

ENERGY STAR[®] Data Center Infrastructure Rating

Background and Data Collection March 2008



What is ENERGY STAR for Buildings?



- U.S. Government energy management program providing proven solutions to help public and private sector building owners and managers reduce their energy consumption.
- Over 1,700 Partners operating more than 11 billion square feet of space (nearly 20% of space in the U.S.).
- More than 62,000 buildings measure and track their energy performance using ENERGY STAR's Portfolio Manager on-line tool.

The ENERGY STAR for Buildings



- ENERGY STAR labeled buildings use about 35 percent less energy than average buildings.
- More than 4,000 buildings have earned the ENERGY STAR label for energy efficiency.



EPA's Energy Performance Rating System



- Based on actual as-billed energy data.
- Serves as a whole building indicator
 - Captures the interactions of building systems not individual equipment efficiency.
 - Tracks energy use accounting for weather and operational changes over time.
- Allows for peer group comparison
 - Compares a building's energy performance to its national peer group – not other buildings in Portfolio Manager.
 - Allows owners with multiple facilities to compare performance across a portfolio of buildings.

Goals for the ENERGY STAR Data Center Rating



- Build on existing ENERGY STAR methods and platforms. Methodology similar to existing ENERGY STAR ratings (1-100 scale).
- Usable for both stand-alone data centers, as well as data centers housed within office or other buildings.
- Assess performance at the building level to explain how a building performs, not why it performs a certain way.
- Provide users with information and links to additional resources to aid in their efforts to determine next steps after receiving an energy performance rating for their building.
- Offer the ENERGY STAR label to data centers with a rating of 75 or higher (performance in the top quartile).

What is the ENERGY STAR Rating for Data Center Infrastructure?



- **Unit of Analysis:** IT Energy/Total Energy
- **What:** Measure of infrastructure efficiency
 - Captures impact of cooling and support systems
 - Does not capture IT efficiency
- **Why:** Best available whole building measure at this time
 - Ideal metric would be measure of energy use/useful work.
 - Industry still discussing how to define useful work.
 - While discussions on useful work continue, it is important to start tracking, measuring, improving energy efficiency.
- **How:** Express ratio (IT Energy/Total Energy) as an ENERGY STAR 1-to-100 rating
 - Each point on rating scale equals 1 percentile of performance.
 - Adjust for operating constraints outside of the owner/operators control (e.g. climate or tier level).
 - Factors for adjustment to be determined based on results of data collection and analysis.

Rating Development Process Overview



- Consult with various industry stakeholders to develop consensus on the use of a ratio of IT Energy/Total Energy as the metric for the rating.
- Develop data collection template, instructions, and support materials.
- Gather data on actual energy use from existing data centers. Data required from at least 100 data centers.
- Analyze data to develop rating models.
- Launch ENERGY STAR Data Center Infrastructure Rating in Portfolio Manager.

Work Conducted Prior to Data Collection



- Prior to initiating the collection of data from data center operators in March 2008, the following activities took place:
 - **October 2007** – EPA met with industry and collected initial comments on the development of a rating for data centers.
 - **December 2007** – EPA met with industry to receive feedback on proposed data inputs for the rating.
 - **January - February 2008** – EPA reviewed the proposed data collection template with a number of stakeholder organizations, including the U.S. Department of Energy Save Energy Now Program, AFCOM, The Green Grid, and The Uptime Institute.
 - **February 2008** – EPA met with industry to review the updated data collection template and solicit additional feedback.
 - **March 2008** – Finalized the data collection template.
 - **March 20, 2008** – EPA held a webinar for industry to kick-off the data collection process, which will run from March 2008 – June 2009.

Process and Timeline for Data Collection and Rating Development



1. **Distribute data collection forms** – March 24, 2008
2. **Participant Expression of Interest forms due** – ASAP, but no later than June 1, 2008
3. **Data Center Operators begin collecting data** – ASAP, no later than June 1, 2008
4. **Initial data submitted** – After first month is collected
5. **Interim data submitted** – Quarterly
6. **EPA holds update web conferences** – Quarterly
7. **Final data submitted** – June 1, 2009
8. **EPA launches rating in Portfolio Manager** – January 2010 (subject to change)

Get Involved Now!!!



- **Data Center Operators**
 - Complete and submit the Participant Expression of Interest Form ASAP.
 - Ensure that the metering of the data center is set up properly.
 - Begin completing the data collection template and participate in EPA webinars to learn more.
- **Industry Associations** – Encourage your members to participate in this important effort.
- **Equipment Suppliers and Consultants** – Encourage your clients to participate in the data collection process.

For More Information



Please send any questions to:

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Check the ENERGY STAR website for updates:

www.energystar.gov/datacenters