Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Northeast Energy Efficiency Partnerships

September 1, 2017

Mr. Ryan Fogle
United States Environmental Protection Agency
ENERGY STAR Program
1200 Pennsylvania Ave NW
Washington, DC 20460

Dear Mr. Fogle,

This letter provides comments from the Appliance Standards Awareness Project, the American Council for an Energy-Efficient Economy, and the Northeast Energy Efficiency Partnerships on the Draft 2, Version 3.0 of the ENERGY STAR for computer servers performance specification released July 31, 2017.

We commend EPA for revising the ENERGY STAR for computer servers performance specification at this time. We believe this is an appropriate response to advancements in computer server technology since December 2013 when Version 2.0 went into effect. We generally support EPA's Draft 2 proposal for Version 3.0 of the specification and the following comments are intended to refine and improve the Draft. We also generally support the comments on Draft 2 submitted by the Natural Resources Defense Council.

We strongly support EPA's proposal to set both active-state and idle-state efficiency criteria for computer servers. Servers spend a significant share of their operational lives in idle-state. Including both active-state and idle-state energy efficiency in the performance specification is an important step toward ensuring that ENERGY STAR computer servers deliver energy efficiency under actual operating conditions.

We support EPA's proposal to reduce the number of computer server product categories defined in the performance specification from 5 to 3. Defining fewer product categories simplifies testing and reporting requirements, and decreases costs for manufacturers. We also encourage EPA to consider setting a lower idle level with an adder for high-performance servers that will allow them to still meet the specification. This enhancement to the ENERGY STAR for computer servers performance specification would allow it to better differentiate products on the basis of idle- and active-state efficiencies, while still allowing efficient high-performance servers to carry the ENERGY STAR label.

We recommend that EPA further increase low-load energy efficiency requirements for computer server power supplies. We support EPA's proposal to strengthen power supply efficiency requirements to account for the fact that 63 percent of server configurations tested to the Version 2.0 ENERGY STAR specification included power supplies that achieved the 80-PLUS program's Platinum efficiency level. We urge EPA to also consider that computer server power supplies are often oversized, and that servers often share load on redundant power supplies, further reducing the average load on each power supply. As a result, computer server power supplies may spend most of their operating lives loaded to only 10 to 20 percent of rated capacity. The loading conditions required for power supplies in the ENERGY STAR for computer servers test procedure should be adjusted to more accurately represent real-world operating conditions, and the should be stringent power supply efficiency requirements at the loading points responsible for the greatest share of server operating time. We support NRDC's recommendation that EPA incorporate the following power supply loading levels and efficiencies into Version 3.0 of the ENERGY STAR for computer servers performance specification.

Computer Server Power Supply Efficiency

Load point	Rated Output power	10%	20%	50%	100%
Ac-Dc Multi-output	All output ratings	**86%**	90%	92%	89%
Ac-Dc Single-output	All output ratings	**88%**	**92%**	94%	91%

We recommend that EPA introduce a new provision in the ENERGY STAR for computer servers specification for very low-power or "sleep" states and incentivize servers that are able to enter a sleep state. Active state efficiency, idle state efficiency and sleep state efficiency present three key opportunities for reducing server and data center energy use. In the Draft 2, Version 3.0 ENERGY STAR Computer Server specification, EPA proposes to address active and idle state efficiency. We strongly encourage EPA to broaden the scope of the computer servers performance specification to include sleep state efficiency, and unlock major potential energy savings.

Data centers are designed to meet capacity requirements during peak periods which may last only a few hours per year. The rest of the time, servers run in idle mode but can still consume a significant amount of electricity and produce significant amounts of heat which requires additional energy to remove. Managing short-term, peak load demand while optimizing long-run energy efficiency is a management challenge common to many service industries including electricity, water and data. Like electricity and water, changes in demand for data center services are at least somewhat predictable and sophisticated managers know that not all server capacity must be kept in a continuous state of readiness, and that wasted energy could be avoided by powering down excess server capacity during times of low demand. We recommend that EPA work with industry to help data center managers reduce wasted energy by defining a sleep state for computer servers. This sleep state should reduce power consumption below
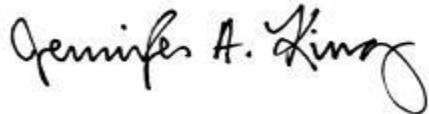
typical idle power levels, include connectivity and wake capabilities, and address wake-up latency issues with the goal of developing a new industry standard.

Thank you for the opportunity to provide these comments on the Draft 2, Version 3.0 ENERGY STAR specification for computer servers.

Sincerely,

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