



ENERGY STAR®

PortfolioManager®

Technical Reference

U.S. Energy Use Intensity by Property Type

OVERVIEW

This reference table is designed to help you to compare your property's energy use to the national median (or mid-point) energy use of similar properties.

Benchmarking your Property

When benchmarking in Portfolio Manager, we recommend that you focus on the primary function (or, main activity) in your building(s). Begin by selecting your primary function from the table below and then enter as few additional use types as possible. Benchmarking your building using a single use type will most closely approximate how your building would have been recorded in the reference data survey, and therefore yield the most accurate comparisons to median performance. In some cases, buildings may have multiple distinctly different uses. For example, an office and a hotel that share a common building. In these mixed-use settings, it is appropriate to enter multiple use types. Definitions of all property types are available at: www.energystar.gov/PMGlossary.

Using Median Site and Source Energy Use Intensity (EUI)

The **national median source EUI** is a recommended benchmark metric for all buildings. The median value is the middle of the national population – half of buildings use more energy, half use less. The median works better than the mean (arithmetic average) for comparing relative energy performance, because it more accurately reflects the mid-point of energy use for most property types.

The table presents the median in both **site EUI** and **source EUI**. Site EUI is what you may be familiar with from your utility bills. Site EUI contains a mixture of what is called primary energy (i.e., a raw fuel like natural gas) and secondary energy (i.e., a converted product like electricity or district steam). Source energy provides the most equitable way to combine primary and secondary energy types into a single common unit, ensuring that no building receives either a credit or a penalty based on its energy source or utility. You can learn more about source energy and the way it is computed at www.energystar.gov/SourceEnergy. We strongly encourage you to use source EUI.

While almost all commercial building types have a national Median Source EUI, some (**presented in cyan**) will also have a 1-100 ENERGY STAR Score. The score evaluates a building relative to its peers, similar to the median energy use values, and also adjusts for climate and business activity. You can learn more about the score at: www.energystar.gov/ENERGYSTARScore.

Understanding Reference Data

The right-most column in the table indicates the reference data source we use to determine the median performance of buildings in your peer group. To compute the national median, we always rely on nationally representative data. For the majority of property types, the reference data is from the Commercial Building Energy Consumption Survey (CBECS). This is a national survey conducted by the U.S. Department of Energy's Energy Information Administration (for more information visit: <http://www.eia.gov/consumption/commercial/>). Three additional surveys are referenced for data centers, wastewater treatment plants, and multifamily housing. Additional information on these surveys can be found in the technical reference document for each property type.

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

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft ²)	Site EUI (kBtu/ft ²)	Reference Data Source - Peer Group Comparison	
Banking/Financial Services	Bank Branch *		252.8	87.0	CBECS - Bank/Financial	
	Financial Office*		148.1	67.3	CBECS - Office & Bank/Financial	
Education	Adult Education		141.4	59.6	CBECS - Education	
	College/University		262.6	130.7	CBECS - College/University	
	K-12 School*		141.4	58.2	CBECS - Elementary/Middle & High School	
	Pre-school/Daycare		145.7	70.9	CBECS - Preschool	
	Vocational School		141.4	59.6	CBECS - Education	
	Other - Education					
Entertainment/Public Assembly	Convention Center		69.8	45.3	CBECS - Social/Meeting	
	Movie Theater		85.1	45.3	CBECS - Public Assembly	
	Museum					
	Performing Arts					
	Recreation	Bowling Alley		96.8	41.2	CBECS - Recreation
		Fitness Center/Health Club/Gym				
		Ice/Curling Rink				
		Roller Rink				
		Swimming Pool				
Other - Recreation						
Social/Meeting Hall		69.8	45.3	CBECS - Social/Meeting		

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft ²)	Site EUI (kBtu/ft ²)	Reference Data Source - Peer Group Comparison
Entertainment/Public Assembly	Stadium	Indoor Arena	85.1	45.3	CBECS - Public Assembly
		Race Track			
		Stadium (Closed)			
		Stadium (Open)			
		Other - Stadium			
	Other	Aquarium			
		Bar/Nightclub			
		Casino			
		Zoo			
		Other - Entertainment/Public Assembly			
Food Sales & Service	Convenience Store	Convenience Store with Gas Station	536.3	192.9	CBECS - Food Sales
		Convenience Store without Gas Station			
	Restaurant/Bar	Bar/Nightclub	85.1	45.3	CBECS - Public Assembly
		Fast Food Restaurant	1015.3	384.0	CBECS - Fast Food
		Restaurant	432.0	223.8	CBECS - Restaurant/Cafeteria
		Other - Restaurant/Bar			
	Supermarket/Grocery Store*		480.0	185.5	CBECS - Grocery Store/Food Market
	Wholesale Club/Supercenter*		114.4	47.1	CBECS - Retail Store
	Other	Food Sales	536.3	192.9	CBECS - Food Sales
		Food Service	543.2	266.8	CBECS - Food Service

