



# ENERGY STAR

## Commercial Buildings Update

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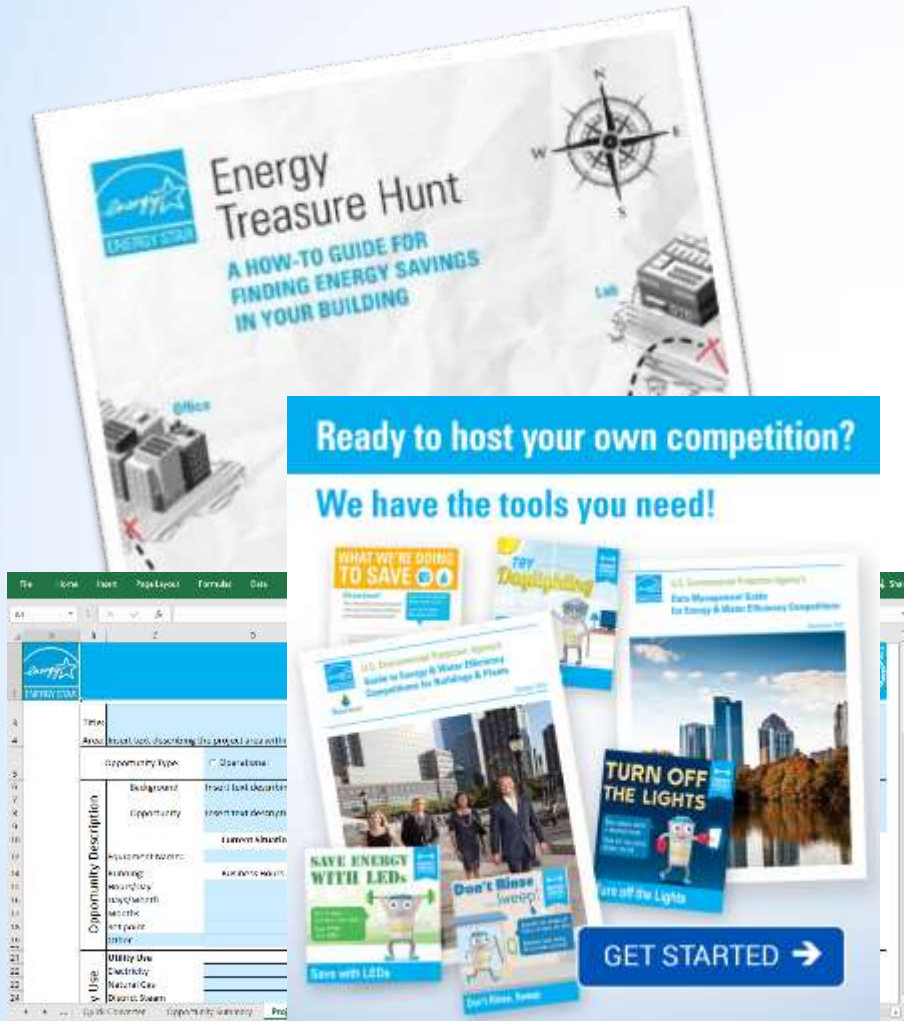
US EPA

# How States use ENERGY STAR

- State-wide Policy
  - Commercial building benchmarking/disclosure/improvement
  - State-owned building benchmarking
  - Automate utility data into Portfolio Manager
- Host Energy Efficiency Competitions
- Promote Treasure Hunts
- Sector Engagement
  - K-12 Schools
  - Distilleries
- Framework for incentives
  - Certification
  - EE Improvement



# Suite of ENERGY STAR Tools and Resources to Support Your Work



- Portfolio Manager
- Data access/web services
- Competition Guide
- Treasure Hunt maps
- ENERGY STAR certification
- Tenant space recognition
- Online help/training
- Implementation support
- ...and more!

