

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



OFFICE OF  
AIR AND RADIATION

June 22, 2012

Dear Data Center Storage Manufacturer or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) welcomes your input on the attached Draft 3 Version 1.0 ENERGY STAR® Data Center Storage specification. Comments on Draft 3 are due to EPA **no later than Friday, July 27**.

Since the release of Draft 2, EPA has worked with a wide range of stakeholders to revise and clarify the approach associated with this new ENERGY STAR product category. The attached Draft 3 presents a revised scope and package of efficiency requirements that enable the program to highlight the top performers in the market in the near-term and contains provisions to support more robust efficiency criteria going forward. EPA's rationale for proposals and important discussion topics are highlighted in note boxes located throughout the document. The following key changes were made in this draft:

- **PSU Efficiency Criteria:** EPA has retained the power supply efficiency requirements from Draft 2 and welcomes stakeholder feedback. Stakeholders have commented that multi-output PSUs may require a different efficiency level and EPA welcomes any data addressing this concern.
- **Product Families:** The family structure has been revised to reflect EPA's proposal to qualify product families around an optimal configuration for a given workload type. EPA is proposing a range of 25% around the optimal configuration, based on Storage Device count, and defining maximum and minimum configurations permitted to be sold as ENERGY STAR qualified (not necessarily the limits of available configuration options). Stakeholders will be able to submit multiple optimal configurations which can be optimized for transaction, streaming and/or capacity workloads. Details on the allowable range and testing of these three configurations can be found in the product family definition within the draft specification. EPA is proposing to allow combinations of these optimized systems to be included in product families and sold as ENERGY STAR.
- **Program Scope:** EPA is proposing to add Block I/O capable Network Attached Storage (NAS) systems to the scope of Version 1.0. Additionally, EPA has clarified that only scale-up architecture is currently within scope, though EPA is seeking additional data from stakeholders to effectively address scale-out architecture prior to the release of Version 1.0.
- **Active and Idle State Requirements:** EPA has removed the Active State and Idle State efficiency criteria from Section 3.3. After reviewing its data set and discussing the matter with stakeholders, EPA has concluded that setting a single idle threshold at any level would lead to imbalanced incentives for qualification. A single idle level would favor specific workload types while systems optimized for idle may not be representative of the most efficient active mode systems, complicating the setting of active requirements in future versions of the specification. These imbalances would lead to the qualification of models that are not representative of the most energy efficient configurations across the full range of marketed products. EPA does not currently have sufficient data to set workable levels but intends to use data from Version 1.0 to set levels in a future Version 2.0.

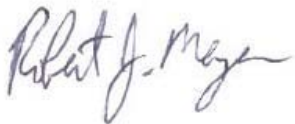
- Energy Efficient Features: EPA has revised the COMs portion of the specification and is proposing requirements for availability of COMs based on system size.
- Power and Performance Data Sheet (PPDS): EPA has provided additional detail on proposed data to be reported in the Storage PPDS and seeks stakeholder input on additional information that should be included in this section.
- Reporting Requirements: Active and Idle State data is still subject to a reporting requirement in Version 1.0. This will require that optimized configurations of a Storage Product be evaluated using a predetermined testing methodology, with results to be publically disclosed via the ENERGY STAR program as part of the Power and Performance Datasheet and on the ENERGY STAR Qualified Product List. EPA proposes the use of the *SNIA Emerald™ Power Efficiency Measurement Specification*, Version 1.0 (23 August 2011) as the basis of evaluation and data disclosure. Manufacturers will be required to submit additional test results for systems smaller and larger than the optimal configuration, based on storage device count. Additional requirements have been proposed to provide manufacturers flexibility in using more efficient Storage Devices in a previously qualified configuration, given that the performance increase does not fundamentally alter the behavior of the system.

**EPA will host a webinar on Wednesday, July 11, starting at 1:00 PM EST.** The agenda will be focused on changes introduced in Draft 3 and also include discussion of other issues relating to the ENERGY STAR program such as verification testing. **Please RSVP to [storage@energystar.gov](mailto:storage@energystar.gov) no later than Tuesday, July 3** with the subject "RSVP – Storage Draft 3 specification meeting."

**Stakeholders are encouraged to review the Draft 3 specification and send comments to [storage@energystar.gov](mailto:storage@energystar.gov) no later than Friday, July 27.** For further information on specification development activities to date, visit the ENERGY STAR Product Development website 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. Please direct any specific questions to RJ Meyers, EPA, at [Meyers.Robert@epa.gov](mailto:Meyers.Robert@epa.gov), or 202-343-9923; or John Clinger, ICF International, at [John.Clinger@icfi.com](mailto:John.Clinger@icfi.com), or 202-572-9432.

Sincerely,



Robert Meyers  
Data Center Product Lead  
ENERGY STAR for Storage