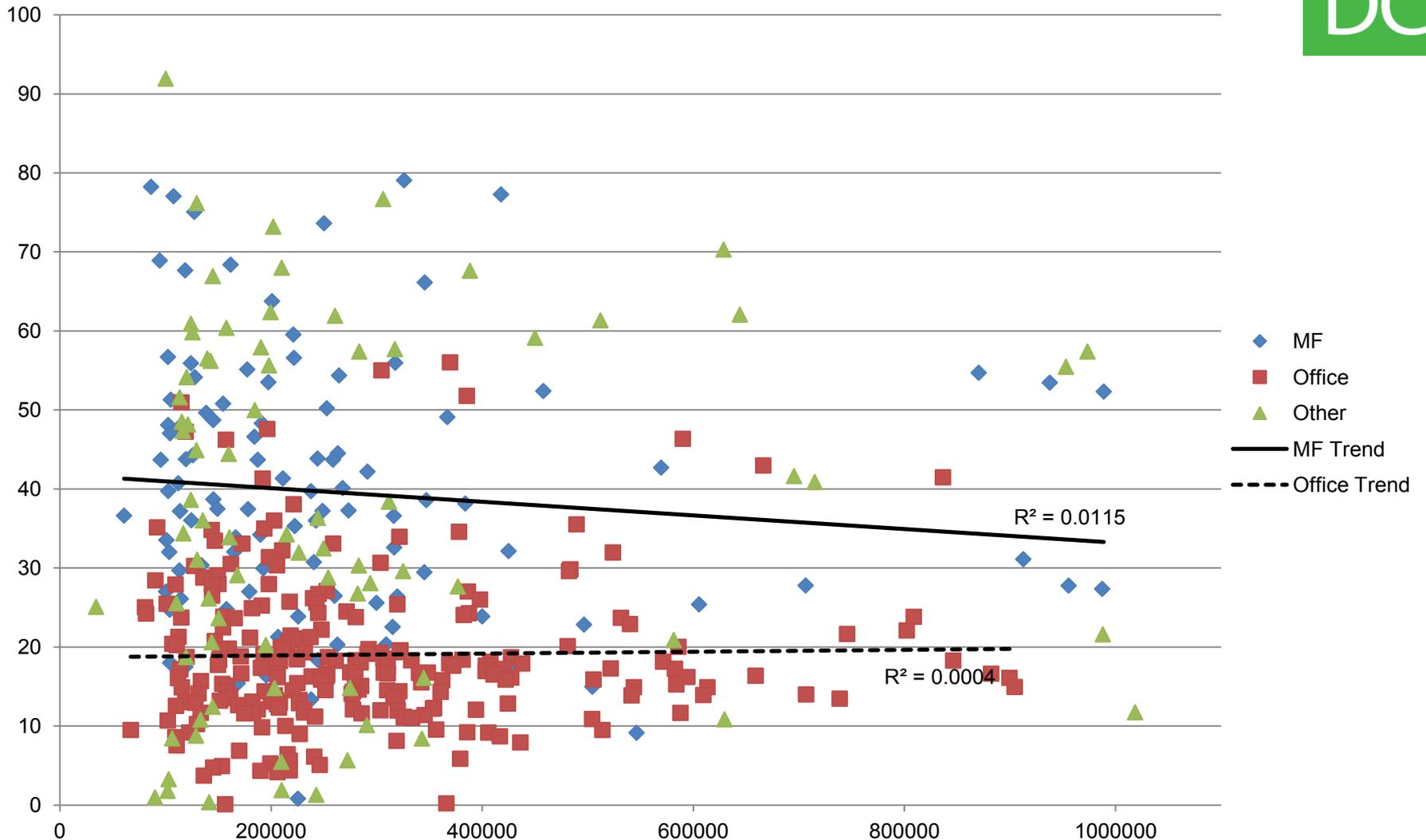
Consistent with EPA Findings in DataTrends series!

