Dell Detailed Comments and Recommendations for the Draft 1 ENERGY STAR Server Specification

1) Definitions:

Dell advises the specification section be amended to cover the following system definitions: **Computer Server:** A computer that provides processing, storage, and/or communication services in response to requests that initiate by other client computers and possibly other server computer systems. Computer servers primarily respond to requests and are accessed via a network, and may be accessed thought direct user input devices such as a keyboard, mouse, digitizer, etc. Computer servers have many of the following characteristics:

- Reliability, Availability, Serviceability, and Manageability (RASM) features
- Designed and certified to run Server Operating System and/or Hypervisors, and are targeted to run enterprise applications
- Dedicated management controller, such as Baseboard Management Controller (BMC) or service processor
- Include network communication capability, with multiple ports
- Marketed for and designed to operate in a commercial data center environment (EMC and environmental rating).

Blade Server: Blade servers may or may not have hard disk components

The definitions provided lack the detail provided in the EPA Report to Congress. Volume servers have not been defined or identified. In addition computer servers cover a broad range of specific applications including storage, network and telecom applications. These have not been defined and included or excluded from the proposed ENERGY STAR Server target population.

The definition needs clarity to segregate the desktop derived server (also known as pedestal servers) as is currently included in the ENERGY STAR 4.0 Tier I requirements. Small floor standing models may not provide the distinction needed to develop this difference.

An additional distinction for computer serves is the rack mountable nature. They may not be mounted in racks but they are capable of mounting in racks.

B. Computer Server Power Supply: A server component designed to convert the mains AC input voltage to DC voltage(s) for the purpose of powering the server. A computer server power supply must be separable from the main system and must connect to the system via a removable or hard-wired male/female electrical connection, cable, cord or other wiring.

DC-to-DC converters (also known as voltage regulators) internal to the product used to convert a DC voltage into other DC voltages for use by the server are excluded and not considered computer server primary power supplies under this specification.

2) Qualifying Products:

The ENERGY STAR requirements for computer servers should apply to products meeting the as yet to be defined “Volume Server” definition.

The ENRGY STAR for Computer server Tier I requirements should specifically exclude: DC (Direct Current) powered servers, Blade Servers, Storage Systems, and Networking servers.

3) Efficiency Requirements for Qualifying Products:

3A) Power Supply Efficiency Requirements
Power supply efficiency requirements should align to the test procedure jointly developed between ECOS Consulting 80 Plus program and the Climate Savers Computing Initiative.

Power supply efficiency requirement should be aligned minimally to the Climate Savers Computing Initiative Bronze or 07/2008 requirements. Further consideration should be giving to completely aligning with the Climate Savers Computing Initiative (CSCI) requirements. Specifically a number of non-IT company members of CSCI have agreed to purchase systems with higher efficiency power supplies according to the CSCI schedule. Aligning to CSCI provides federal purchasers with the latest technology, and energy savings.

3B) Idle Power
"Idle Power" measurements on a server provide no measure of energy efficiency or reduction of energy consumption. Idle Power as a standalone criterion should be removed for the following reasons:

a) Idle Power level on a server has a very broad definition across servers types, configuration, and application.
b) Idle power differs based on operating software and enterprise application
c) Idle power differs based on hardware configuration
d) Reliant on connectivity, maintenance or security implementations

Dell disagrees with the direction of establishing idle mode limits as a criterion. The complexity of creating limits and categories for servers by addressing the physical size (1U/2U), number of sockets, quantity of memory, quantity of disks, network adapters, operating systems and other considerations make's the task of gaining compliance unmanageable and burdensome. In addition the implementation cycle time of ENERGY STAR standards (270 days) regardless of when release would create churn and requalification inside of the server computer development cycle. Defining and establishing a heretofore unmeasured mode requirement or limitation will add cost and cycle time to delivering ENERGY STAR qualified product.

3C) Standard Information Reporting Requirements
The use SPECpower™, highlighted in the draft may be difficult since it would contradict the reporting rules and obligations that SPEC requires. Any benchmarking organization needs to be consulted and its publishing guidelines maintained.

The draft provided no scope or limitation, and SPECpower is limited in scope. Publishing points within the SPECpower report without an understanding of the workloads would not and will not represent energy efficiency in or for those applications; for customer comparisons or as criteria for regulations.

3D) Power and Temperature Measurement Requirements

From the following Section on Standardized Data Measurement: All servers must have the ability to provide real time data on AC Power consumption, inlet air temperature, and processor utilization during server operation.

Reporting of computer server metrics is important and that equipment is capable of reporting server metrics such as power and thermal measurements in a standard format is accepted. Dell supports EPA's desire to have ENERGY STAR computer servers report AC power consumption. However, definition of what real time measurements is required and why; along with how real time is real time is essential.

Is a specific data management protocol warranted? Many IT and equipment manufacturers are developing systems to manage data across a range of protocols, and equipment. Dell requests that the information is defined, identified and accessible for access and monitoring is adequate.

3E) Power Management and Virtualization

Many computer servers already contain power management features. Such features include:

Processor/Chipset Voltage/Frequency Scaling
Dropping into lower inactive power levels as workload reduces.
Variable Speed Fan Control
Low Power Memory States
Low Power I/O Interfaces
Reporting of power and utilization to system administrators

4) Test Criteria:

Climate Savers Computing Initiative and ECOS Consulting 80Plus program have developed a common test procedure protocol for single output power suppliers. Dell strongly encourages EPA to utilize these existing power supply test procedures as a test methodology for power supply efficiency.

Many computer serves are shipped without an operating system, often an end user approved image is loaded prior to the installation of the system. System manufacturers must be allowed to use the Operating System of their choosing as long as it's a recognized enterprise system used by the product line.

5) Effective Date:
A. A Tier 1 implementation schedule is dependent on the scope and testing details that are indicated in the specification. Given a reasonable scope and testing a proposed deployment date in Q4 2008 appears reasonable.

B. A Tier 2 implementation schedule should accommodate the whole computer server development cycle, which would be a minimum of 3 years based on industry analyst reports.