<http://www.energystar.gov/state>



# Benchmarking Program and Policies





## Management Tool



Assess whole building energy and water consumption, plus waste



Track changes in energy, water, greenhouse gas emissions, and cost over time



Track green power purchase



Create custom reports



Share/report data with others



Apply for ENERGY STAR certification



Hundreds of metrics, including:



**Energy use**

Source, site,  
weather  
normalized,  
demand



**Water use**

Water use  
intensity,  
Water Score  
(for Multifamily)



**Waste &  
Materials**

Waste intensity,  
diversion rate



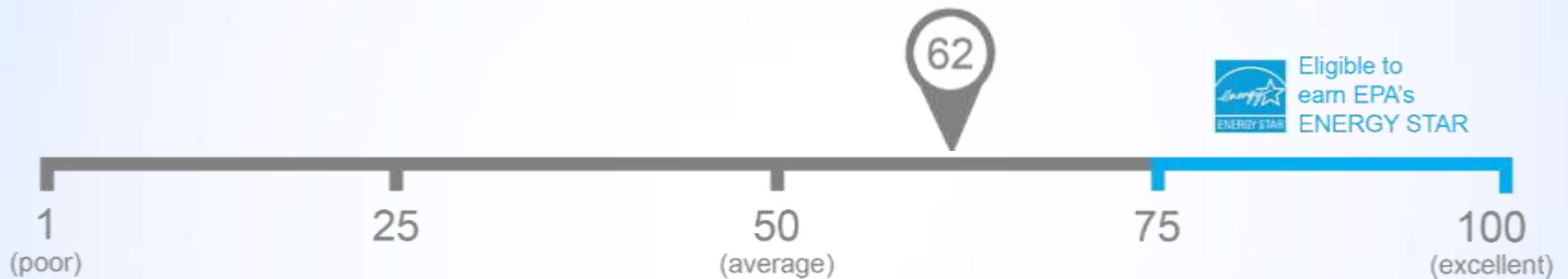
**1-100  
ENERGY  
STAR score**



**GHG  
emissions**

Indirect,  
direct, total,  
avoided

# The 1–100 ENERGY STAR Score



One simple number  
understood by ALL stakeholders.



# Property Types: 1–100 ENERGY STAR Score



Bank Branch



Barracks\*



Courthouses



Data Centers



Distribution  
Centers



Financial Offices



Hospitals



Hotels



K-12 Schools



Office Buildings



Medical Offices\*



Multifamily  
Housing



Residence  
Hall/Dormitory\*



Retail Stores



Senior Care  
Communities



Supermarkets



Warehouses



Wastewater  
Treatment Plants\*



Wholesale club/  
Supercenters



Worship Facilities



# National Medians



## Technical Reference

### U.S. National Median Reference Values for All Portfolio Manager Property Types

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft <sup>2</sup> )	Site EUI (kBtu/ft <sup>2</sup> )	Reference Data Source - Peer Group Comparison
Banking/Financial Services	Bank Branch *		209.9	88.3	CBECS - Bank/Financial
	Financial Office*		116.4	52.9	CBECS - Office & Bank/Financial
Education	Adult Education		110.4	52.4	CBECS - Education
	College/University		180.6	84.3	CBECS - College/University
	K-12 School*		104.4	48.5	CBECS - Elementary/Middle & High School
	Pre-school/Daycare		131.5	64.8	CBECS - Preschool
	Vocational School		110.4	52.4	CBECS - Education
	Other - Education				
	Convention Center		109.6	56.1	CBECS - Social/Meeting
Entertainment/Public Assembly	Movie Theater		112.0	56.2	CBECS - Public Assembly
	Museum				
	Performing Arts				
	Recreation	Bowling Alley	112.0	50.8	CBECS - Recreation
		Fitness Center/Health Club/Gym			
		Ice/Curling Rink			
		Roller Rink			
		Swimming Pool			
		Other - Recreation			
	Social/Meeting Hall		109.6	56.1	CBECS - Social/Meeting

you to compare your property's energy use to the national median (or mid-

if, we recommend that you focus on the primary function (or, main activity) in primary function from the table below and then enter as few additional use adding using a single use type will most closely approximate how your e reference data survey, and therefore yield the most accurate comparisons buildings may have multiple distinctly different uses. For example, an office g. In these mixed-use settings, it is appropriate to enter multiple use types. able at: [www.energystar.gov/PMGlossary](http://www.energystar.gov/PMGlossary)

#### Use Intensity (EUI)

recommended benchmark metric for all buildings. The median value is the if buildings use more energy, half use less. The median works better than the relative energy performance, because it more accurately reflects the mid-

the EUI and source EUI. Site EUI is what you may be familiar with from your what is called primary energy (i.e., a raw fuel like natural gas) and fact like electricity or district steam). Source energy provides the most secondary energy types into a single common unit, ensuring that no building id on its energy source or utility. You can learn more about source energy [energystar.gov/SourceEnergy](http://energystar.gov/SourceEnergy). We strongly encourage you to use source EUI.