Source: Rated buildings with 3 years of data

Improvements



Water Use Intensity



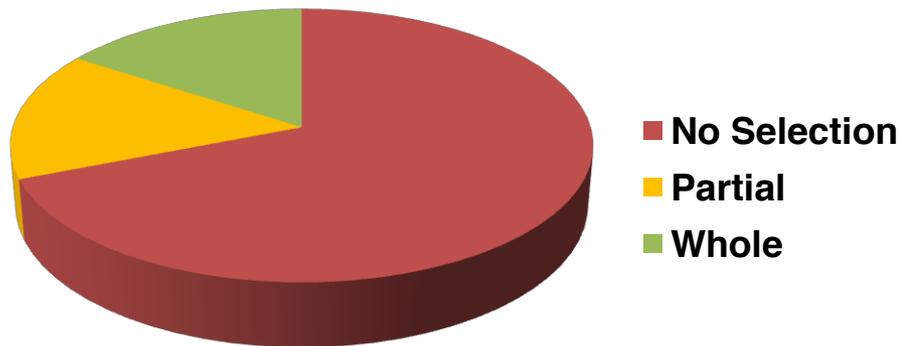


Putting the Data to Work

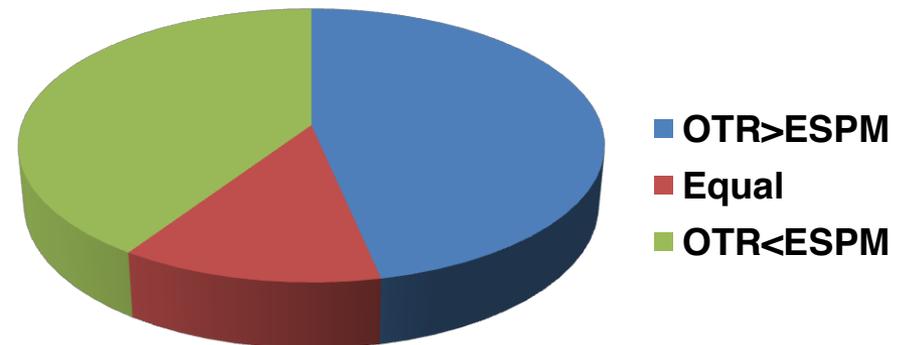
Challenge: Incomplete Data

- 15% of reports lack energy data
- 27% of reports lack water data
- 4% reported uncooperative tenants (26)

