Discussion Guide for ENERGY STAR® Computer Stakeholder Working Session 5/18/06

EPA sees the May 18th computer stakeholder working session as an excellent opportunity to work collaboratively with industry to refine a number of areas of the specification. EPA believes that this working session will move us closer to a specification that drives towards energy efficiency while considering the unique nature of the covered products. Since the Draft 2 specification release in mid April, EPA has been discussing the Draft 2 proposals with numerous stakeholders. This document is intended to summarize these discussions, relay proposals that have been exchanged, and serve as roadmap for the discussion at the May 18th meeting.

In order to accommodate stakeholders' concerns about the creation of a dataset that best represents products available when the specification is finalized, EPA will complete development of the specification language, including definitions, by July 1, 2006, but will hold the determination of the final levels until after receipt of industry-furnished data in August 2006. EPA remains committed to working closely with industry to finalize these levels so enough time is given to prepare for the July 1, 2007 effective date.

Finalized Issues:

- The specification will take effect with all requirements on July 1, 2007.
- EPA plans to finalize the specification with all appropriate definitions and approaches by July 1, 2006. EPA will accept available manufacturer data in August and set all final levels based on this data. EPA will release the final specification after incorporation of the levels in September.
- An Idle level will be included in the final specification for all applicable products.
- The power supply efficiency levels are considered final and will be included in the final specification. EPA has set these levels early to give manufacturers time to secure their supply chains before the July 1, 2007 effective date.
- WOL enabling at shipment will be optional from off/standby and be required for sleep for only those computers being shipped through enterprise channels.
- There will be an electronic labeling option to replace physically labeling the front or top of the product.

Session I: Desktop Differentiation for Idle State Power Requirements

Draft 2 Proposal: Products can qualify under Category A for high capability systems if they meet 4 out of 7 of the following requirements:

- Multiple processors installed
- 4 or more cores on a single processor
- 2 or more GPUs or a single GPU with > 128 MB RAM
- HDTV capable video outputs
- TV tuner
- 2 or more internal hard disk drives
- 2 GB or more of installed RAM

ITI Counter Proposal: For the sake of simplicity, expedience and relevance, ITI proposed a simple differentiation technique of Category A computers only needing to have greater than one processor core.

Moving Forward: EPA understands the benefits of a simple approach and hears industry's concerns that refinements to the currently proposed definition would enable the specification to better reflect capabilities available in the market. However, EPA intends for the majority of ENERGY STAR computer models sold to meet the lower idle level and that the higher idle level is truly reserved for high performance systems. To this end, EPA has created a proposal that uses the ITI proposed approach as its foundation and amends it as follows:

Computers must have at least 2 of the following to qualify using the Category B Idle level*:

- Two or more processor cores
- 2 GB or more of installed DRAM
- Greater than 128 MB of dedicated graphics memory separate from system DRAM

All other desktops will be classified as Category A* computers.
* Note: EPA has switched the designation of category A and B so that category B now represents higher capability systems as recommended by stakeholders. This will also allow for the addition of higher capability categories, if such an approach is needed for Tier 2.

EPA believes these additions are necessary to acknowledge that the processor, memory, and GPU are common proxies for high capability systems and that this definition can be met by both high end type business desktops (dual core processor and ≥ 2 GB of RAM) and high end type gaming/multimedia machines (high end graphics and memory or dual core processor).

Discussion questions to answer:

- Does EPA's proposal seem reasonable to stakeholders and simple to implement?

Session II: Low Power Modes

Draft 2 Proposal: EPA proposed base power levels with the addition of adders for WOL functionality and increased system memory.

Industry Response: Some industry members felt these levels were too strict and that the adders were not sufficient for the functionality.

Moving Forward: Because of feedback from manufacturers that the power allocated for low power modes and associated adders might not be sufficient for some products/components (e.g., high-density memory or buffered DIMMs), EPA will be asking industry for increased data to support these claims. EPA will gather this data and then set levels based on the data provided.

