

To: Mr. Robert Meyers
U.S. Environmental Protection Agency, Climate Protection Partnerships Division
ENERGY STAR Program

Date November. 4, 2011

Hitachi's Comments and Recommendations on the Draft 2 Version 1.0 document

Thank you for the opportunity to provide feedback on the US EPA's Draft 2 Version 1.0 of ENERGY STAR® Program Requirements for Data Center Storage. We have reviewed the draft and have the following comments and recommendations. We hope the EPA will take these into consideration in developing the next draft of ENERGY STAR Data Center Storage.

Sincerely,

Katsumi Ouchi
Senior Researcher
katsumi.ouchi.dp@hitachi.com
Hitachi, Ltd.
www.hitachi.com

Hitachi's Comments and Recommendations on the Draft 2 Version 1.0 document

3.2 Power Supply Requirements

Hitachi recommends that levels be aligned with those of 80 plus instead of CSCI and 10% load requirement of redundant capable IPS be excluded. Hitachi believes that actual load in idle state is rarely below 10% even in redundant IPS configuration.

3.6 Energy Efficiency Feature Requirements

- (1) Hitachi strongly recommends that it must be clarified in the specification how to check if a storage product has end user configurable / selectable features listed in Table 4 and if the features are enabled. We need to know definitions of feature existed and feature enabled.
- (2) Hitachi strongly recommends that "the feature must be enabled by default upon shipment" be excluded from the specification. Hitachi believes that the feature must be enabled by end user after shipment.
- (3) Hitachi strongly recommends that data deduplication and compression be excluded from Table 4 in Online Storage taxonomy. Hitachi believes that data deduplication and compression are rarely used in online storage products. Gartner's report "Hype Cycle for Storage Technologies, 2011" says that market penetration of compression is between 1% and 5% and market penetration of data deduplication is between 5% and 20% including backup/archive storage products.
- (4) Hitachi strongly recommends that a number of end user configurable / selectable features listed in Table 4 with which a storage product must be shipped be one or two. Hitachi believes that low-end (Online 2) storage products have very limited number of features to keep down costs.
- (5) Hitachi recommends that definition of "Deep Sleep Mode" be clarified in the specification.
- (6) Hitachi strongly recommends that "Allow for unallocated storage elements to be placed into a power-down state" in Table 4 be changed to "Allow for unallocated storage elements to be placed into a spin-down state or a power-down state".

3.8 Standard Performance Data Measurement and Output Requirements

Hitachi strongly recommends that measuring and reporting of Inlet air temperature be excluded from Version 1.0 specification. In storage products with high scalability, it seems that thermal sensors need to be placed in drive shelves as well as controller shelves. Usually, inlet side of drive shelves is front side and drives are densely-installed in front side of drive shelves. Therefore, placement of thermal sensors is challenging and requires a lot of time for vendors.

4.2 Number of Units Required for Testing

Hitachi recommends that qualification policies of storage product with mixed drive types should be clarified in the specification. Power efficiency of storage product is largely depends on its drive type, i.e. SAS HDD or SATA HDD or SSD, and in many cases different types of drives are installed in the same storage product upon shipment.