

## Energy Use in Retail Stores

### Retail Stores Using Portfolio Manager



55,131 Properties



2.5 Billion ft<sup>2</sup>

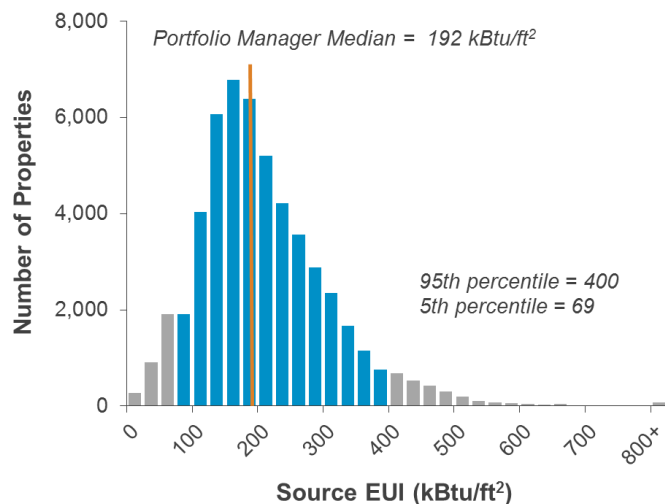
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Average  
ENERGY STAR Score

The U.S. Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager is changing the way organizations track and manage energy. Because of this widespread market adoption, EPA has prepared the DataTrends series to examine benchmarking and trends in energy and water consumption in Portfolio Manager. To learn more, visit [www.energystar.gov/DataTrends](http://www.energystar.gov/DataTrends).

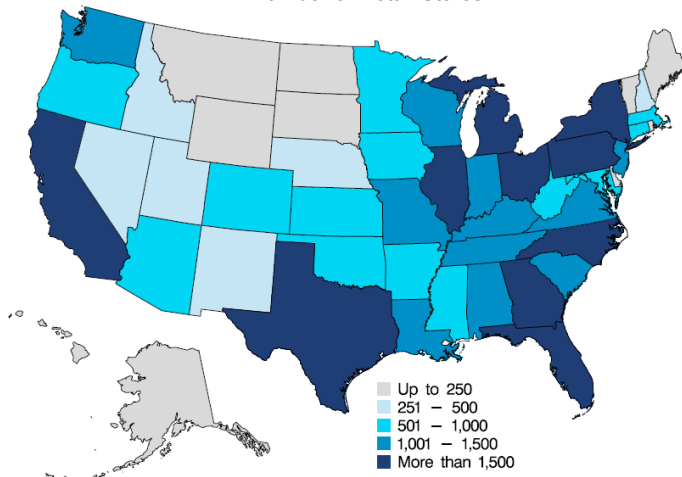
### What is a typical operating profile?

Energy use intensity (EUI) ranges from less than 100 to more than 800 kBtu/ft<sup>2</sup> across all retail stores, with those at the 95th percentile using almost 6 times the energy of those at the 5th percentile. The distribution has a negative skew, which means the most energy intensive properties are further away from the median than the most efficient. Properties may use more or less energy for many reasons, including variable equipment efficiency and energy management practices, as well as variations in climate and business activities.



The median retail store in Portfolio Manager is about 14,000 square feet and operates over 90 hours per week. But the typical property use patterns observed in Portfolio Manager vary just as much as energy. As you can see, there are retail stores of all shapes and sizes benchmarking in Portfolio Manager.

### Benchmarking by State Number of Retail Stores

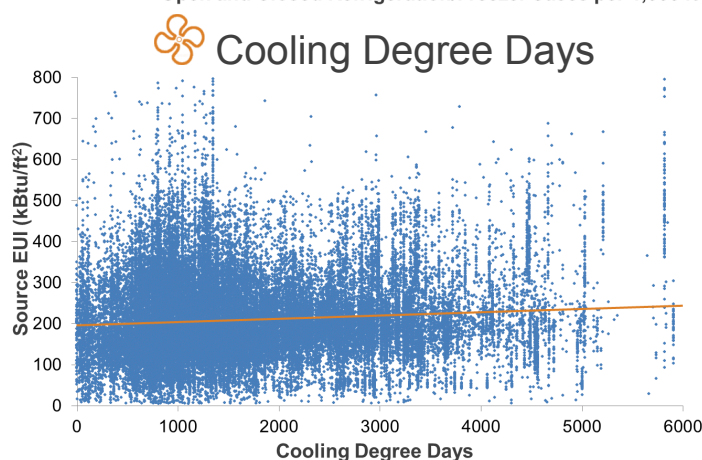
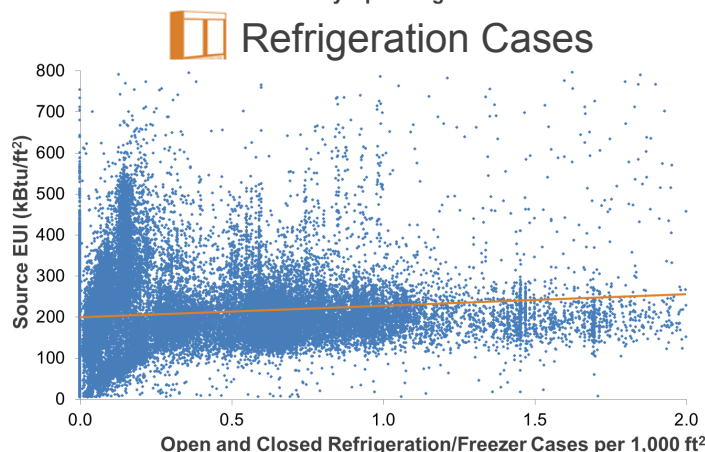
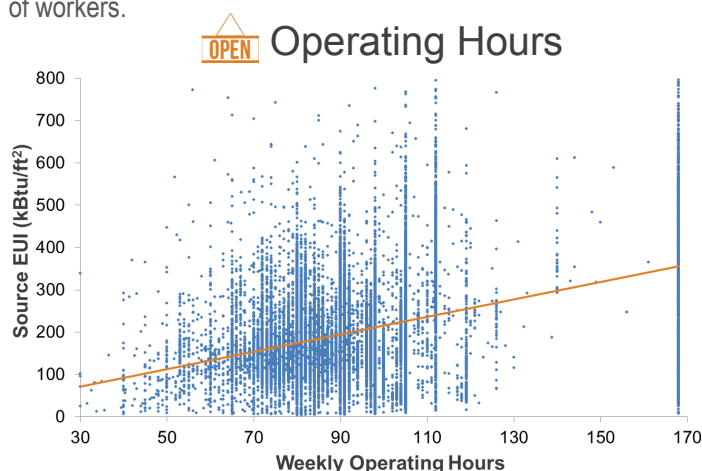