Discussion questions:

- What are the appropriate adders for low power modes and what data needs to be collected to set these final levels?

Session III: Workstation Definition and Requirements

Draft 2 Proposal: Differentiate workstations by requiring the system to be marketed as a workstation, have advanced memory, have a high end graphics card, and meet a number of other requirements in the areas of performance, reliability, and availability (see Draft 2 specification page 7). Draft 2 also included Off and Sleep levels for workstations, as well as a distinct Idle level.

ITI counter Proposal: Due to high configurability of systems, ITI proposed basing the workstation definition on the number of hard drive bays, memory sockets (including riser cards), PCI sockets, and the size of the power supply. Workstation levels would then be set either in two separate performance bins (based on these same characteristics) or on a scalable level based on the rated output of the power supply.

Moving Forward:
EPA realizes that different manufacturers have different strategies for workstations that include differences in manufacturing, configurability, and focus on energy savings. To this end, EPA proposes the use of a Typical Energy Consumption (TEC) approach based on a common duty cycle to characterize the energy consumption of these products. Instead of specifying sleep, standby, and idle levels for Workstations in Tier 1, a TEC approach would define a duty cycle that would be used to determine the amount of power used over time. Sleep, Standby, and Idle values would be weighted by percentage of time in each state. These percentages would be agreed upon by industry and EPA. EPA also remains open to different ways to make this approach more scalable.

EPA is also looking for ways to reconcile the Draft 2 definition and the ITI counter proposal and looks to the May 18 meeting to further this effort. EPA does not believe that the high configurability of these products should drive the design of applicable energy efficiency requirements as many desktop and notebook manufacturers have similar manufacturing processes. EPA is also concerned about giving special consideration for a system's high performance while using a workstation definition that does not factor in the unique performance characteristics of that system, using the potential capability as the metric. EPA needs to set a strict definition to ensure that only those computers developed as workstations can qualify under this definition but remains open to reworking and simplifying the definition to make sure it incorporates only the most critical aspects that separate workstations from desktops.

There remains some hesitation to use power supply rating as a proxy for performance and power consumption. EPA would prefer to set requirements that encourage and reward designs which use less energy, as opposed to providing a path for continuous increase in energy use based on percentages. However, proposals will be considered if enough data is given to illustrate this correlation and if it is clear that this is a useful metric for comparing workstations over a large range of capabilities.

Discussion questions:
- Would stakeholders support a TEC approach to balance the energy needs of these systems? Do stakeholders think this is acceptable and achievable in the short time span needed for completion of the specification?
- What are the most critical aspects that separate a workstation from a desktop?

Session IV: Data Collection Needs and Timing

Moving Forward: EPA would like to work closely with stakeholders to develop the final data set that will be used to determine power mode levels, capability adders, etc. In this session, EPA hopes to reach a consensus with stakeholders on data requirements, as supplied by industry, and the timeline for when data will be provided, analyzed, and shared with stakeholders in the form of final specification levels.

Discussion questions:
- What data is needed in August for EPA to effectively set power levels?
- What type of systems will make up the final data set in order to make sure it represents the most current and available models in the market?
- How much data will be provided and on what kind of systems?

Session V: Open Discussion of Other Specification Topics

Discussion questions:
- Where do desktop derived servers fit in this analysis? Is EPA going to receive any data on these system types to justify levels? Should the definition for these products include hardware factors similar to Workstations (i.e. ECC memory, RAID configured hard drives, etc.)?
- EPA is willing to require package labeling only for units sold at retail. Do stakeholders wish to discuss the process for proposing an alternate electronic labeling option to EPA?
- Some comments supported a 5V standby rail efficiency requirement for internal power supplies as a way to decrease low power consumption. Is this idea supported by industry?
- What will be the process to move forward with Tier 2 benchmarking? What progress has been made to date?
- What information regarding benchmarking can be shared from the ECMA meeting and update regarding status of benchmarking work for Tier 2?