



EPA's ENERGY STAR Resources: Portfolio Manager and More

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US EPA

ENERGY STAR Buildings



The biggest little label in energy efficiency



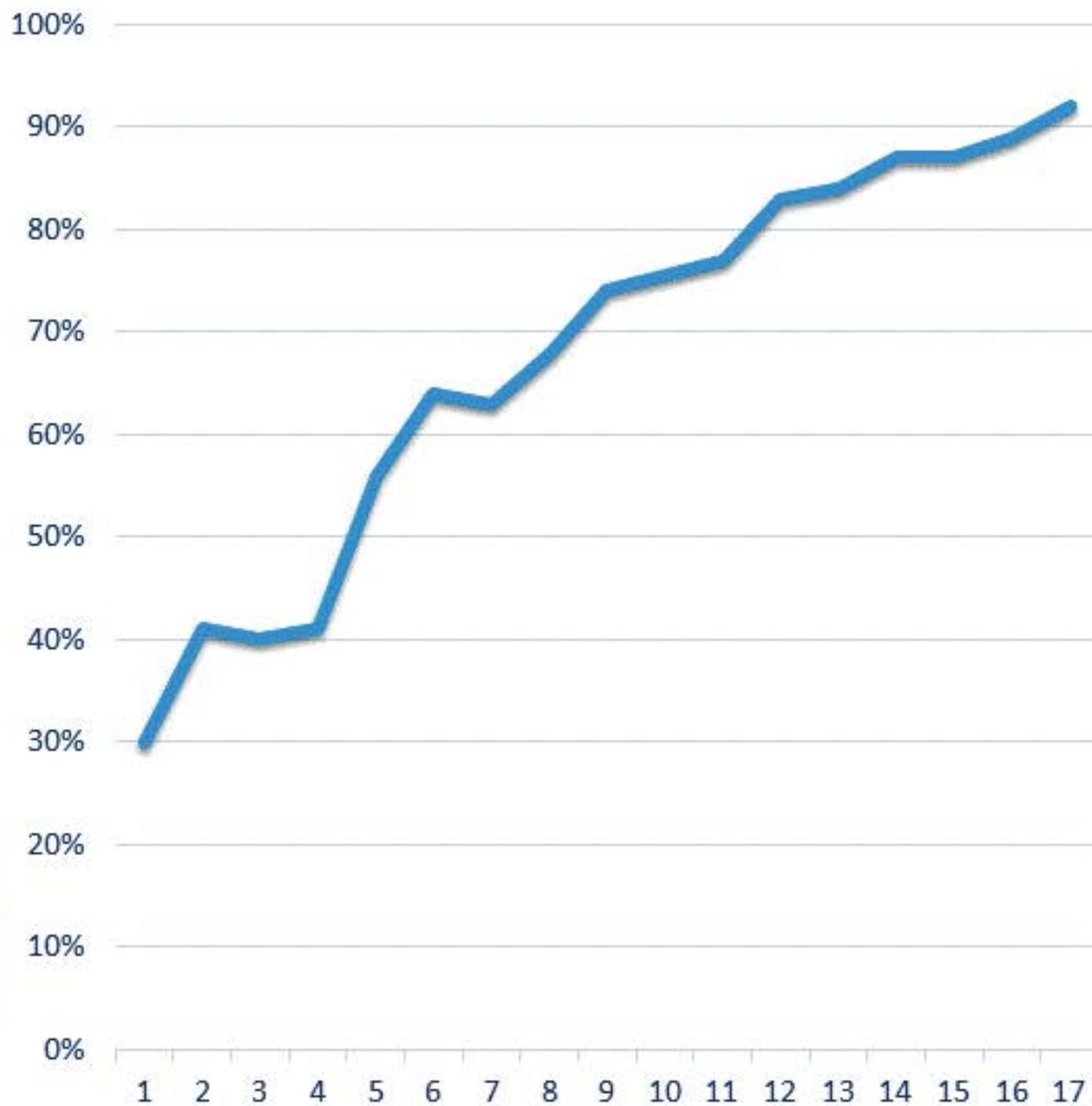
5.5 billion
products

30,000
buildings

130
industrial plants

1.7 million
homes

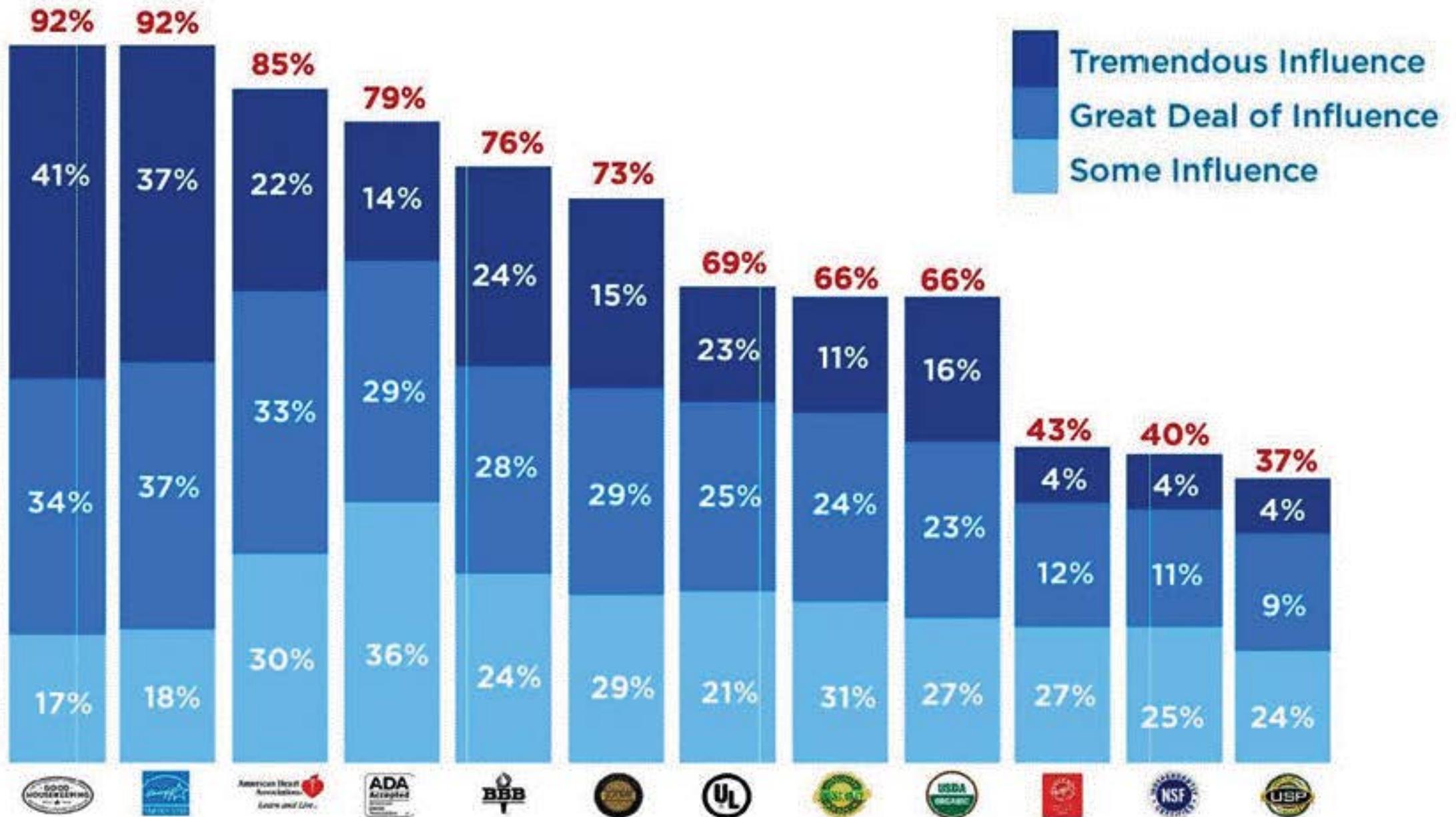




Recognized by more than **90%** of Americans



Brand trust among consumers



Source: Fairfield Research, July 2011 Survey of Good Housekeeping readers



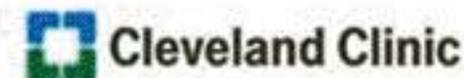
ENERGY STAR for Buildings

- Voluntary energy management program offered by U.S. Environmental Protection Agency
- Provides key performance metrics to help owners and operators understand the energy and water performance of their buildings