Multifamily Meter Setup



Floor Area Discrepancy



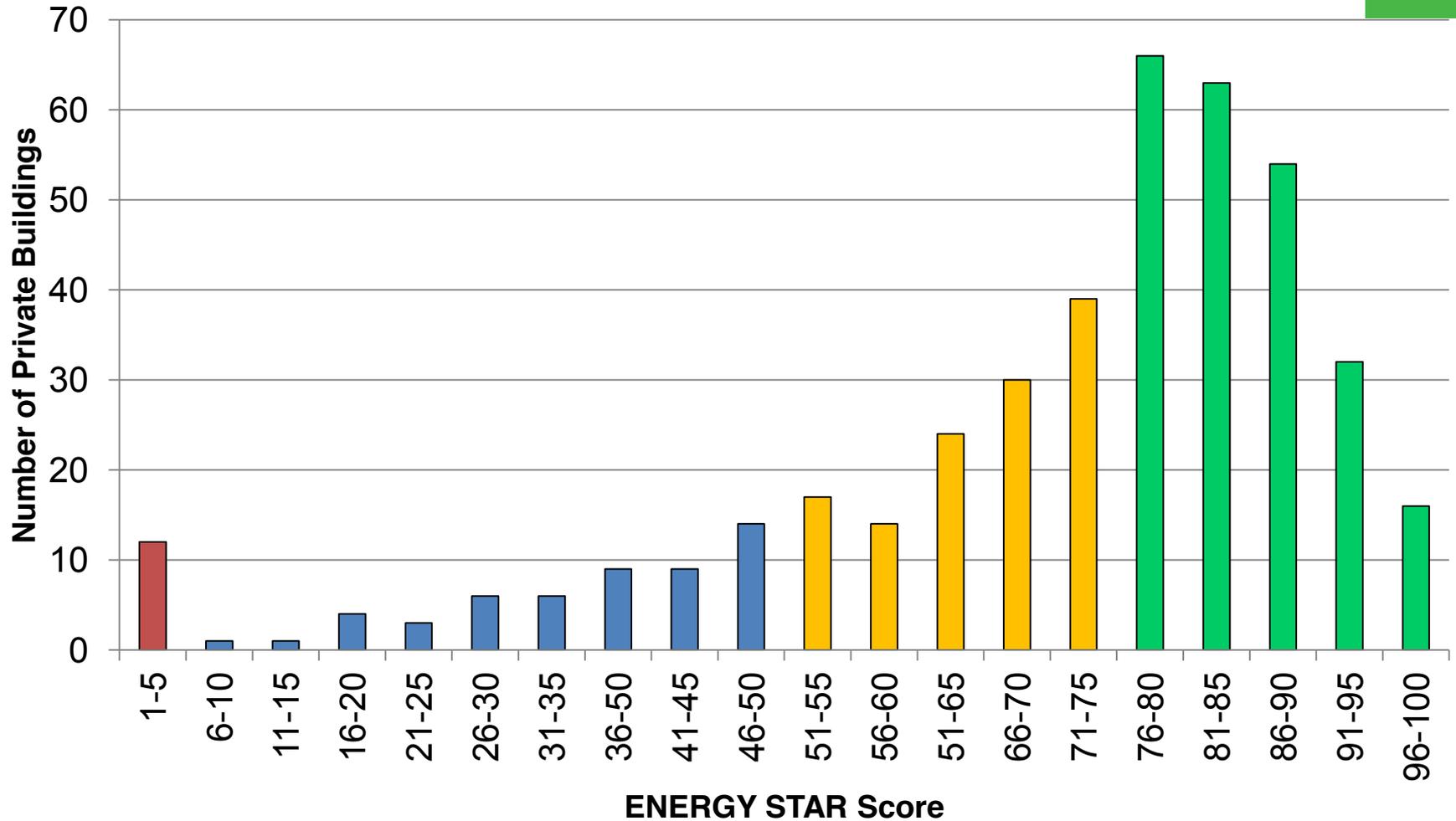
Improving Data Collection

- Problem: Owners can't easily access tenant data
- **Solution: Aggregated whole-building consumption data + direct upload to Portfolio Manager**
- Whole-building electrical data available from Pepco!
- Over 100 buildings used in 2013; **Required in 2014**
- Pepco expects automatic monthly electronic upload to Portfolio Manager by end of 2013
- Improving Education with the Help Center

