

May 4th, 2010

To: EPA ENERGY STAR Enhanced Verification and Testing Program

The SNIA appreciates the opportunity to provide recommendations to the EPA ENERGY STAR program focus on Verification and Testing.

The SNIA is a global industry association representing membership for storage and data management industry segments, www.snia.org. The SNIA has been collaborating with the EPA for the ENERGYSTAR Data Center Storage program for several quarters. SNIA's focus on Green IT, as it relates to storage systems started in 2007.

<http://www.snia.org/forums/green/>

SNIA has been proactive in drafting an Energy Measurement Specification, collecting and analyzing measured energy consumption for a breadth of data center class storage configurations, delivering Green IT and Storage education, and forging global industry alliances and relationships for related datacenter efforts.

SNIA recognizes many SNIA members may also submit recommendations for the Verification and Testing Program as well as other industry associations. The SNIA recommendation is a collective view of its membership and may not represent every facet of any individual recommendation, however we believe most submissions from SNIA member companies align well with the SNIA collective view. Several SNIA members will not have the resources to submit their own separate response and support the final SNIA collective position as their position. Additionally, SNIA has had the opportunity to preview a few other industry association planned responses and does endorse the position of TheGreenGrid and those aligning with self-test leveraging member test facilities adhering to ISO 17025.

SNIA is available for future discussions to clarify our response and to review future EPA plans for the ENERGYSTAR Verification and Testing Program. SNIA can be reached as follows.

Wayne M. Adams
SNIA Board of Directors, Chairman
www.snia.org
phone: 508-293-6439
adams_wayne@emc.com

SNIA Recommendations:

For the creation of a Verification and Testing specification, SNIA recommends the EPA separate Data Center Products from the Consumer non-datacenter IT products; treat all Data Center Products with a uniform verification test process since many of the IT system manufacturers have multiple product lines and device type categories, depending on any given manufacturer, may include any/all of Servers, Storage, Networks and UPS. Within the Data Center class of products, there can be individual Test and Verification specifications for tailored to each type of product, however, with the recommendation the testing facilities, audit, and test result submission be identical.

SNIA recommends the Verification and Testing process leverage manufacturers ISO 17025 labs, to perform testing on their own premises or a lab of their choosing. Testing on premises can be under auditor observation or self-test (unobserved) with submitted results to independent auditor, with auditor challenge. Testing at an independent test lab can be run by the independent test lab personnel and or by the manufacturer under auditor observation (auditor provided by independent test lab). This will enable several industry efficiencies for integrity of results, timeliness of tests and time to test, a number of costs, and overall industry testing volume.

Some points of merit for a manufacturer to test in-house in their own ISO 17025 lab include:

- Avoidance of backlog of testing or serial testing through industry independent labs, if industry independent labs would be the only site option.
- Leverage vendor firsthand knowledge to configure vendor-specific complex configurations coupled with complex and home-grown test rigs.
- Cost avoidance and lost time due of teardown, shipping, restaging of a system to be audited; avoid international complexities and time-delays for equipment manufactured out of USA, regardless of the manufacturer incorporation being US or non-USA based. Leverage ISO methods instead of national methods. Costs savings include equipment shipping as well as trained personnel travel expenses.
- Enables extended hours of lab use without cost penalties when using an in-house lab.
- Enables manufacturer to more rapidly remedy incomplete tests due to mis-configurations, test procedure mistakes, and test conditions not met.

Manufacturers have a full range of product configurations that can range from small and modular to large, complex, and configured to a specific customer set of requirements. Treating all Data Center Classes of Storage (refer to SNIA Taxonomy as part of its Energy Measurement Specification) for Verification and Testing uniformly will leverage manufacturers current use of in-house and industry ISO 17025 test facilities as single common set of internal processes. SNIA does not recommend fragmenting the classes of storage where testing is performed in different ISO labs, e.g. whereby small/modular

configurations can only be tested independent labs, while large, unique configurations can be tested at in-house ISO 17025 labs or industry labs. SNIA recommends that regardless of product class, the manufacturer can use the identical testing methods including the option to test in-house.

There is a concern for overall costs of Verification and Testing, that may be passed onto IT purchasers, whereby increased costs for ENERGYSTAR rated offerings over non-test/rated offerings can drive the opposite desired purchasing behavior based on price. SNIA believes permitting manufacturers the option to use in-house ISO 17025 testing facilities can help manage their costs.

If the Data Center for Storage ENERGYSTAR Specification will contain energy efficiency ratings for power supplies, the SNIA recommends the continued reference and use of EPRI as an independent testing service for the 80Plus/ECOS/EPRI test protocol. Since storage power-supplies for data center class storage have to be modified to be tested with the 80Plus/ECOS/EPRI test protocol and be tested on a bench, we recommend the power-supply testing for an ENERGYSTAR Verification and Test specification purposes be conducted separately from a full storage system energy verification and test audit, and we recommend the testing be done at EPRI. There are additional complexities that make in-system testing of power-supplies not feasible including the number of power-supplies, the operating condition of a system under full load while a power-supply would have its fans not powered, and safety considerations to rig all the power-supplies in a system to be tested.

As SNIA understands the EPA's plans to develop at least two Tiers of an ENERGYSTAR for Data Center Storage specification, we foresee the subsequent Tier may include more variables of relevant configuration complexity such as RAS or software including thin provisioning, compression, and or data deduplication. This increased complexity will in more instances lend those manufacturers ISO 17025 labs can be more cost and time effective due to their vendor specific product knowledge to setup the products and test rigs. SNIA recommends from the outset, a Verification and Testing specification to include ISO 17025 manufacturers' facilities, for all types of Data Center IT systems, storage systems included.

SNIA recommends the primary method to select a pool of products for audit be based on industry tracking studies for shipped/deployed volume by known industry research firms, and a random selection be made from this pool. Therefore, verification processes would ensure large segments of the industry are benefitting and industry energy efficiencies are being achieved. SNIA less favorable of only a random selection of ENERGYSTAR listed offerings or only a peer industry challenge made by other industry manufacturers.