- Promotes a holistic approach – operations/maintenance improvements, behavioral change, and technology upgrades/retrofits.
- All tools, resources, and recognition available cost-free

**You can't manage what you don't measure – so
measure *and improve* with ENERGY STAR**



More than 35% of the Fortune 500® Partner with ENERGY STAR



... plus many others.

Find them at energystar.gov.join

Why focus on buildings?

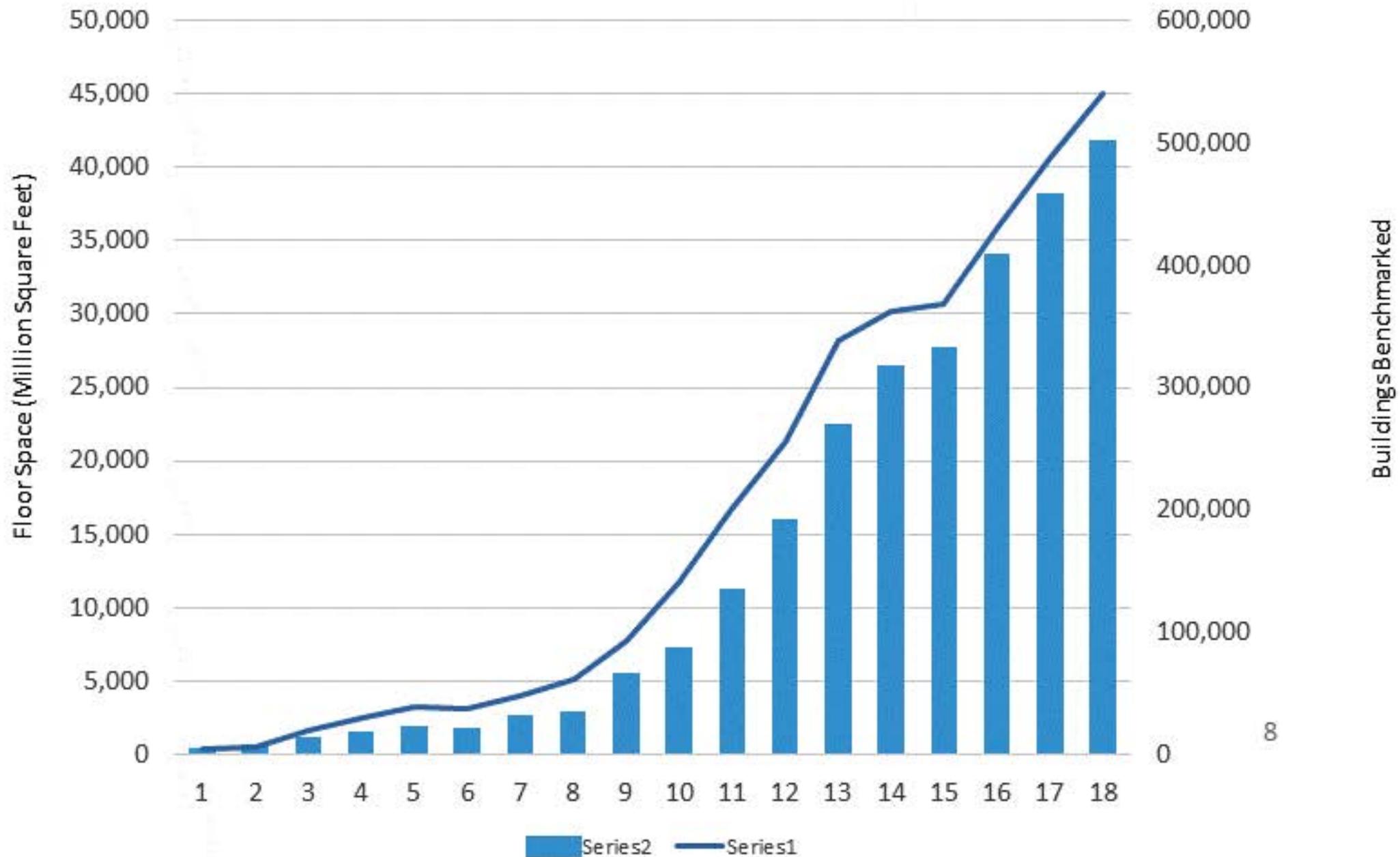
- **30 percent** of energy consumed in commercial and industrial buildings is wasted.
- Reductions of **10 percent** or more in energy use can be possible with little or no cost.
 - Energy is a controllable cost.
 - Energy is a significant percentage of your operating costs and reduces operating profit.
 - **Any** costs you shift from energy cost improve the bottom line.