es have a national Median Source EUI, some (presented in cyan) will also e score evaluates a building relative to its peers, similar to the median climate and business activity. You can learn more about the score at: [EUI](#).

ites the reference data source we use to determine the median performance ute the national median, we always rely on nationally representative data. ference data is from the Commercial Building Energy Consumption Survey

# Portfolio Manager Data Entry Methods

## Manual entry



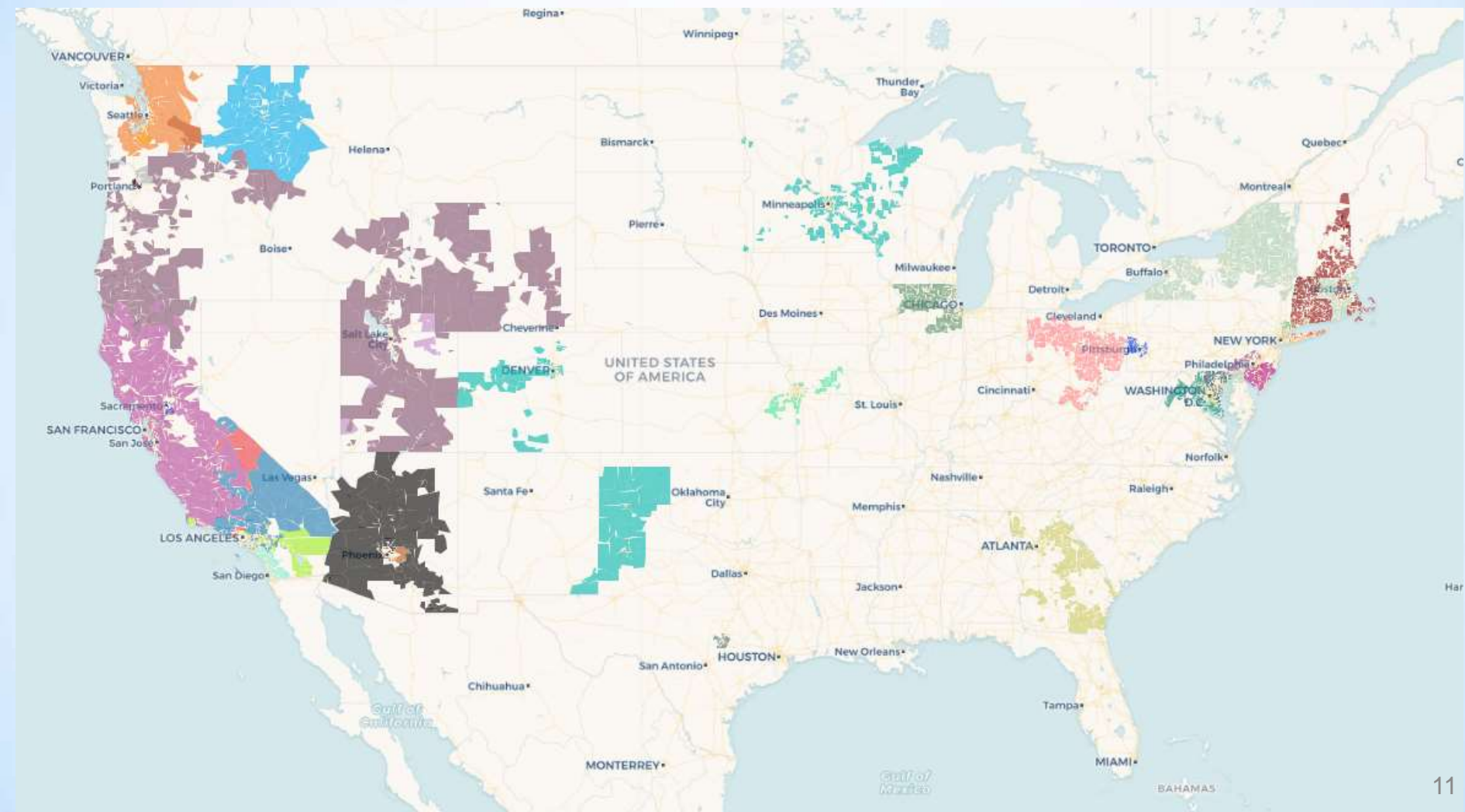
## Spreadsheet upload



## Web services

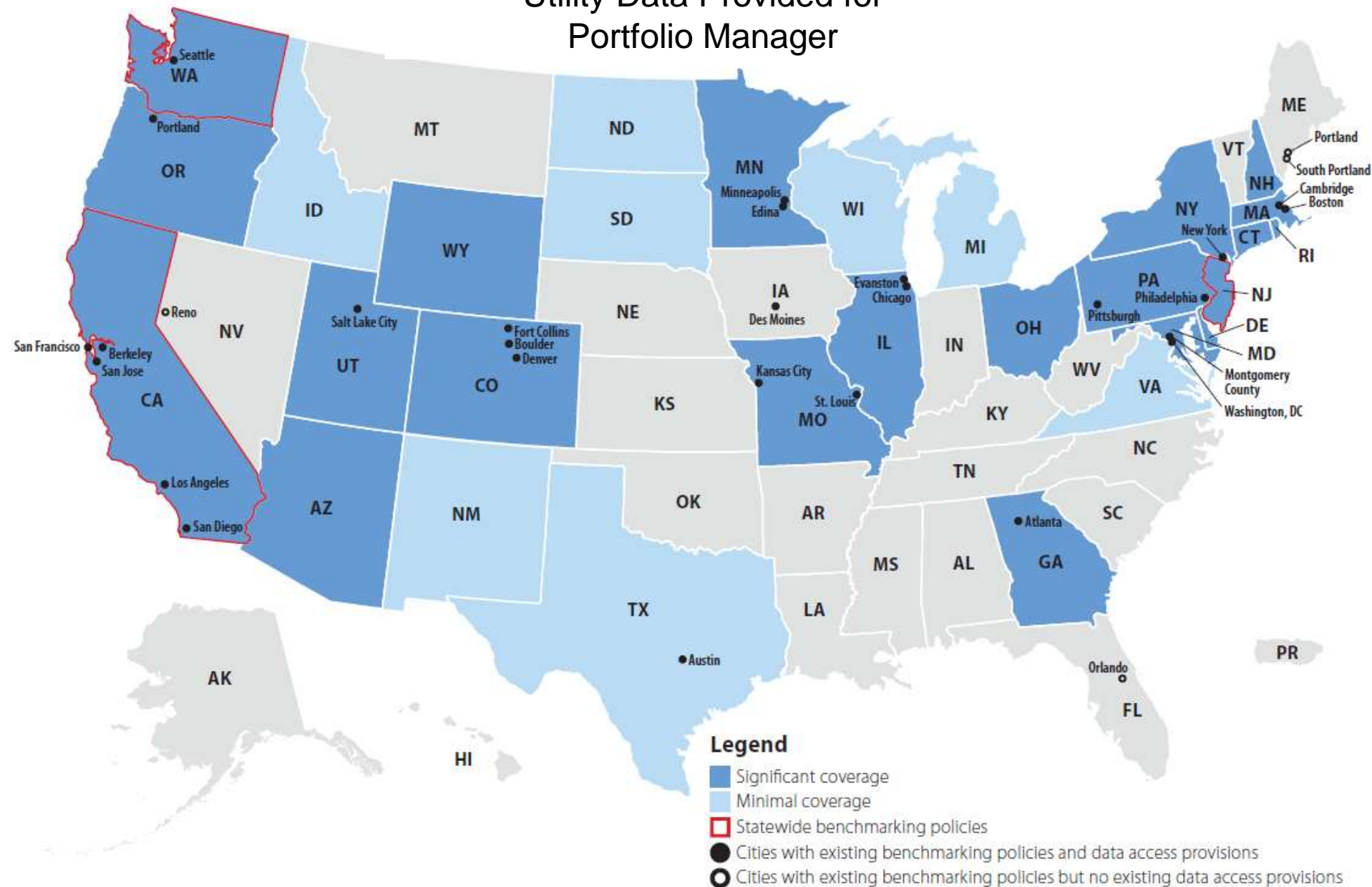


# Utilities Providing Data for Portfolio Manager





# Utility Data Provided for Portfolio Manager





# ENERGY STAR Data Access Resources

- Help state and local governments engage utilities
- Data access training modules online
- And more...

