

To Robert Meyers, U.S. Environmental Protection Agency
From Marc Hoffman
Date September 15, 2011
Re ENERGY STAR Uninterruptible Power Supply Specification, Draft 2

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR Program. CEE members are responsible for ratepayer-funded energy efficiency programs in 45 US states and 8 Canadian provinces. In 2010, CEE members directed over \$7.5 billion of energy efficiency program budgets in the two countries. In short, CEE represents the groups that are actively working to make ENERGY STAR the relevant platform for energy efficiency across North America.

CEE appreciates the opportunity to provide EPA with comments on the Draft 2 Uninterruptible Power Supply (UPS) specification. CEE offers input to EPA on the proposed performance criteria and the proposed information requirements dimensions EPA raised questions about.

Match the Weighting Scheme to Actual Field Loading Conditions

In the current draft, EPA proposes the following weighting scheme as the basis for setting performance levels for data center class UPS units: 25% weighting at 25% of load; 50% at 50% load and 25% at 75% load. Initial energy efficiency program experience with UPS systems in data centers indicates that UPS products, particularly in 2N redundant situations, may never or will never exceed 50% loading capacity on an individual UPS. In addition, program administrators have found that data center class UPS systems may operate at an “idle” state or low utilization state (less than 10%) for significant periods of time (e.g., in cases where UPS system are installed in new data centers for a certain IT capacity that is not actually reached for months, years or at all). Given this program experience, CEE would encourage EPA to increase the relative weighting of the lower range of loading points for the data center class UPS systems (i.e., place increased emphasis on energy efficiency gains achieved when UPS systems operate at less than 50% loading). CEE does not have an empirical basis or study to inform whether the weightings EPA selected are reflective of “average” data center UPS operating conditions. The anecdotal program explanation offered here highlights the need to develop an empirical basis to determine what load weighting scheme is representative of how most UPS systems actually operate in data centers.

Ensure Consistency of Specification Efforts with Established Brand Tenets of ENERGY STAR

CEE members are, like EPA, interested in encouraging the efficient operation of UPS systems in data centers. We recognize that it is difficult to address these issues through a prescriptive specification. CEE is supportive of the EPA's consideration and exploration of cost effective means to encourage communications and energy reporting capabilities of UPS systems that are consistent with the brand tenets of the ENERGY STAR program.

In the field CEE members have experienced large margins of kW data output errors with some UPS systems. In some cases the input kW from the utility feed can be less than that output kW reading from the UPS. CEE welcomes more exploration and information from the EPA and the industry about cost effective options – such as metering or system options that accurately monitor kW and kWh at the load points where the system operates and record this information in an accessible way – that can support efficient UPS operations in data centers. Enhanced communications and measurement capabilities may improve the ability of voluntary efficiency programs to provide incentives for efficient UPS purchases and operations by:

- Enabling program administrators and data center owners/operators to identify UPS or electrical distribution system energy savings opportunities and measures
- Informing (and potentially making more cost effective) a robust energy baseline based on actual UPS operating conditions and loading conditions and
- Facilitating the accurate measurement and verification of post efficiency project energy savings that justify financial incentives for real efficiency gains.

CEE has not seen any evidence at this time that installed metering devices on UPS systems yield energy savings in the field. Absent evidence or further explanation of the range of energy savings achieved by including metering in this product category, CEE would not support any type of credit approach that would reduce the real energy savings labeled units would yield. We are concerned that similar challenges regarding achieving consistent, measurable, energy savings in a programmable thermostat may hold true for a metering device--which is merely an enabling technology that requires a particular behavior to save energy.

Thank you in advance for considering and responding to these comments as EPA considers an ENERGY STAR for Uninterruptible Power Supplies specification. Please contact Jason Erwin, CEE Commercial Sector Lead, with any questions.



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