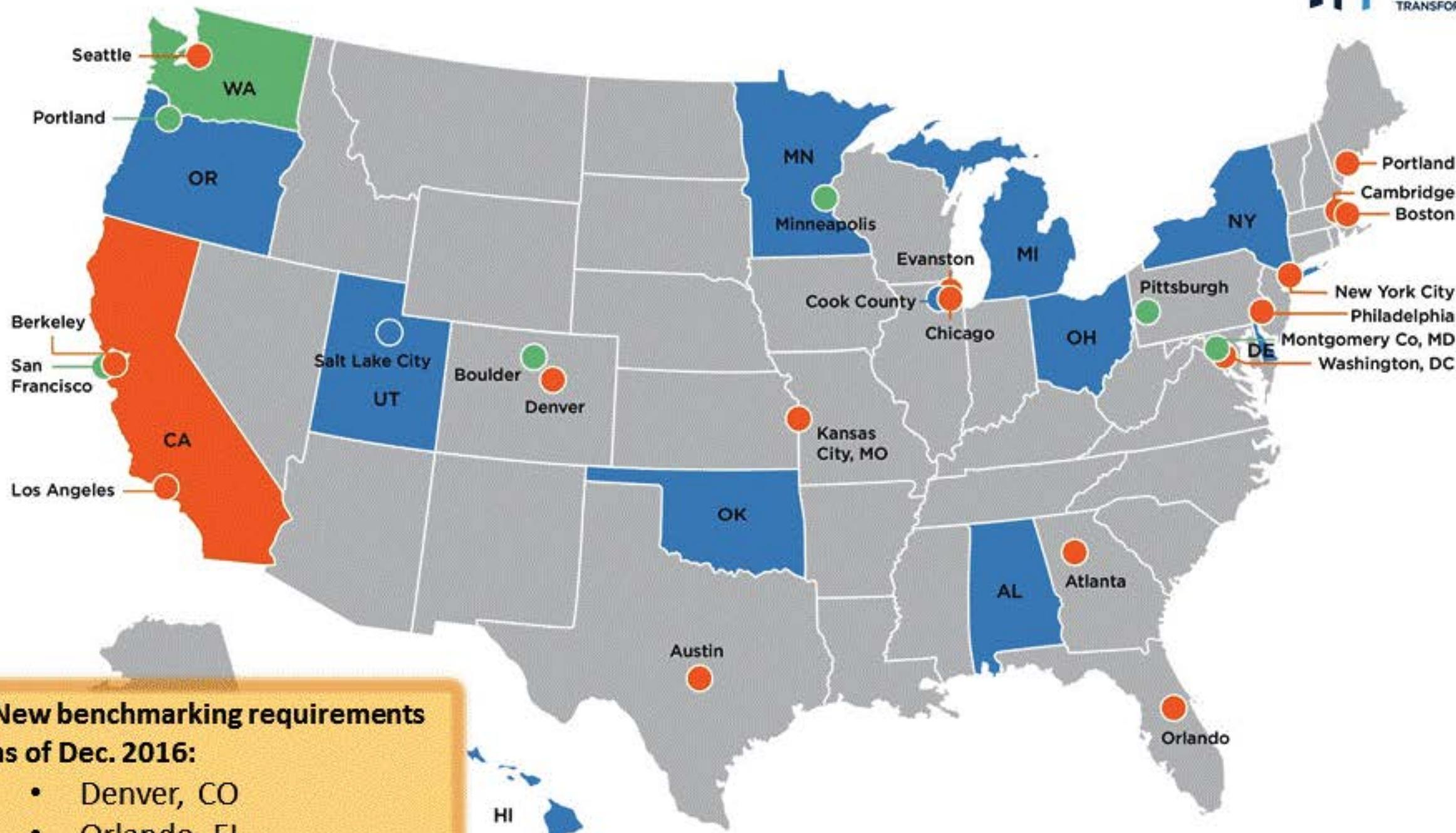
101 North Wacker
Chicago, IL
ENERGY STAR Certified 2008-2014



Benchmarking with ENERGY STAR is the industry standard.



U.S. Building Benchmarking and Transparency Policies



New benchmarking requirements as of Dec. 2016:

- Denver, CO
- Orlando, FL
- Los Angeles, CA
- Evanston, IL

- Public, commercial, and multifamily building benchmarking policy adopted
- Public and commercial building benchmarking policy adopted
- Public buildings benchmarked



ENERGY STAR® PortfolioManager®

The most-used energy measurement and tracking tool for commercial buildings.



Use Portfolio Manager to track:

- Energy
- Water
- Waste & Materials

www.energystar.gov/benchmark



ENERGY STAR® PortfolioManager®

Management Tool

- Assess whole building energy and water consumption and waste & materials management
- Track changes in energy, water, waste & materials, greenhouse gas emissions, and cost over time
- Track green power purchasing
- Share/report data with others
- Create custom reports
- Apply for ENERGY STAR certification

Metrics Calculator

- More than 150 metrics available
- Energy consumption (source, site, weather normalized)
- Water consumption (indoor & outdoor)
- Waste & materials management
- Greenhouse gas emissions
- ENERGY STAR 1-to-100 score for energy efficiency (available for many building types)

Accessible in a free, online secure platform

www.energystar.gov/portfoliomanager



Put key performance metrics at your fingertips

- **Energy Use**
 - 1-100 ENERGY STAR score
 - Total Energy Use (kBtu)
 - Energy Use Intensity (EUI) (kBtu/Sq. Ft.)
 - Weather Normalized EUI (kBtu/Sq. Ft.)
 - Percent Difference from National Median EUI
- **Renewable Energy**
 - Total On-Site Electric Generation (kWh)
 - Percent of Electricity from On-Site Renewable (%)
 - Total Renewable Energy Certificates Purchased and Sold
 - Total Avoided Greenhouse Gas Emissions from RECs (MtCO₂e)
- **Water Use**
 - Water Use (All Water Sources) (kgal)
 - Indoor Water Intensity (gal/ft²)
 - Outdoor Water Use (kgal)
- **Financial Performance**
 - Annual Energy / Water Cost
 - Total Energy / Water Cost per Sq. Ft.
 - Cumulative Investment in Facility Upgrades
- **Data Quality**
 - Alert - Meter has overlaps/gaps
 - Alert - Meter has less than 12 full calendar months of data
 - Default/Estimated/Temporary values