Property Characteristic	Range of Values		
	5th percentile	Median	95th percentile
Square Feet	7,106	14,010	127,455
Operating Hours	71	91	168
Workers per 1,000 ft <sup>2</sup>	0.1	0.4	1.0
Cash Registers per 1,000 ft <sup>2</sup>	0.1	0.3	0.8
Computers per 1,000 ft <sup>2</sup>	0.0	0.2	0.8
Walk-in Refrigeration Units per 1,000 ft <sup>2</sup>	0.0	0.0	0.1
Open/Closed Refrigeration Cases per 1,000 ft <sup>2</sup>	0.0	0.2	1.0
Heating Degree Days	477	3,965	7,455
Cooling Degree Days	380	1,363	3,710

**What is Source Energy?** Source energy is the amount of raw fuel required to operate your property. In addition to what you use on site, source energy includes losses from generation, transmission, and distribution of energy. Source energy enables the most complete and equitable energy assessment. Learn more at: [www.energystar.gov/SourceEnergy](http://www.energystar.gov/SourceEnergy).

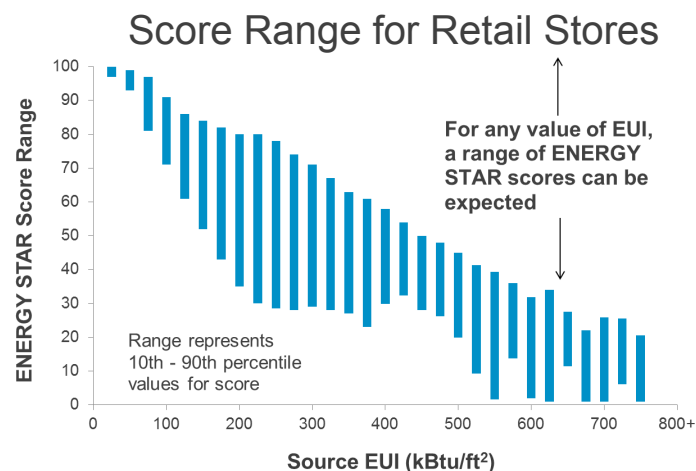
## What characteristics affect energy use in retail stores?

Business activity and climate are often correlated with energy consumption. For example, retail stores that are open longer hours, have more refrigeration cases, and/or experience more cooling degree days (CDD) use more energy, on average. The orange trend line in the graphs below is the steepest for hours, meaning that hours has a stronger effect on energy than CDD or refrigeration. While these trends hold true on average, two properties with the same hours could have very different energy use, as shown by the range in the blue dots. Similar trends can be seen for other indicators of business activity, such as number of workers.

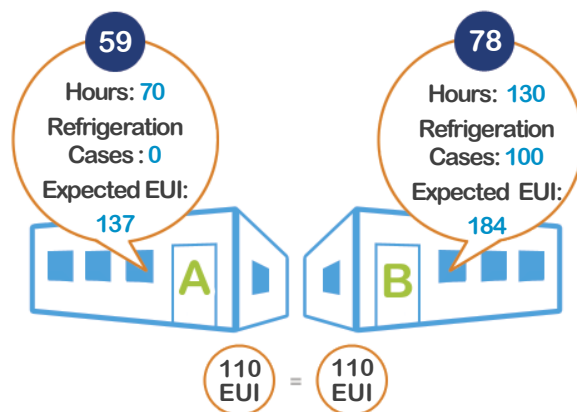


## How does EPA's ENERGY STAR score vary with energy use?

EPA's ENERGY STAR score normalizes for the effects of operation. While properties with lower EUI generally earn higher scores on the 1-100 scale, an individual property's result depends on its business activities. For any given EUI, a range of scores is possible.



Let's look at two retail stores, Store A and Store B. They have the same EUI of 110 kBtu per square foot, and are identical except that Store B is open longer and has more refrigeration cases per square foot. Because Store B has more intensive activities, it is expected to have a higher EUI than Store A, based on ENERGY STAR scoring models. Since Store B is *expected* to use more energy, but *actually* uses the same energy, it earns a higher score.



**Note:** Total number and floor area of properties benchmarked reflects cumulative data through 2013. Analysis of energy use and operational characteristics includes 52,682 properties benchmarked in the most recent 5 years. The data is self reported and has been filtered to exclude outliers, incomplete records, and test facilities. Portfolio Manager is not a randomly selected sample and is not the basis of the ENERGY STAR score. To learn more, visit: [www.energystar.gov/DataTrends](http://www.energystar.gov/DataTrends).