

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



OFFICE OF  
AIR AND RADIATION

April 9, 2010

Dear Data Center Storage Manufacturer or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) welcomes your input on the attached Draft 1 Version 1.0 ENERGY STAR<sup>®</sup> Data Center Storage specification. This draft represents the combined efforts of EPA and stakeholders from across the industry to develop a framework for the characterization of storage energy efficiency. Comments on Draft 1 are due to EPA no later than May 21, 2010.

While there are many aspects of Draft 1 that are still to be determined based on the results of ongoing data analysis, the attached document presents EPA's latest thinking based on stakeholder comments on the specification framework and subsequent meetings with industry. Questions and important discussion topics are highlighted in note boxes located throughout the document. Key areas for continued discussion include:

- Draft "product family" terminology is included, given the high degree of customization and configurability of data center storage products.
- Where applicable, definitions have been aligned with the Fall 2009 edition of the Storage and Networking Industry Association (SNIA) Dictionary. Additional terminology is included for review and comment, including a proposed definition for "Storage Products" that are eligible for ENERGY STAR qualification.
- A discussion of storage system software as a contributor to overall system energy efficiency is included in Section 1 of the document. EPA recognizes the energy efficiency potential of software features such as data de-duplication, data compression, delta snapshots, thin provisioning and RAID 5/6, and intends to evaluate future software metrics for inclusion in this Version 1.0 specification.
- A structure for storage power supply efficiency requirements is introduced in Section 3 of the document. With the understanding that storage PSUs are often installed in redundant configurations, EPA intends to focus its efforts on encouraging: (1) the use of PSUs that are most efficient at low loads (<40%); (2) right-sizing of PSUs to application requirements; and (3) novel approaches to achieve overall system efficiencies. EPA's initial approach is to require that all storage product PSUs, including those used to power both spinning disks and controllers, meet ENERGY STAR qualification criteria.
- The Power & Performance Data Sheet and Data Measurement & Reporting requirements that appear in the Version 1.0 ENERGY STAR Computer Server specification are also included in this draft specification to encourage feedback regarding similar requirements for data center storage products.

As part of the ENERGY STAR specification development process, EPA recently completed a round of data collection which resulted in the submission of power and performance test results from more than 30 unique storage product configurations. EPA has begun to analyze this data to inform the development of energy performance requirements for future draft versions of the specification. Stakeholders are encouraged to continue testing and sharing additional test data as it becomes available over the next several weeks, in order to support the development of the initial specification structure. **EPA will host a stakeholder meeting in Orlando, FL on Thursday, April 15, 2010. A Webinar will be offered for those who cannot attend in person.** The agenda will include a discussion of preliminary results of the data analysis and initial comments on the Draft 1 specification. **Please RSVP to [storage@energystar.gov](mailto:storage@energystar.gov) no later than Tuesday, April 13, 2010 if you would like to participate.**

EPA will likely distribute two or more drafts of the storage specification before publishing the final specification, to continue to integrate stakeholder comments and the results of ongoing data collection and analysis. EPA expects to complete this spec in late 2010. Eligible storage products will be able to qualify for ENERGY STAR immediately upon finalization of this specification.

**Stakeholders are encouraged to review the Draft 1 specification and send comments to [storage@energystar.gov](mailto:storage@energystar.gov) no later than Friday, May 21, 2010.** For further information on specification development activities to date, visit the ENERGY STAR Product Development Web site at [www.energystar.gov/NewSpecs](http://www.energystar.gov/NewSpecs) and follow the link for “Data Center Storage.”

Thank you for your continued support of the ENERGY STAR program. If you have any questions regarding these documents, please feel free to contact me at [fanara.andrew@epa.gov](mailto:fanara.andrew@epa.gov) or (206) 553-6377, or Stephen Pantano, ICF International, at [spantano@icfi.com](mailto:spantano@icfi.com) or (202) 862-1551.

Sincerely,



Andrew Fanara

U.S. Environmental Protection Agency  
Climate Protection Partnerships Division  
ENERGY STAR Program