Manage building energy, water, and waste performance in a central platform

ENERGY STAR® **PortfolioManager®**

Welcome MIKEZATZ: [Account Settings](#) | [Contacts](#) | [Help](#) | [Sign Out](#)

MyPortfolio | [Sharing](#) | [Planning](#) | [Reporting](#) | [Recognition](#) | [Admin](#) | [Processing](#)

Properties (21)
[Add a Property](#)

Source EUI Trend (kBtu/ft²)

Total GHG Emissions Trend (Metric Tons CO2e)

Notifications (0)

You have accepted a connection request from Karen Schneider. The connection has been made and will now show in your [Contacts list](#). If needed, you may now share property information with this contact.

You have no new notifications.

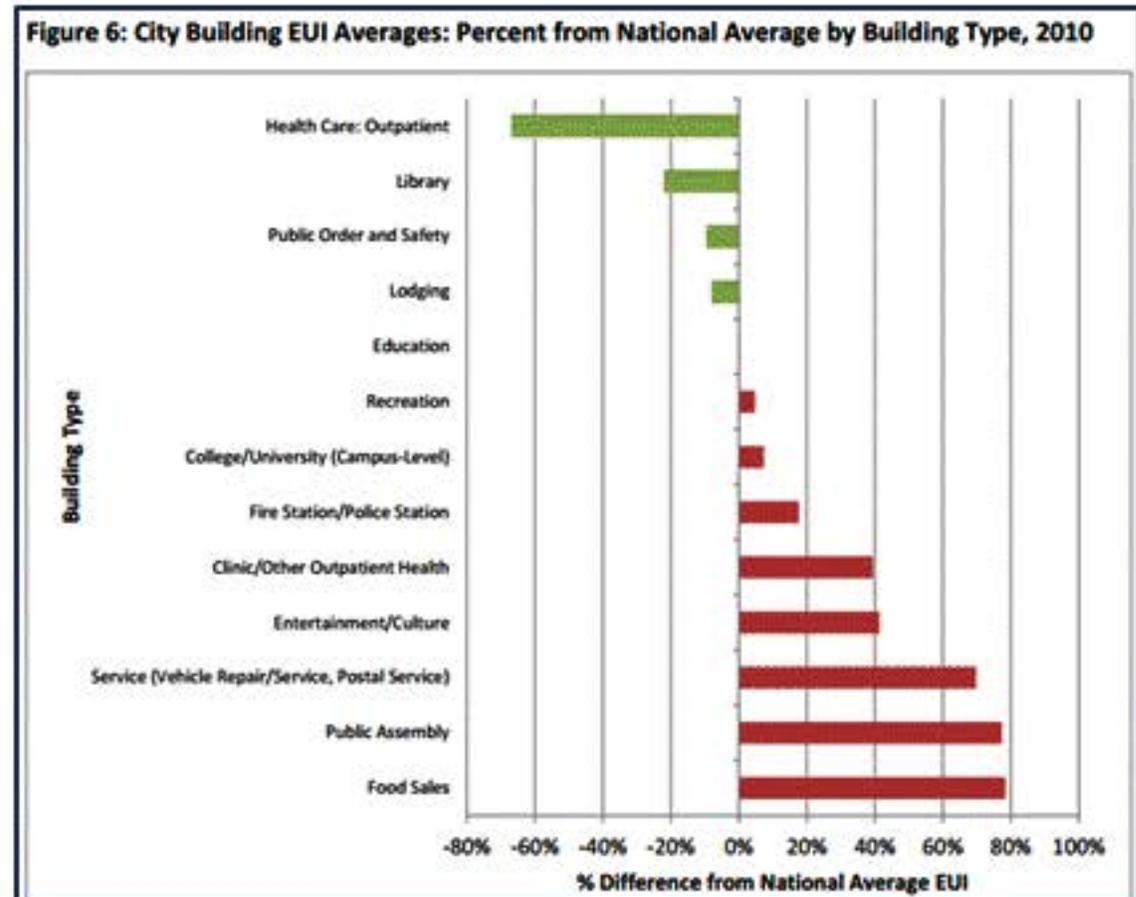
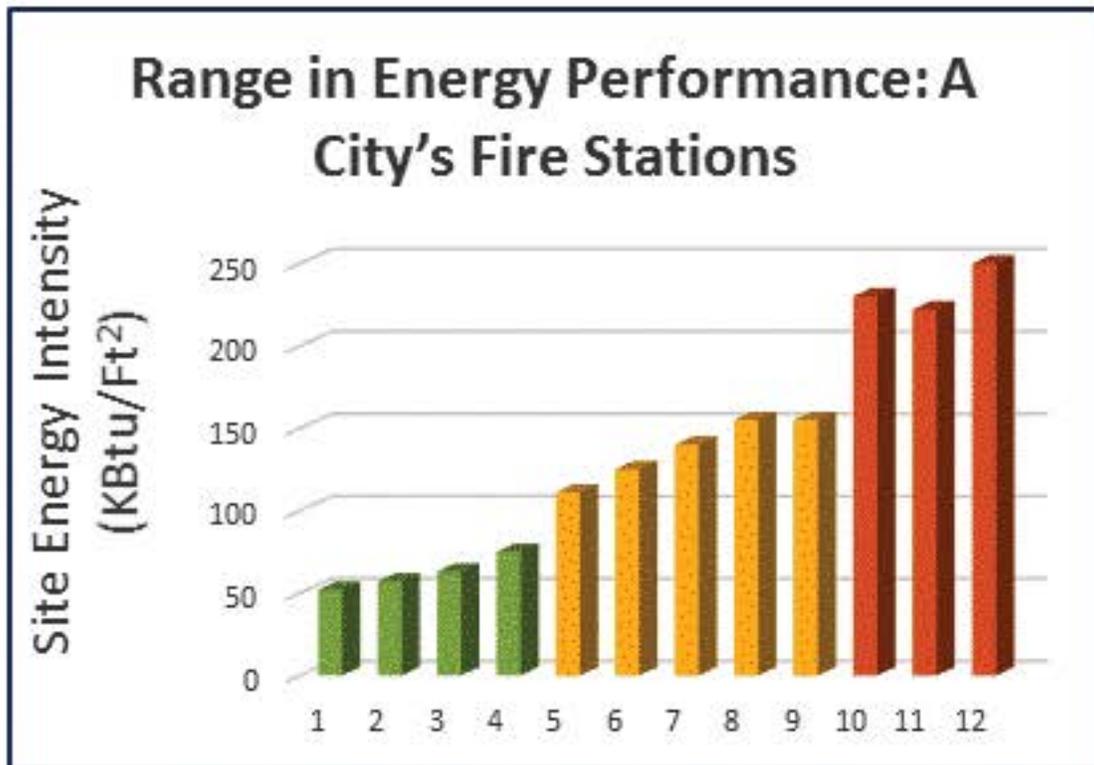
Properties (21) [Add a Property](#)