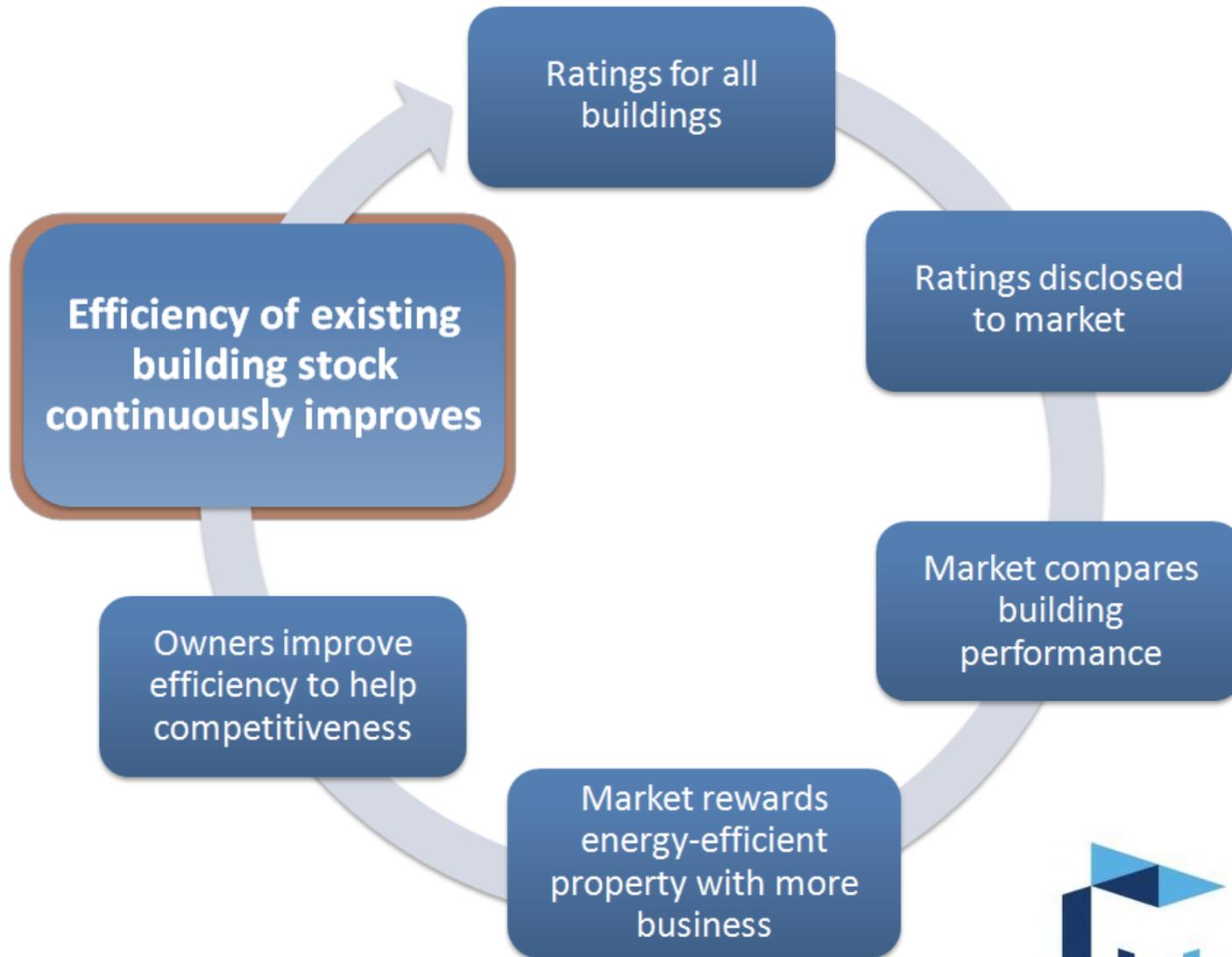


DCSEU

ENERGY STAR Scores (2012)



Public Disclosure



Private Building Disclosure

- Benchmark results will be made public online
 - Beginning with 2nd year of data for a building
- First release: Fall 2013
- Data fields in public database:

Address	Year Built
Space Type(s)	Gross Building Area
Energy Performance Rating (1-100)	Energy Use Intensity (EUI)
Electricity Use	Natural Gas Use
Water Use	Other Fuel Use
Optional Narrative Information	CO ₂ Emissions

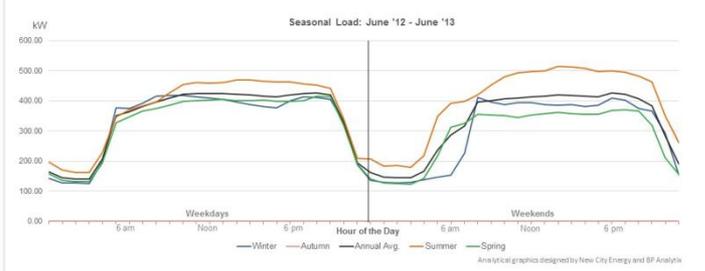
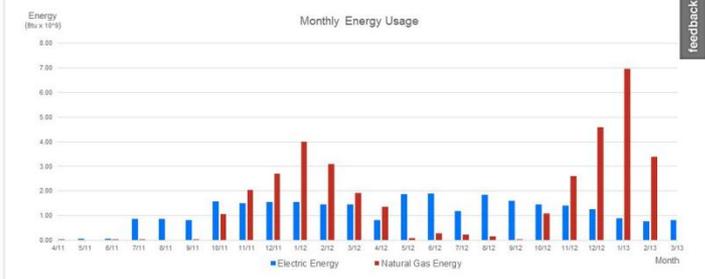
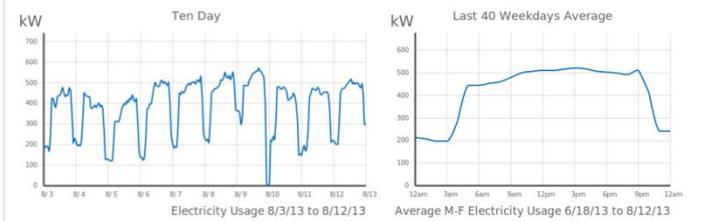
Visibility

- District government benchmarked close to 400 buildings
- BuildSmartDC.com
- ENERGY STAR Score for 125+ buildings
- Interval Data for select facilities
- Private building data to be in BuildSmartDC too

WOODROW WILSON HIGH SCHOOL
3950 CHESAPEAKE ST NW, WASHINGTON DC 20016

Map | Satellite | Street View

OVERVIEW | PROJECTS | ENERGY PROFILE



BUILD SMART DC
Transparency. Efficiency. Cost Savings.