## ENERGY STAR® Resources: Data Access for Benchmarking in Portfolio Manager

The simple choice for energy efficiency

August 2018

### A Broad Range of Resources Available

ENERGY STAR now has a range of resources to help building owners and operators, state and local governments, and utilities to understand the value of energy data access to support benchmarking – and to identify and take advantage of existing data access solutions. Each of these resources is described in more detail below.

### Utility Data Access Fact Sheet and Interactive Map

These two resources provide an easy reference for building owners and operators seeking to identify whether their utility offers a data access solution in a given location. The fact sheet provides details by state, whereas the interactive map allows users to search for specific ZIP codes, or by clicking on the map. Both resources indicate whether the utility provides data via spreadsheet or Portfolio Manager web services, and whether the data access offering includes whole-building aggregate data. Relevant contact information and EPA links are provided so that users can explore further details about each offering. These resources are being updated on a regular basis to reflect new utility data offerings.



Visit [www.energystar.gov/data](http://www.energystar.gov/data) to access these resources.

### Find and Connect With Your Utility in Portfolio Manager

In addition to the resources noted above, Portfolio Manager now has built-in functionality that will alert users if any of the properties in their account are serviced by utilities that exchange data directly with Portfolio Manager via web services. A Portfolio Manager user is presented with account- and property-level "push" notifications to let them know when this option exists. Through this feature, users can also send a connection request to their utility (the first step in the data exchange process) with just a few mouse clicks. At present, this functionality is limited to select utilities that use web services, but EPA is exploring the opportunity to include gas utilities as well.



### The ENERGY STAR Data Access Network

Finally, ENERGY STAR has launched a Data Access Network to provide critical information to energy utilities, state and local governments, and others who are interested in providing or obtaining whole-building energy consumption data to support benchmarking. A key Network resource is an interactive set of training modules on data access and benchmarking. These downloadable slide decks walk through the key decision points that a typical utility will face when considering options for providing enhanced data access to commercial customers. Taken together, these modules can help interested parties to:

- Structure and guide internal discussions about data access within their organizations;
- Inform discussions with external stakeholders (e.g., large customers, city staff, NGOs); and
- Identify specific questions to pursue in more detail with the EPA team and/or industry peers.



Visit [www.energystar.gov/data](http://www.energystar.gov/data) to view these resources.

EPA United States Environmental Protection Agency

# ENERGY STAR Treasure Hunt Campaign



During an Energy Treasure Hunt, teams walk around a facility looking for quick ways to save energy. Those quick fixes can add up to big savings. Hundreds of organizations have used Energy Treasure Hunts to reduce their facilities' energy use by up to 15 percent. Are you and your crew ready to find the treasure buried within your facilities?

[Main](#)[Resources](#)[Participants](#)[Submit](#)[Eligibility](#)[Video case studies](#)

**7,148,000**

Potential energy savings found (MMBtu)

**37.9**

Potential cost savings (millions of dollars)

**378,400**

Potential emissions avoided (metric tons CO<sub>2</sub>e)

GENERAL MOTORS



**Name:** General Motors  
**Type:** Automotive manufacturing and production  
**Potential Savings:** 10%, 9%, 18%, 16%, 6%, 15%, 5%, 4%, 2%, 2%, 6%, 4%, 3%, 21%, 30%, 1.3%

**Name:** CEMEX Inc.  
**Type:** Building materials company  
**Potential Savings:** 2.49%, 0.14%, 1%, 1%



**Name:** Bimbo Bakeries USA, Inc.  
**Type:** Bakery product manufacturer  
**Potential Savings:** 3.08%, 4.5%, 3%, 7.2%, 2.85%, 1.08%, 3.03%, 2.13%, 2.45%, 1%, 2.13%, 1.85%



**Name:** Fiat Chrysler Automobiles  
**Type:** Automobile manufacturer  
**Potential Savings:** 6.63%, 15.91%, 33.67%, 10.14%, 6.31%, 4.88%, 18.1%, 14.04%, 17.24%, 7.15%



**Name:** Allergan  
**Type:** Pharmaceutical manufacturing company  
**Potential Savings:** 21%, 50%



# Start Planning Your Treasure Hunt



FIND THE  
TREASURE X  
IN YOUR FACILITY



[www.energystar.gov/TreasureHunt](http://www.energystar.gov/TreasureHunt)



