


## Energy Use in Distribution Centers

### Distribution Centers Using Portfolio Manager

 1,835 Properties

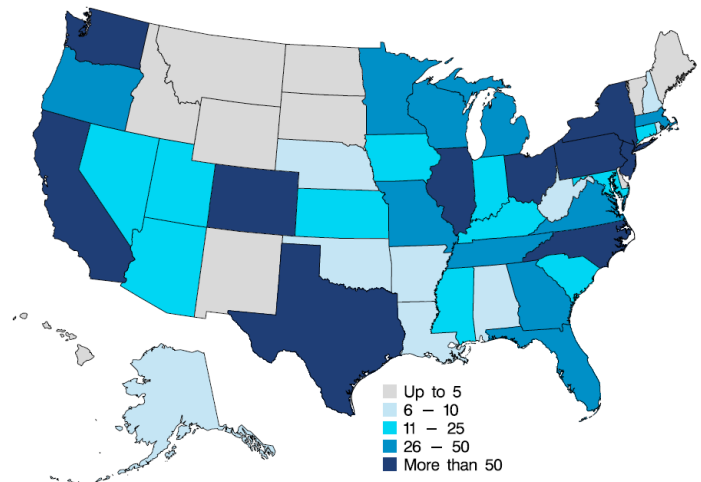
 485 Million ft<sup>2</sup>

**61** 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).

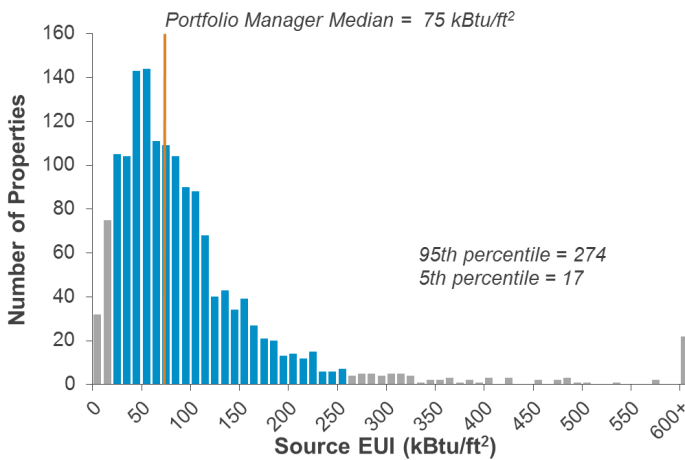
### Benchmarking by State

Number of Distribution Centers









### What is a typical operating profile?

Energy use intensity (EUI) ranges from less than 50 to more than 600 kBtu/ft<sup>2</sup> across all distribution centers, with those at the 95th percentile using 16 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 distribution center in Portfolio Manager is approximately 110,000 square feet and operates 60 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 distribution centers of all shapes and sizes benchmarking in Portfolio Manager.