HOME | ABOUT | BUILDINGS | PROJECTS

The District of Columbia is saving money, saving energy and creating one of the greenest cities in the world.

Learn More >

Featured Buildings | Explore the green features of 397 Buildings

Washington, DC



Panel:

Sam Brooks, DGS

Hanna Grene, DC SEU

Michelle Good, Akridge

Q & A

DCSEU

DISTRICT OF COLUMBIA SUSTAINABLE ENERGY UTILITY

Hanna Grene
Public Relations

Benchmarking Help Center

- A no-cost resource to guide building owners and property managers through the benchmarking process
- 11 hands-on trainings in FY 2013
- Assisted with the benchmarking of 70% of buildings reported
- Available to assist the additional 650 buildings required to report in 2014

Benchmarking@dcseu.com, 202-525-7036



Using the Data



- Inventory utility information
- Review building operations
- Interpret the data
- Take actionable steps to save

Added Value



- Improves customer engagement
- Increases shareholder buy in
- Speaking the same language

Drive Savings



- Gain a better understanding of the landscape of energy use
- Proactively engage customers with underperforming buildings
- Identify sector-specific needs

DCRA Green Building Symposium

Benchmarking

September 24, 2013

Michele Good

mgood@akridge.com



Akridge

Agenda



- 1. Background**
- 2. Internal Benchmarking**
- 3. DC Benchmarking**

1. Akridge



1. Development
2. Property Management
3. Leasing
4. Acquisitions
5. Finance and Asset Management
6. Construction Management



1200 New York Avenue, NW



601 Thirteenth Street, NW



700 Sixth Street, NW



7550 Wisconsin Avenue



1200 Seventeenth Street, NW

1200 New York Avenue, NW



601 Thirteenth Street, NW



700 Sixth Street, NW



LEED® for Existing Buildings:
Operations & Maintenance™ 2,330,000 SF
9 Buildings

LEED® for
Core & Shell™ 764,000 SF
5 Buildings

LEED® for
New Construction™ 473,000 SF
3 Buildings

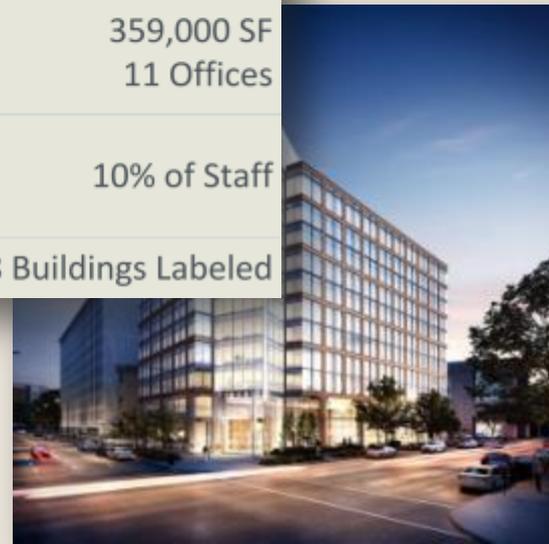
LEED® for
Commercial Interiors™ 359,000 SF
11 Offices

LEED® Professional
Credentials 10% of Staff

ENERGY STAR 18 Buildings Labeled



7550 Wisconsin Avenue



1200 Seventeenth Street, NW

1. Akridge



CONSERVATION



GREEN
BUILDING



WASTE
MANAGEMENT



EDUCATION



PURCHASING



2. Internal Benchmarking



Why Benchmark?

1. Identify strong and weak performers

- Allocate funds where it is needed most
- Replicate best practices
- Set expectations appropriately regarding project scale
- Assist with budgeting

2. Communicate with ownership

- Justify budget requests
- Demonstrate value-add

2. Internal Benchmarking



What does Akridge benchmark internally?

