

March 21, 2008

Environmental Protection Agency  
ENERGY STAR Program

We appreciate the EPA's efforts at standardizing energy efficiency and consumption of computing devices, as reflected in this ENERGY STAR Computer Program Draft 1 Version 5.0. We are pleased to submit our comment for your review.

Sincerely yours,

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General comments:

In the future for drafts may I request a text or word document, with the draft that would be non-official? This would expedite gathering industry internal comment and speed replies to the EPA for future input.

Below contain the recommendations and review provided by the Dell team. No information in the field following the category means, no recommendation or comment at this time.

1) Definitions

- a. Computer:
- b. Display:
- c. External Power Supply:
- d. Internal Power Supply:
- e. Desktop Computer:
- f. Desktop Derived Server:
- g. Game Console:
- h. Integrated Computer: These appear in configuration and performance like a high end laptop. We recommend that the designation be changed to integrated desktop computer, to allow distinguishing portable systems from non-portable systems.
- i. Thin client: - Does it have internal capability of processing or is all processing done on the server? This area may need additional test and review, as both types exist in the marketplace currently.
- j. Notebook and Tablet Computers: In testing laptops there is a category for high end laptops and portable workstations that need to be added and defined. Category A/B for notebooks allow mainstream notebook and tablet PC's to be qualified, however, portable workstations are distinguished by high performance graphics and have consistently been unavailable for the Energy Star brand.
- k. Workstation: See above note for portable workstations.
- l. Off mode: The power consumption level in the lowest power mode which cannot be switched off (influenced) by the user and that may persist for an indefinite time when the appliance is connected to the main electricity supply. For purposes of this specification, Off Mode correlates to ACPI System S5 states.
- m. Sleep Mode: A low power state that the computer is capable of entering automatically after a period of inactivity or by manual selection. A computer with sleep capability can quickly "wake" in response to network connections or user interface devices. For the purposes of this specification, Sleep mode correlates to ACPI System Level S3 (suspend to RAM) state. Systems may persist in a Sleep state (S3, suspend to RAM) for some period of time, before transition to S4 (Suspend to disk)

Many questions have been posed to Dell by customers and challenges have been brought to the requirement that WoL be enabled in S3. We request that the standard explicitly state that WoL be required to be implemented in S3 or S4 for Enterprise customers.

- n. Idle State: The state in which the operating system and other software have completed loading, the machine is not asleep, and activity is limited to those basic applications that the system starts by default.

- o. Active State: The state in which the computer is carrying out useful work in response to a) prior or concurrent user input or b) prior or current instruction over the network. This state includes active processing, seeking data from storage, memory, or cache, not precluding idle state time while awaiting further user input and before entering low power modes.
- p. Network Interface:
- q. Wake Event:
- r. Wake on LAN (WOL):
- s. Energy Efficiency Performance Assessment: Significant investigation is needed on how much time the category machines while used spend in idle, active and sleep. The draft indicates a desire to approach annual energy consumption. Dell requests that more clarity on how and what linkages exist between EEPA and Annual Energy Consumption calculations.
- t. EEPA Tool: The tool appears to lead to more categories. Generally, we would support the additional complexity of more categories if richer feature sets are included, and are able to be qualified. We are supportive of activities and efforts to bring Energy Star to wider acceptance in the markets we serve.
- u. Workload: does the ECMA or GWPG tool provide a method to deliver annualized energy consumption? GWPG will deliver benchmark results significantly different from the ECMA/BAPCo tool. Dell is concerned that these benchmarks lead to the conclusion of reduced energy consumption from a fact and data perspective.
- v. Enterprise Channels:

## 2) Qualifying Products

The table under qualifying products lists handheld and PDA devices are not covered. However definition is needed to distinguish a small laptop from a handheld or PDA device.

## 3) Energy Efficiency and Power Management Criteria

- a. We recommend alignment to the Climate Savers Computing Initiative levels.
- b. Efficiency and Performance Requirements
  - i. Desktop, Integrated Desktop Computer, Notebook and Tablet PC Levels:

The proposed annual formula appears to contain errors, and needs review and restating for delivering the proposed results.

- ii. Workstation Levels:

GWPG does not utilize BAPCO or the BAPCO methodology and may not allow direct comparison annual energy consumption.

- iii. Game Consoles
- iv. Desktop Derived Servers

- v. Thin Clients - Version 4 testing will suffice for now. Time frames may be inadequate to develop a new test procedure that would sufficiently account for the effect thin clients have on IT infrastructure. It would seem unreasonable to expect equivalent power consumption of thin clients across the range of capability. Some thin clients contain all standard computer resources with the exception of the hard drive, others are in effect nothing but a remote display, keyboard and mouse with all computation and applications running on the server.

If the EPA tackles this class product they will need to review sub-categories for the different levels of "THIN" or account for the increased energy consumption on the server due to the thin client.

c. Power Management Requirements

Table 5 –Comment

We are not aware that IEEE 802.3az is an available standard and is actually scheduled for target completion in 2011, is it reasonable to include this standard in a draft for 2009?

Including consumer products in Energy Star criteria may have issues with unintended vulnerabilities in WOL functionality regarding existing routers and modems.

There is a very strong possibility that maintaining full network connectivity features during sleep will significantly increase the sleep mode power and thus increase the power consumption of client computer systems under version 5.0. May we request to know why the EPA thinks this feature is necessary and what functionality is required?

The document states: "For all computers with WOL enabled, any directed packet filters shall be enabled and set to an industry standard default configuration. Until one (or more) standards are agreed upon, partners are asked to provide their direct packet filter configurations to EPA for publication on the Website to stimulate discussion and development of standard configurations."

Is a test condition only? Would the standard define a requirement to ship systems with this default setting enabled? Many customers that have specific wake packet security requirements and "NEED" to exclude some of the "standard" options in order to get their systems to achieve low power states.

Their systems otherwise meet energy star but if we ship them as ENERGY STAR requires they may never go to sleep and consume much more power.

- 4) Test Procedures
  - a. Models Capable of Operating Multiple Voltage/Frequency Combinations  
Table 6 – We propose alignment to the CSCI- ECOS aligned test procedure for internal PSU's.
  - b. Qualifying Families of Products  
Definition of Highest power configuration
- 5) Effective Date
- 6) Future Specification Revisions