Filter by: [View All Properties \(21\)](#) [Search](#)

[Create Group](#) | [Manage Groups](#)

Name ↑	Action
AES - Federal Office (Test)	I want to...
Federal Test DOH Office 25	I want to...
Mike Sample Hospital	I want to...
Mike's London Property	I want to...
Mike's Sample Bldg.	I want to...
Mike's Test DEES Project	I want to...
Mike's Test Design	I want to...
Mike's Test HQW	I want to...
Mike's Test International Property	I want to...

What can we do with this data?



Salt Lake City Mayor Becker recognizes top achievers of the Mayor's Skyline Challenge based on the organizations' EPA Portfolio Manager benchmarking results.

Fairfax County Public Schools

- Located in Fairfax, Virginia
- Across the district's 220 facilities:
 - 22% reduction in site energy use
 - \$10.5 million in avoided costs
 - 153 ENERGY STAR certified buildings

Figures cumulative since 2014

ENERGY STAR Recognition

- Partner of the Year (2017)

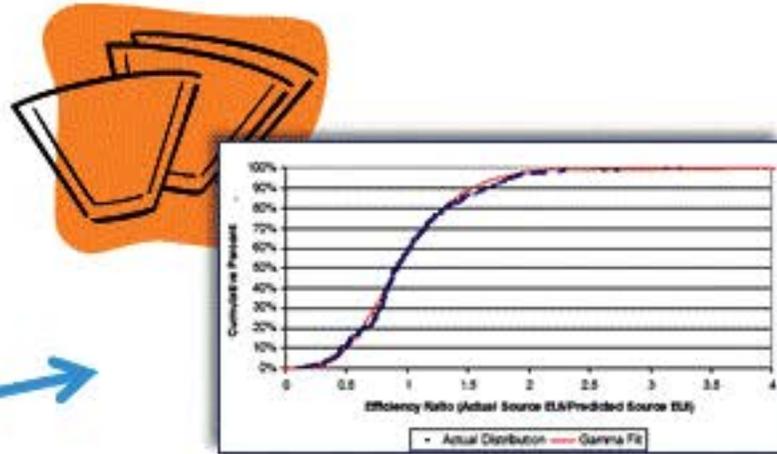
"Innovative student solutions for energy conservation."



EPA's 1 – 100 ENERGY STAR Score



Nationally representative survey - CBECS gathers data on building characteristics and energy use from thousands of buildings across the US

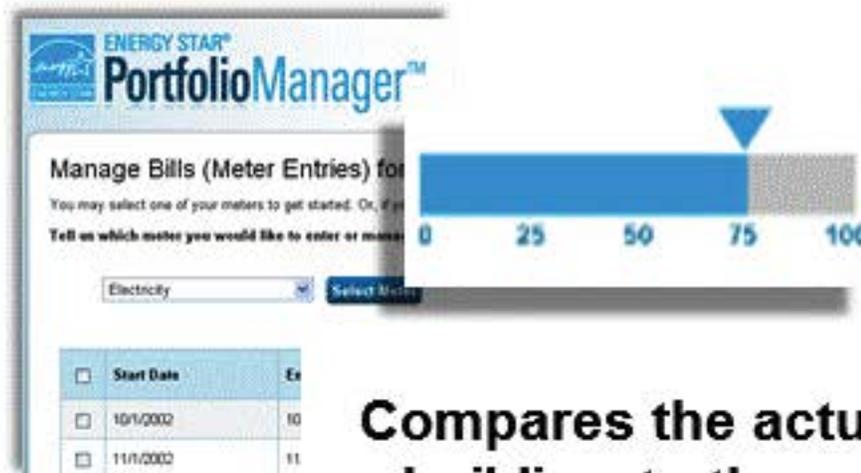


EPA analyzes & filters the data - ensuring data robustness and quality

Descriptive Statistics for Variables in Final Regression Model				
Variable	Full Name	Mean	Minimum	Maximum
SrcEUI	Source Energy per Square Foot	198.4	19.62	1135
LNsqFt	Natural Log of Square foot	9.535	8.517	13.82
PCDen	Number of Computers per 1000 ft ²	2.231	0.0273	11.11
LNWkHrs	Natural Log of Weekly Operating Hours	3.972	3.611	5.124
LNWkrDen	Natural Log of Number of Workers per 1000 ft ²	0.5616	-3.882	2.651
HDDxPH	Heating Degree Days x Percent Heated	4411	0.0000	9277
CDDxPC	Cooling Degree Days x Percent Cooled	1157	0.0000	5204

Note:
 - Statistics are computed over the filtered data set (n=498 observations).
 - Values are weighted by the CBECS variable ADJWTS.
 - The mean values are used to center variables for the regression.