# ENERGY STAR Tenant Space Recognition

- Summer 2020: Launch of ENERGY STAR Tenant Space recognition
  - Recognition available to any office tenants who meet the criteria
  - Application module will be in Portfolio Manager; incorporates lessons learned during pilot
  - We will pay close attention to comments and feedback during first year of this new recognition, and tweak as needed
- Recognition for retail and warehouse spaces to follow





# How Will Tenants Earn Recognition?

- Same basic requirements as in pilot
- Meet 5 criteria
  1. Estimate Energy Use
  2. Meter
  3. Light Efficiently
  4. Use Efficient Equipment
  5. Share Data
- Have a Professional Engineer or Registered Architect verify the information and stamp the application
- Submit the completed, stamped application to EPA
- EPA reviews and awards the recognition

Tenants will apply via a new tenant module in Portfolio Manager

# Estimate Energy

- Why estimate energy use?
  - Establish practice of understanding energy use in tenant spaces, and create placeholder for eventual benchmark
  - No requirement to meet specific energy use targets
- NREL developed estimation calculations
  - NREL's Technical Review Group and the Charter Tenant pilot provided valuable input
  - As a result, NREL refined the equipment energy use estimates and the impact of hours of operation
- EPA will closely monitor feedback from users

# State Benchmarking Activity Summary

## Sample State Benchmarking Report

**Table 1. Benchmarking Activity Over Time**

This table shows the cumulative count and floor area of benchmarks in Portfolio Manager at the end of calendar years 2016, 2017, 2018, and 2019.

Floor Area (ft <sup>2</sup> )	December 2016		December 2017		December 2018	
	Count	Floor Area	Count	Floor Area	Count	Floor Area
>150,000	1109	409,844,012	1204	437,096,295	1229	445,117,581
100,000-149,999	707	85,742,553	771	93,469,770	780	94,922,265
50,000-99,999	1685	116,315,741	1797	123,978,861	1727	120,117,621
25,000-49,999	2325	82,455,818	2429	86,121,891	2371	83,927,476
10,000-25,000	2748	47,534,682	2829	48,917,458	2752	47,781,702
<10,000	3274	12,414,279	3472	13,363,043	3290	12,856,004
<i>All Benchmarks</i>	<i>11848</i>	<i>754,307,084</i>	<i>12502</i>	<i>802,947,318</i>	<i>12149</i>	<i>804,722,649</i>

**Table 2. Benchmarking Activity By ENERGY STAR 1-100 Score (PED of 12/31/2018)**

This table shows the breakdown of benchmarks in Portfolio Manager by ENERGY STAR 1-100 score, as of December 31, 2018.

Floor Area (ft <sup>2</sup> )	1-24		25-49		50-74	
	Count	Floor Area	Count	Floor Area	Count	Floor Area
>150,000	48	16,542,837	74	22,752,580	166	52,283,131
100,000-149,999	37	4,311,853	68	8,288,199	96	11,404,862
50,000-99,999	97	6,521,455	143	10,337,071	279	18,937,781
25,000-49,999	150	5,452,089	233	8,227,517	428	15,249,299
10,000-25,000	183	3,137,458	286	4,996,932	322	6,100,918
<10,000	123	600,657	215	907,750	241	1,231,422
<i>All Benchmarks</i>	<i>638</i>	<i>36,566,349</i>	<i>1019</i>	<i>55,510,048</i>	<i>1532</i>	<i>105,207,414</i>

# State Benchmarking Activity Summary

Property Type	Count	Floor Area (ft <sup>2</sup> )
Multifamily Housing	3,771	243,008,419
Office	1,375	136,624,855
Retail Store	915	35,895,907
Other	679	29,757,760
Bank Branch	587	5,348,869
K-12 School	557	44,375,981
College/University	509	41,309,448
Food Service	422	1,554,038
Non-Refrigerated Warehouse	368	21,075,256
Mixed Use Property	210	20,196,725
Medical Office	191	12,481,571
Distribution Center	178	28,095,119
Hotel	173	21,636,561
Supermarket/Grocery Store	170	6,909,898
Fire Station	128	1,277,366
Worship Facility	123	3,910,410
Senior Care Community	119	10,562,190
Other - Lodging/Residential	118	804,449
Residence Hall/Dormitory	103	5,332,809
Single Family Home	101	216,430
Mailing Center/Post Office	85	3,558,542
Other - Recreation	83	2,683,125
Other - Public Services	82	2,696,776
Drinking Water Treatment & Distribution	73	193,953
Parking	62	10,053,872





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