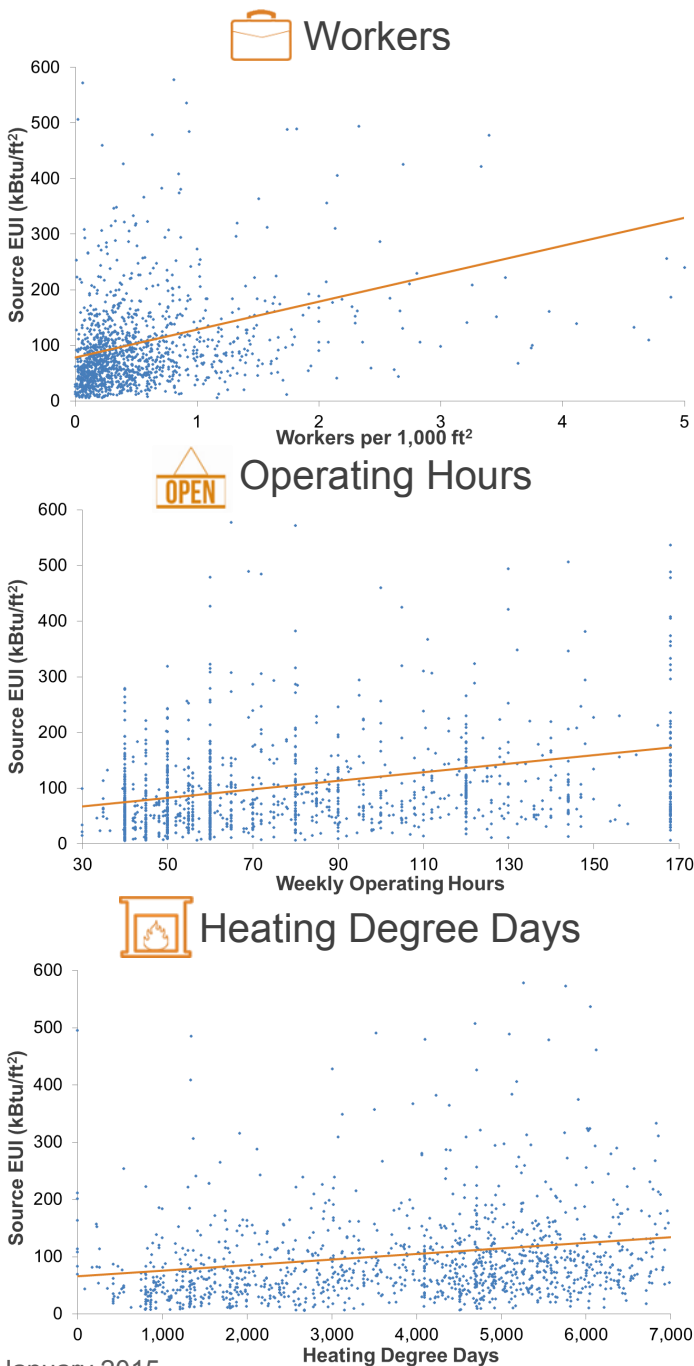


Property Characteristic	5th percentile	Median	95th percentile
 Square Feet	9,992	110,431	887,014
 Weekly Operating Hours	40	60	168
 Workers per 1,000 ft <sup>2</sup>	0.1	0.4	1.5
 Walk-in Refrigerators?	9% say yes		
 Heating Degree Days	864	4,401	7,162
 Cooling Degree Days	171	1,136	3,208

**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).

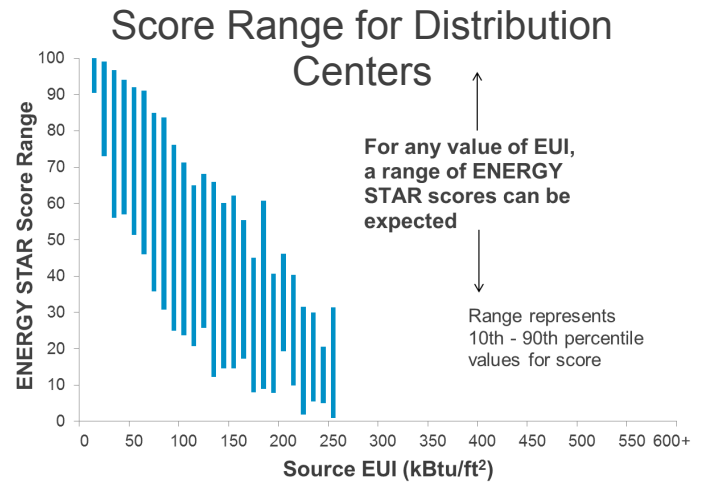
## What characteristics affect energy use in distribution centers?

Business activity and climate are often correlated with energy consumption. For example, distribution centers that have more workers per square foot, operate more hours and/or have more heating degree days (HDD), on average. The orange trend line in the graphs below is the steepest for workers meaning that worker density has stronger effect on energy than hours or HDD. While these trends hold true on average, two properties with the same number of workers could have very different energy use, as shown by the range in the blue dots. Trends can also be seen for other indicators of business activity, such as number of walk-in refrigerators.

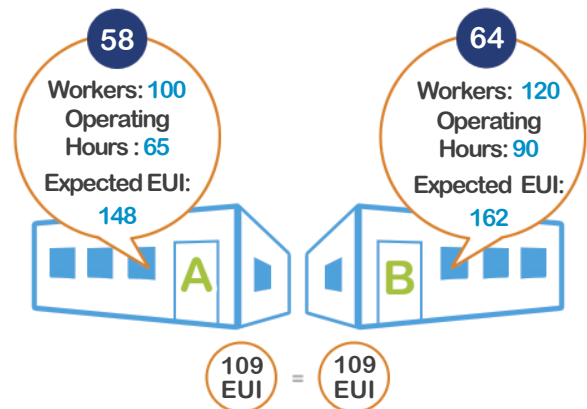


## How does EPA's ENERGY STAR score vary with energy use?

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 distribution centers, Center A and Center B. They have the same EUI of 109 kBtu per square foot, and are identical except that Center B has more workers per square foot and operates for more hours per week. Because Center B has more intensive activities, it is expected to have a higher EUI than Center A, based on ENERGY STAR scoring models. Since Center 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 property characteristics includes 1,554 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).