EPA creates a **statistical model** that correlates the energy data of the property use details to identify the key drivers of energy use, accounting for weather variations

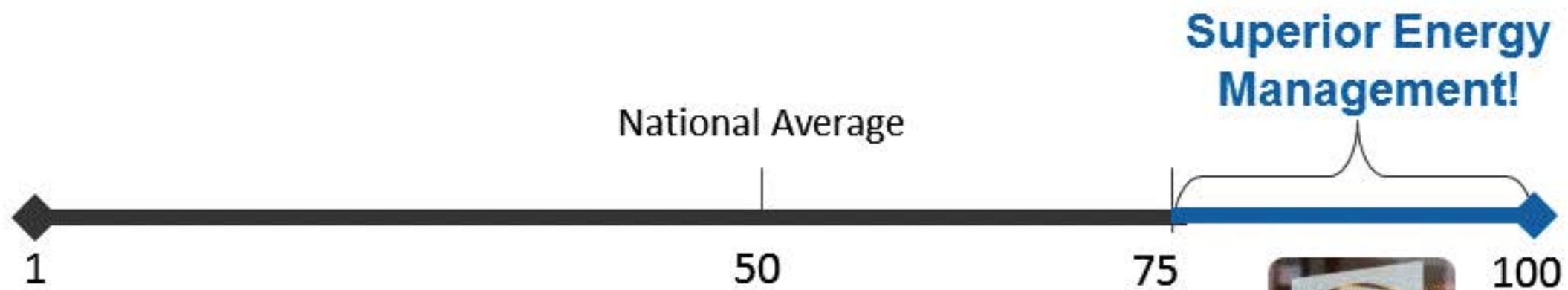


Compares the actual energy data for a building to the modeled estimate to determine where the building ranks relative to its peers

ENERGY STAR Certification for Commercial Buildings

- Recognition for superior energy performers – score 75 or above – as verified by a Professional Engineer and provided they meet industry standards for indoor environmental quality.
- Awarded based on the calendar year. Buildings can re-apply annually.

1 to 100 Energy Performance Scale



Get Started: Gather the information needed to benchmark

- Property Information
 - Building type
 - Name, street address, ZIP/postal code
- Property type data
 - Gross floor area
 - Use details (ex. weekly operating hours, number of computers, number of workers on the main shift, etc)
- Energy consumption data
 - Property-specific invoice information from all purchased and on-site generated energy for all fuel types

Water Tracking

Track four water sources:

- Municipally Supplied Potable Water
- Municipally Supplied Reclaimed Water
- Well Water
- Other Water Sources – rainwater or stormwater harvested onsite, gray water, etc

Three meter types:

- Indoor
- Outdoor
- Mixed

2 water intensity metrics:

- Water Intensity (All Water Source) – all water sources divided by the building sq. ft. (not including parking or irrigated area)
- Indoor Water Intensity (All Water Sources) - all indoor water meters divided by the building sq. ft. (not including parking or irrigated area)



Waste and Materials Tracking

- **Waste Material Type** – The 29 different categories of materials that you can track (e.g. trash, mixed recyclables, batteries, food scraps, etc.)
- **Waste Management Method** – One of 4 options for how you manage your waste and materials
 - Donated/Reused
 - Recycled
 - Composted
 - Disposed
- **Disposed Waste Destination** – One of 4 options for where your disposed waste (e.g. trash) goes:
 - Landfill
 - Incineration
 - Waste to Energy (*refers to incineration for energy recovery, not to landfill with gas recovery*)
 - Other/Unknown
- **Waste Diversion** – the sum of the Composted, Recycled, and Donated/Reused Materials (i.e. everything that is not disposed)



Materials for Tracking

Waste/Materials	Disposed	Donated/ Reused	Recycled	Composted
Appliances	X	X	X	
Batteries	X		X	
Beverage Containers (aluminum, glass, plastic)	X		X	
Building Materials - Carpet/Carpet Padding	X	X	X	
Building Materials - Concrete	X	X	X	
Building Materials - Mixed/Other	X	X	X	
Building Materials - Steel	X	X	X	
Building Materials - Wood	X	X	X	
Cardboard/Corrugated Containers	X	X	X	X
Compostable - Mixed/Other	X			X
Electronics	X	X	X	
Fats/Oils/Grease	X		X	
Food/Food Scraps	X	X		X
Furniture	X	X		
Glass	X	X	X	
Grass/Yard Trimmings	X			X
Lamps/Light Bulbs	X			
Mixed Recyclables	X		X	
Office Supplies	X	X		
Pallets	X	X	X	
Paper - Books	X	X	X	
Paper - Copy Paper	X		X	X
Paper - Mixed	X		X	
Plastics - Mixed	X		X	
Plastics - Wrap/Film	X		X	
Regulated Medical Waste	X			
Textiles/Clothing	X	X	X	
Trash	X			
Other	X	X	X	X

- 29 Material Types
- 4 Methods of Management

Methods of Data Entry

- **Regularly** – Meters for materials that are picked up on an ongoing basis (e.g. weekly pickup of trash and recycling). There are two basic paths:
 - Measured – Requires a weight or volume for each entry
 - This can be marked as “estimated” if it is a weight that the you/your customer estimate on your own
 - Container Size – Is based on the size of the container
 - You/your customer enters a container size, and specifies the number of times it was emptied and the percent full
- **Intermittently** – Meters for infrequent or 1-time events (e.g. annual donation of electronics, or construction materials).

Data Required by Meter Types

Regular	Regular Container	Intermittent
Most like metered energy	Instead of a quantity, enter number of pickups & average percent full There is no “estimated” flag	Similar to bulk energy, with one date rather than a range
<ul style="list-style-type: none"> • Start Date • End Date • Quantity • Cost • Disposal Destination (if applicable) • Estimated (Y/N) 	<ul style="list-style-type: none"> • Start Date • End Date • Number of Times Picked Up • Average Percent Full • Cost • Disposal Destination (if applicable) 	<ul style="list-style-type: none"> • Start Date • Quantity • Cost • Disposal Destination (If applicable) • Estimated (Y/N)

- **Note if the waste is disposed additional data is required**
 - % for each option: Landfill, Waste-to-Energy, Incineration, and unknown
 - % values must add to 100; can omit options that are 0%

Choose the best data management method

User interface



Bulk upload/update spreadsheets



Web services



200+ Energy Service Providers Use Web Services to Help Clients Benchmark with Portfolio Manager

- Energy, Billing, Sustainability, Property/Tenant, Audit/Design, Business Enterprise, End-users



NEW! EPA's ENERGY STAR Interactive Map Identifies Utilities That Provide Energy Data for Benchmarking

- Use EPA's interactive map to quickly identify where energy data access solutions are available.
- Search by zip code for available data services and view service territory, fuel type, data access type, and links to sign up for the utility service.

www.energystar.gov/utilitydata

FIND UTILITIES THAT PROVIDE ENERGY DATA FOR BENCHMARKING

Click on the map or search to quickly determine if your utility provides the energy data you need to benchmark in ENERGY STAR® Portfolio Manager®

Please enter your zip code below to show coverage in your area:

98126

Utility Name: Puget Sound Energy
Fuel Type: Electric, Gas
Data Type: Web Services
Aggregate Whole-Building Data: Yes(5)
Multifamily Included: Yes
Contact Info:
Email: MyData@psse.com
Web Address: Click [here](#) for more information.