1. Energy Consumption
2. Scope 2 Carbon Footprint
3. Energy Star
4. Water Consumption
5. LEED Certifications
6. Building Green Teams
7. Recycling Diversion Rates
8. Recycling Stats
9. Etc.

2. Internal Benchmarking



What does Akridge benchmark internally?

1. **Energy Consumption** – *in 2012, we reduced energy consumption by more than 4%*
2. **Scope 2 Carbon Footprint**
3. **Energy Star** – *in 2012, our average score was a 79*
4. **Water Consumption**
5. **LEED Certifications** – *1.7M SF in the current portfolio is LEED NC/CS/EB certified*
6. **Building Green Teams** – *3 properties have a building green team*
7. **Recycling Diversion Rates**
8. **Ecycling Stats** – *YTD, Akridge properties have e-cycled 40,000 pounds!*
9. **Etc.**

2. Internal Benchmarking



Spring 2013 TOY - Sustainability	
Score	
AKRIDGE PORTFOLIO	2.98
Akridge Property 1	4.46
Akridge Property 2	4.36
Akridge Property 3	4.15
Akridge Property 4	3.97
Akridge Property 5	3.97
Akridge Property 6	3.44
Akridge Property 7	3.20
Akridge Property 8	3.00
Akridge Property 9	2.92
Akridge Property 10	2.90
Akridge Property 11	2.88
Akridge Property 12	2.82
Akridge Property 13	2.56
Akridge Property 14	2.50
Akridge Property 15	2.17
Akridge Property 16	2.08
Akridge Property 17	2.00
Akridge Property 18	1.94
Akridge Property 19	1.40
Akridge Property 20	
Akridge Property 21	
Akridge Property 22	
Akridge Property 23	
Akridge Property 24	
Akridge Property 25	

2. Internal Benchmarking



2012

Saved more than **2,000,000 kWh**

Reduced consumption by more than **4%**

- **Benchmarking**
- ✓ **Real-time energy monitoring**
- ✓ **Level I and II energy audits**
- ✓ **Retro-commissioning**
- ✓ **Upgrading building systems and elevator motors**
- ✓ **Installing VFDs and occupancy sensors**
- ✓ **Retrofitting lights**
- ✓ **Adjusting operating hours**

3. DC Benchmarking



Background...

1. Benchmarking in ENERGY STAR since **2007**
2. **90%** of Akridge-managed properties have the ENERGY STAR label
3. Average rating of **79**

3. DC Benchmarking



Decisions...

1. Centralized v. Decentralized
10 Property Managers, 3 PMAs, 1 Sustainability Director
2. Entire Portfolio v. Properties >100,000 SF
30 properties v. 20 properties v. 11 properties
3. Copies of Bills v. Utility Release Form v. Aggregate Request
Aggregate: 4 properties (25 tenant utility accounts)
Release Form: 7 properties (29 tenant utility accounts)
Bills: 0 properties

3. DC Benchmarking



Results...

1. Pepco

Received and input data for 52 out of 54 tenants

2. Washington Gas

Received and input data for 5 out of 6 tenants

3. DC Water

N/A – all on house accounts already tracked in ENERGY STAR Portfolio Manager

3. DC Benchmarking



Results...

	ENERGY STAR Score	
	Pre Benchmarking	Post Benchmarking
DC Property 1	83	85
DC Property 2	76	79
DC Property 3	75	79
DC Property 4	82	84
DC Property 5	84	85
DC Property 6	52	52
DC Property 7	80	80
DC Property 8	81	81
DC Property 9	76	76
DC Property 10	75	55
DC Property 11	79	67

3. DC Benchmarking



Benefits...

1. Opportunity to discuss annual targets for **energy conservation**
2. Opportunity to **refresh our knowledge** about ENERGY STAR and implement best practices
3. Opportunity to **internally audit** our ENERGY STAR profiles

3. DC Benchmarking



Benefits continued...

4. Opportunity to **add value** by sharing energy conservation techniques with our tenants who manage their own utility accounts

- Retail tenant consumes 4x kWh/SF
- Struggling retail tenant has opportunity to save
- Low scoring property embarked on major upgrades
 - Receiving DC SEU rebates
 - Reducing monthly bills
 - Being recognized by Energy Star

Thank You!

Michele Good
mgood@akridge.com



Akridge