

## Clinger, John

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**From:** Tanzer, Herbert J <herb.tanzer@hp.com>  
**Sent:** Thursday, November 03, 2011 6:43 PM  
**To:** ENERGY STAR Storage  
**Subject:** Hewlett-Packard Response to Draft 2 Version 1.0 ENERGY STAR ENERGY STAR Data Center Storage specification

To: EPA, [storage@energystar.com](mailto:storage@energystar.com)

Re: Hewlett Packard Response to Draft 2 Version 1.0 ENERGY STAR® Data Center Storage specification, dated 6-October-2011. Can be found at:

[http://www.energystar.gov/index.cfm?c=new\\_specs.enterprise\\_storage](http://www.energystar.gov/index.cfm?c=new_specs.enterprise_storage)

From: Hewlett-Packard Company, Enterprise Servers, Storage, and Networking, Storage Business Unit

This document may be published on the ENERGY STAR website.

Hewlett-Packard (HP) has participated in the responses being provided to the EPA from SNIA and TGG, and generally concurs with this feedback. Some additional points and emphasis are provided here. For any follow-up, the primary contact at HP is: Herb Tanzer, Storage Architect, [herb.tanzer@hp.com](mailto:herb.tanzer@hp.com), 719-548-3415

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### Section 1: Definitions

[Lines 299-329] Product Family- Book-ending can work with Max, Min, Typ Configurations, but are these for size, power or the metric? Strongly suggest the best-foot-forward or sweet-spot approach that allows tuning the storage configuration for each test profile to produce the best set of metrics. This could potentially qualify all saleable SKUs or the complete product family.

### Section 2: Qualifying Products

[Line 406] JBODs are specifically excluded from eligibility. They are part of Online2 and would thus compete with systems that have integrated storage controllers. To be fair, the RAID function on the server PCI card would need to be power measured for a Direct-attached Storage (DAS) system...and it is not clear how this would be properly done. HP sells a large volume of DAS systems, and would like them to be considered for V2.0. This may require a separate taxonomy category, and inclusion of the complete server as part of the measurement.

[Line 434] Power supplies should align directly to 80PLUS definitions; and for 230V Redundant at 10% load point is defined only for Titanium ratings. Silver as the V1.0 requirement for all 230V Redundant PSU's is appropriate, although dropping the requirement for multi-output to Bronze is reasonable. Even existing units can be upgraded by PS vendors to incorporate higher-efficiency electronics without a great deal of effort, time, or cost.

[Line 438] Power supplies in embedded or 3<sup>rd</sup> party equipment in storage systems should not be required to be ENERGY STAR qualified. They constitute a very small portion of the total power compared to the primary components (i.e., controllers, drive shelves) and they should not act as inhibitors.

[Lines 475, 456] Strongly agree with the V1.0 intent to require a Idle State Efficiency Criteria (a cut-off point) and to require Active State Efficiency Disclosure (data only). However, unclear are the expectations on configuration changes. To achieve a best idle metric (raw capacity/power) will preferentially select capacity drives, whereas the best active metrics will preferentially select performance drives. Sweet-spot configurations are, by their nature, tuned to produce the highest metric for each test profile.

[Line 499] Power Modeler tool results are difficult to “warrant.” They provide an estimate that is usually accurate within +/- 10% for power consumption.

[Line 507] RAID is a RAS feature defined as Storage Protection in the Taxonomy categories (Optional in Online 2 and Required in Online 3 & 4) If RAID is required, then parity RAID is more efficient than mirroring RAID 1. Having the parity RAID feature should be moved into Table 4 as one of the “x out of y” features.

[Line 509] Most storage systems have at least some rudimentary adaptive cooling, say two fan speeds. But, specifically, what constitutes adequate adaptive cooling – and how is this supposed to be validated?

[Line 516] In general, storage systems do not come with COMs that are pre-enabled by default. They are added features that the User can choose to enable after a baseline operation is established.