Utility Name: Seattle City Light
Fuel Type: Electric
Data Type: Web Services
Aggregate Whole-Building Data: Yes(2)
Multifamily Included: Yes
Contact Info:
Email: scf_portfolio_manager@seattle.gov
Web Address: Click [here](#) for more information.

Google

Utilities Providing Energy Data for Benchmarking in ENERGY STAR® Portfolio Manager®

Map data ©2016 Google. Terms of Use

Set goals and track progress

Set performance targets and baselines

Track targets at the portfolio level

Monitor progress and document savings goals achieved

MyPortfolio
Sharing
Planning
Reporting
Recognition

ENERGY STAR®
PortfolioManager®

Properties with Targets (5)

Set One Target for All

Properties That Have Met Set Targets



Yes 14%
No 86%

Properties with Baselines (5)

Set One Baseline for All

Properties with at Least 12 Months of Information (required for metrics)



Yes 71%
No 29%

My Properties' Targets & Baselines

Name	Energy Baseline	Water Baseline	Target	Target Met	Action
Federal Building	12/31/2003	09/30/2011	Target ENERGY STAR Score of 80		I want to ...
Higher Campus	Not Available	Not Available	Not Set		I want to ...
Hill Store	07/31/2006	07/31/2006	Target ENERGY STAR Score of 80	✔	I want to ...
Insurance Office	04/30/2007	01/31/2009	Target ENERGY STAR Score of 80		I want to ...
Sunnyside Elementary	08/31/2005	07/31/2006	Target ENERGY STAR Score of 80		I want to ...
Supermarket A-1	Not Available	Not Available	Not Set		I want to ...

Page 1 of 1 View 1 - 7 of 7

Want this information in a report? Use EPA's standard spreadsheet template to [select properties and export this information from your portfolio.](#)

Understand energy cost trends

Portfolio Average Energy Cost Intensity

-0.15 ▶ Change in Average Energy Cost Intensity

1.39 ▶ Current Average Energy Cost Intensity

1.54 ▶ Baseline Average Energy Cost Intensity

Properties Included: 27

Your Properties Compared to the National Median Energy Cost Intensity

- Energy Cost Intensity Equal to or Below the Median
- Energy Cost Intensity Above the Median

Energy Cost Intensity by Group

[Select Groups](#)

Group	Baseline Energy Cost Intensity (\$/ft²)	Current Energy Cost Intensity (\$/ft²)
All Properties	~1.6	~1.4
NRDC	~2.0	~2.1
Evaluation Case...	~1.7	~1.6
Campus: Evaluat...	~1.6	~1.5
Offices	~0.9	~1.0
EECBG Sample Gr...	~1.9	~2.0

Energy Cost Intensity by Property Type

[Select Types](#)

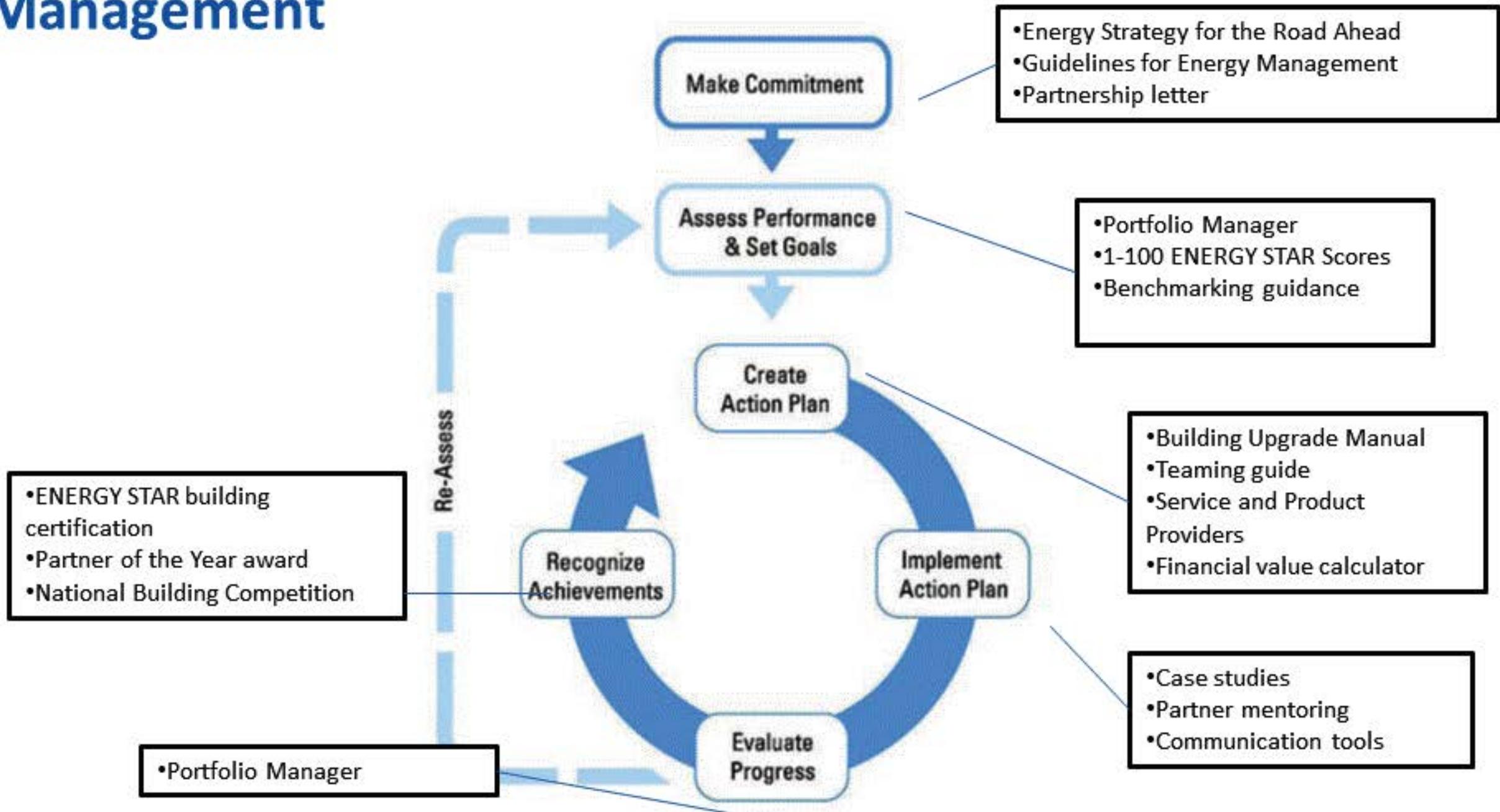
Property Type	Baseline Energy Cost Intensity (\$/ft²)	Current Energy Cost Intensity (\$/ft²)
All Properties	~1.6	~1.4
Office	~1.2	~1.3
Other	~1.6	~1.4
Mixed Use Prope...	~4.8	~2.3
Multifamily Hou...	~1.4	~1.4
K-12 School	~1.8	~1.9



