

# How Does Your IT Energy Measure Up?

## ENERGY STAR® Set to Rate Energy Performance in Data Centers

By Alyssa Quarforth

IN JUNE, THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) will release expanded functionality in its energy performance benchmarking tool, Portfolio Manager, to rate the energy performance of data centers. The functionality includes both standalone data centers and commercial buildings that contain data centers. As a result, Portfolio Manager will enable more office, commercial and institutional buildings to earn an ENERGY STAR® performance rating. This new rating is a result of feedback and collaboration between industry stakeholders and the EPA.

Previously, Portfolio Manager was

unable to rate standalone data centers or buildings with data centers that were more than 10 percent of their gross floor area. Starting in June, Portfolio Manager will calculate a 1-100 rating for these facilities. Scores of 75 or higher will qualify a building to earn the ENERGY STAR label, the real estate industry's leading indicator of superior energy performance.

EPA defines a data center as a space specifically designed and equipped to meet the needs of high-density computing equipment, such as server racks used for data storage and processing. Typically, these facilities require dedicated uninterruptible power supplies and cooling systems. The new model does

not apply to server closets or computer training areas, which should be incorporated into the office space or other applicable space types in Portfolio Manager.

In collaboration with industry leaders and associations, EPA selected Power Usage Effectiveness (PUE) as the metric to evaluate data center energy performance. PUE is a standard industry metric equaling the total energy use of a data center divided by the energy consumption used for the IT equipment. The PUE generally ranges from 1.25 to 3.0, where lower values represent greater efficiency. EPA analyzed the operating characteristics that explain the variation in PUE among data centers, and only the annual IT energy consumption was found to be

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statistically significant in explaining the variation in energy use.

*Total Annual Energy* is equal to the energy for IT equipment, plus all cooling, lighting and support infrastructure. Both standalone data centers and other buildings containing data centers can use the reading from the building master meter or their utility bills to provide the total energy consumption for the building.

*Annual IT Energy*—a new input into Portfolio Manager for data centers—is the amount of energy used by the IT equipment. The IT energy consumption should be measured at the *output* of the Uninterruptible Power Supply (UPS), the battery backup system that powers most data centers. It is common for UPS equipment to monitor energy usage in kilowatt-hours, and operators may simply need to record the consumption at this existing meter. If meters are only located at the *input* to the power distribution unit (PDU), operators can provide these values instead; Portfolio

Manager will adjust these values to estimate the UPS output.

The release date for the rating is scheduled in June 2010. Because a full year of IT energy data will be required, buildings with no IT energy meters will be able to use estimated values provided by the tool to compute ratings for up to two years until meters can be installed. ENERGY STAR will provide training sessions to further describe the process of updating data center information for both commercial real estate and data center audiences.

The new model will provide commercial real estate professionals and data center operators with a significant enhancement to their ability to benchmark performance and determine where they stand relative to their peers.

To access Portfolio Manager, go to [www.energystar.gov/benchmark](http://www.energystar.gov/benchmark).

**About the Author:** Alyssa Quarforth is the ENERGY STAR Program Manager for Commercial Properties with the U.S. Environmental Protection Agency.

## Portfolio Manager Vacancy Rules Updated

Responding to changing market conditions, in September 2009 EPA lowered the average annual occupancy requirement from 75 percent to 50 percent for office buildings applying for the ENERGY STAR label. This change was a result of an analysis by the EPA that confirmed that the energy performance rating still provides an accurate, rigorous standard for buildings with occupancy as low as 50 percent. Vacant square footage *must* be entered as a *separate* space entry, with weekly operating hours, workers and PCs all equal to zero.

Portfolio Manager users are encouraged to track levels of vacancy over time. If you have already benchmarked without entering vacant space separately, use the "Update" function to edit historical data and to add and subtract square feet between the vacant space and other space types moving forward.

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