



**Response from The Green Grid to:
ENERGY STAR® Program Requirements for Computer Servers Draft 4**

The Green Grid Association, a consortium of industry leading companies welcomes the opportunity to comment on an early draft of topics under consideration for the ENERGY STAR for Computer Servers Specification. Some member companies of The Green Grid Association may in addition have provided additional considerations highlighted by their industry or company's particular perspective. Some members may have also provided their inputs through the Information Technology Industry Council (ITI) and Climate Savers Computing Council (CSCI).

Introduction

A consortium of information technology providers, consumers and other stakeholders, The Green Grid Association seeks to improve the energy efficiency of data centers around the globe. The organization takes a holistic and comprehensive approach to data center efficiency and understands that addressing this challenge requires a high-level view of the entire data center and cooperation among a wide range of industry principals. Participants in The Green Grid include such diverse companies as major server and storage equipment manufacturers, major software providers, and large end-users / data center owners.

Overall

The Green Grid's feedback is summarized and addresses the key topics of concern in draft 4. We laud the progress and inclusion of the industry considerations thus far and encourage more detailed dialog to finalize version 1 of the specification within the May '09 targets expressed by the EPA. If you encounter any questions and/or wish to proceed with these activities, please feel free to contact Henry ML Wong, henry.l.wong@intel.com or Jay Taylor, jay_taylor@dell.com.

Energy Star Requirements for Computer Servers Draft 4

The Green Grid (TGG) appreciates EPA's incorporation of the variety of the considerations voiced on the previous draft of Energy Star for Servers, v1.0. We believe that these considerations in conjunction with TGG's own efforts will help drive energy efficiency in the datacenter and servers. TGG specifically appreciates the acknowledgement of the configuration and feature complexity in 4socket systems, the outlier determination of adders, the introduction of the product family approach to qualification, and clarification on product categories not within the scope of Energy Star for Computer Servers v1.0.

TGG recognizes the schedule and pressing need to implement Tier1 of the Energy Star for Computer Server specification. The TGG concurs with that need to invest the resources to focus on a development of energy efficient performance metric(s), which more closely aligns with the needs of data centers.

As should be noted in the feedback, TGG recommends making changes to Tier 1 that would more quickly gain closure on this revision without introducing unintended consequences. The development of Tier 2's framework and tools would be less encumbered by a prolonged tuning process of Tier1. We also believe that many of the finer points of clarification are and will be conducted with industry organizations and TGG prior to the release of the final draft.

To more quickly close on Tier1, our recommendations are as follows:

- + Treat Blades similar to 4Socket systems (Power Mgt, Reporting data, and No idle limit). The blade category is complex from a testing and configuration standpoint. Attempting to conduct several rounds of data collection and review will take a significant amount of time and could negatively impact the development of energy efficient performance metric(s) for Tier 2.
- + As referenced by CSCI, low load efficiency and PFCs should be changed on low (input) power PSU's. The TGG recommendation is to remove the *low load* ($\leq 20\%$) testing requirements (PFC and efficiency) for PSU's $\leq 500W$. Removal will simplify the testing, has little impact to energy savings, and reduces the possibility of the mixed incentive of over-sizing supplies.
- + The 2Socket systems configured with 1 Processor, should be treated as a 2Socket system (i.e. 2P limit) with a 15W idle power subtraction. The associated system limits would be consistent with those customers purchasing the features enabled these systems, and allows for incremental upgrades when the projected needs increase.
- + Based on SAS *storage* data and reflective of the performance requested many customers, we recommend a 10W SAS controller (add-in card) adder.
- + The industry appreciates EPA providing a product family qualification route to simplify management of ENERGY STAR products for EPA, our customers and ourselves. However, the industry recommends further discussion on creating an improved definition of the maximum and minimum configuration test points, the associated

testing requirements and the qualification status of all of the configurations within a product family.

- + For DC-DC systems (i.e. -48Vdc), the test voltage should be -53Vdc \pm 1Vdc. Although these systems are quoted as -48Vdc, with a large operating range, most installations are running at -52Vdc to -54Vdc.
- + With respect to *processor utilization*, thermal and power data reporting, we recommend removing the 1second sampling requirement. The sampling requirement may restrict innovations in sampling and controls of the lower subsystems. The request that currently exists in draft4 for an accurate status at 30second intervals should be sufficient for the server level controls without impacting the subsystems.
- + For Tier 2, we recommend removing the energy efficient network specification and requirements and the storage targets from Tier 2. The IEEE802.3az is preliminary and will be limited in adoption by the Tier 2 timeframe. IEEE802.3az may be a consideration after Tier 2, as the 10Gbe and other supporting products can adopt the standard. As discussed with the Storage and Network Industry Association (SNIA), the different characteristics of energy efficiency in storage warrant the development of a separate specification for this group of systems.

TGG continues to consider the EPA and specifically the Energy Star program a partner to industry in the effort of achieving improved energy efficiency in IT equipment and its application in the datacenter. TGG and its members have often met to discuss the details of the Energy Star program with the EPA. TGG will continue to offer our technical and administrative assistance in the program.