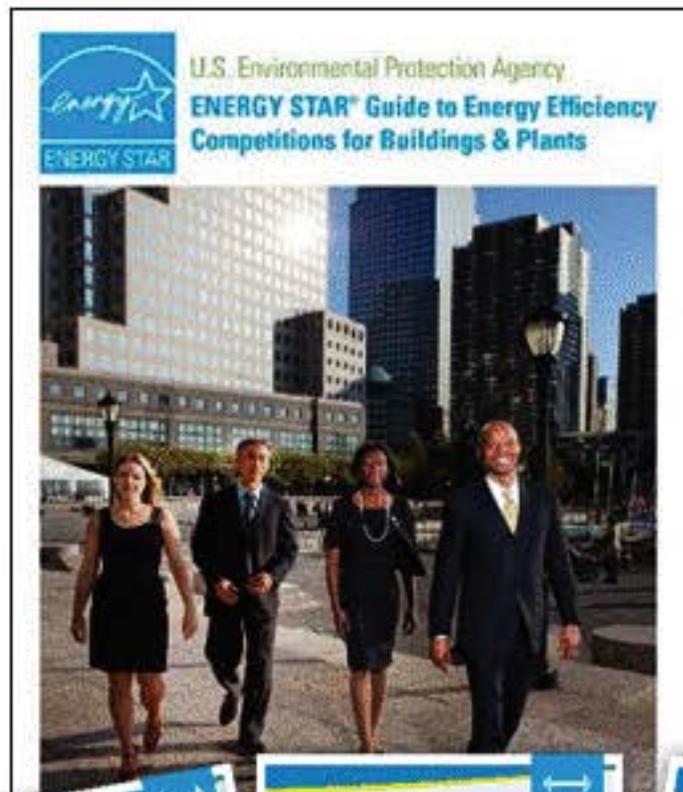
Go beyond benchmarking



Create a plan with the Guidelines for Energy Management



Make benchmarking *actionable*



- New portal for tenant engagement
- Guidelines for Energy Management
- Energy Efficiency Competition Planning Guide
- Communications Strategy Planning Guide
- Action Workbooks for Congregations and Small Businesses

....much more!

www.energystar.gov/buildings/tools-and-resources



Launch an energy efficiency campaign

ENERGY STAR Energy Efficiency Competition Guide

The guide will help you understand how to:

1. Set Goals
2. Define the Playing Field
3. Dedicate Resources
4. Recognize Participants
5. Keep Score
6. Plan the Launch
7. Get the Word Out



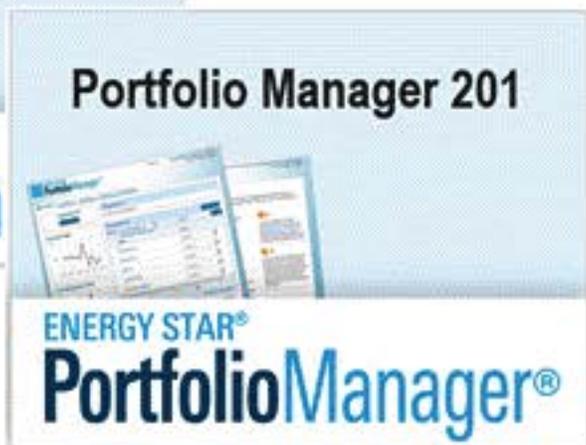
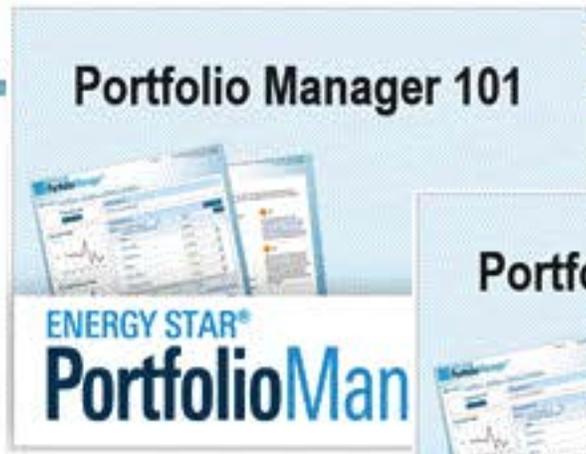
U.S. Environmental Protection Agency
**ENERGY STAR® Guide to Energy Efficiency
Competitions for Buildings & Plants**



Tap into ENERGY STAR Technical Assistance

- Live and recorded webinars offered regularly
- New 2-5 minute training videos
- Step-by-step training guides, FAQs, and technical reference documents
- On-demand user support

energystar.gov/buildings/training





Join the ENERGY STAR Trainer Community

- Resources for professionals around the country who deliver ENERGY STAR training sessions to the public
 - Gain access to EPA's trainer resources, including annotated slide deck
 - Advance notice of upcoming Portfolio Manager changes
 - Advance notice of new ENERGY STAR resources
 - Invitations to quarterly trainer meetings

Join at: www.energystar.gov/buildings/welcome-energy-star-trainer-community



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Homepage - www.energystar.gov/buildings

Portfolio Manager - www.energystar.gov/benchmark

Training - www.energystar.gov/buildingstraining

Help - www.energystar.gov/buildingshelp