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft ²)	Site EUI (kBtu/ft ²)	Reference Data Source - Peer Group Comparison	
Healthcare	Ambulatory Surgical Center		155.2	63.0	CBECS - Outpatient Healthcare	
	Hospital	Hospital (General Medical & Surgical)*	389.8	196.9	CBECS - Inpatient Healthcare	
		Other/Specialty Hospital				
		Medical Office*		116.7	44.4	CBECS - Medical Office
		Outpatient Rehabilitation/Physical Therapy		155.2	63.0	CBECS - Outpatient Healthcare
		Senior Care Community*		243.2	125.7	CBECS - Nursing
		Urgent Care/Clinic/Other Outpatient		182.7	66.8	CBECS - Clinic/Outpatient
Lodging/Residential	Barracks*		114.9	73.9	CBECS - Dormitory	
	Hotel*		162.1	73.4	CBECS - Hotel & Motel/Inn	
	Multifamily Housing*		127.9	78.8	Fannie Mae Industry Survey	
	Prison/Incarceration		169.9	93.2	CBECS - Public Order and Safety	
	Residence Hall/Dormitory*		114.9	73.9	CBECS - Dormitory	
	Senior Care Community*		243.2	125.7	CBECS - Nursing	
	Single Family Home		N/A	N/A	None Available	
	Other - Lodging/Residential		155.5	73.4	CBECS - Lodging	
Manufacturing/Industrial	Manufacturing/Industrial Plant		N/A	N/A	None Available	
Mixed Use	Mixed Use Property		123.1	78.8	CBECS - Other	
Office	Medical Office*		116.7	44.4	CBECS - Medical Office	
	Office*		148.1	67.3	CBECS - Office & Bank/Financial	
	Veterinary Office		182.7	66.8	CBECS - Clinic/Outpatient	
Parking	Parking		N/A	N/A	None Available	

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft ²)	Site EUI (kBtu/ft ²)	Reference Data Source - Peer Group Comparison	
Public Services	Courthouse*		169.9	93.2	CBECS - Public Order and Safety	
	Drinking Water Treatment & Distribution <i>(Average EUI presented in Energy per Flow in gallons per day)</i>		6.61	2.27	AWWA - Water Treatment Plant	
	Fire Station		154.4	88.3	CBECS - Fire Station/Police Station	
	Library		235.6	91.6	CBECS - Library	
	Mailing Center/Post Office		100.4	49.6	CBECS - Service	
	Police Station		154.4	88.3	CBECS - Fire Station/Police Station	
	Prison/Incarceration		169.9	93.2	CBECS - Public Order and Safety	
	Social/Meeting Hall		69.8	45.3	CBECS - Social/Meeting	
	Transportation Terminal/Station		85.1	45.3	CBECS - Public Assembly	
	Wastewater Treatment Plant* <i>(Average EUI presented in Energy per Flow in gallons per day)</i>		8.52	2.89	AWWA - Wastewater Plant	
	Other - Public Services		123.1	78.8	CBECS - Other	
Religious Worship	Worship Facility*		70.7	36.8	CBECS - Religious Worship	
Retail	Automobile Dealership		130.1	52.5	CBECS - Retail other than Mall	
	Convenience Store	Convenience Store with Gas Station	536.3	192.9	CBECS - Food Sales	
		Convenience Store without Gas Station				
	Mall	Enclosed Mall		235.6	93.7	CBECS - Enclosed Mall
		Lifestyle Center		237.6	94.2	CBECS - Strip Shopping Mall
		Strip Mall				
		Other - Mall		237.6	94.1	CBECS - Enclosed Mall and Strip Shopping Mall
	Retail Store*		114.4	47.1	CBECS - Retail Store	
	Supermarket/Grocery Store*		480.0	185.5	CBECS - Grocery Store/Food Market	
Wholesale Club/Supercenter*		114.4	47.1	CBECS - Retail Store		

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft ²)	Site EUI (kBtu/ft ²)	Reference Data Source - Peer Group Comparison
Technology/Science	Data Center* <i>(Average PUE presented in place of EUI: PUE = Total Energy / IT Energy)</i>		1.821	1.821	EPA - Data Center
	Laboratory		123.1	78.8	CBECS - Other
	Other – Technology/Science				
Services	Data Center* <i>(Average PUE presented in place of EUI: PUE = Total Energy / IT Energy)</i>		1.821	1.821	EPA - Data Center
	Personal Services (Health/Beauty, Dry Cleaning, etc.)		100.4	49.6	CBECS - Service
	Repair Services (Vehicle, Shoe, Locksmith, etc.)				
	Other - Services				
Utility	Drinking Water Treatment & Distribution <i>(Average EUI presented in Energy per Flow in gallons per day)</i>		6.61	2.27	AWWA - Water Treatment Plant
	Energy/Power Station		123.1	78.8	CBECS - Other
	Wastewater Treatment Plant* <i>(Average EUI presented in Energy per Flow in gallons per day)</i>		8.52	2.89	AWWA - Wastewater Plant
	Other - Utility		123.1	78.8	CBECS - Other
Warehouse/Storage	Self-Storage Facility		47.6	19.8	CBECS – Non-refrigerated Warehouse & Storage
	Warehouse/Distribution Center	Distribution Center *	60.0	28.5	CBECS – Non-refrigerated Warehouse & Distribution Center
		Non-Refrigerated Warehouse*			
		Refrigerated Warehouse*	126.3	252.6	CBECS – Refrigerated Warehouses
Other	Other		123.1	78.8	CBECS - Other