Response from The Green Grid to:

ENERGY STAR® Uninterruptible Power Supplies Version 1.0 Pre-Final Draft Memo and Test Procedure February, 2012

The Green Grid Association, a consortium of industry leading companies welcomes the opportunity to comment on the Pre-Final Draft Memo and Test Procedure related to the ENERGY STAR for Uninterruptible Power Supplies (UPS) Version 1.0 Specification. Some member companies of The Green Grid Association may also be providing additional considerations highlighted by their industry or company's particular perspective.

Introduction

A consortium of information technology providers, consumers and other stakeholders, The Green Grid Association seeks to improve the energy efficiency of data centers around the globe. The organization takes a holistic and comprehensive approach to data center efficiency and understands that addressing this challenge requires a high-level view of the entire data center and cooperation among a wide range of industry principals. Participants in The Green Grid include such diverse companies as major server and storage equipment manufacturers, leading infrastructure manufacturers, major software providers, and large end-users / data center owners.

Overall

We continue to be pleased with the progress made by the EPA on this specification and greatly appreciate the attention to, and incorporation of, many of our comments and suggestions on previous outlines and drafts. We believe that we will be able to support the final draft, with only a few adjustments detailed later in this document.

The Green Grid membership remains keenly interested in the development of this new ENERGY STAR specification as we believe it will help data center owners, operators, developers, architects and engineers, and purchasing organizations make improved and informed decisions that will help EPA and The Green Grid in our mutual efforts towards reducing total energy consumption per unit of IT workload.

Recommendations and Discussion

Minimum Average Efficiency Requirements

As discussed during the webinar on February 15th, we request that the Draft 3 efficiency requirements for VFI UPSs rated greater than 10 kW (e.g. 0.0099 x ln(P) + 0.805) remain in place in the Final Draft. If qualification rates below 10 kW are expected to be too high, we suggest that EPA only adjust the requirements in those ranges.

Metering Credit Magnitude

We would also like the 2% metering credit proposed in Draft 3 for UPSs rated > 10 kW to remain in the Final Draft. Some vendors have already designed their compliance strategy around a 2% credit and a reduction to 1% will be inadequate for many products. Furthermore, metering accuracy and communication requirements that are currently proposed for inclusion in the final draft will increase the

costs associated with claiming this credit, so we believe that it's appropriate to reward a substantial effort with a substantial credit.

Metering Accuracy Requirements

We are currently unaware of any UPSs which contain metering circuitry that complies with any accuracy standards developed for stand-alone energy meters. In our opinion the focus should be on the measurement accuracy inclusive of the meter and current transformers. Additionally the standards we have examined contain numerous requirements that are not relevant for energy meters integrated into UPSs. Consequently, we believe the credit as proposed would only be attainable by the inclusion of a stand-alone energy meter. Furthermore, we believe that a system consisting of a stand-alone meter and 3 current transformers that is capable delivering energy measurements with 2% accuracy would be very expensive. Therefore, to increase the prevalence of qualified products that contain output energy meters, we again suggest that EPA only require 5% measurement accuracy in order to qualify for the credit. If a suitable energy meter standard cannot be found with a 5% accuracy limit, we suggest that EPA study existing metering and transducer standards and create requirement language and test procedures as part of the UPS specification. In the case that EPA is unable to do this, we suggest that compliance with any of the below metering and current transformer standards should be sufficient to claim the credit. Note that even though many of the standards listed below may have been superseded by newer standards, we believe that it is important that EPA permit the use of any of them as there are still meters and current transformers on the market which comply with the requirements of the older standards.

Energy Meter Accuracy Standards

- IEC 60687 Classes 0.2 S or 0.5 S
- IEC 61036 Classes 1.0 or 2.0
- IEC 62053-21 Classes 1.0 or 2.0
- IEC 62053-22 Classes 0.2 S or 0.5 S
- ANSI C12.1
- ANSI C12.16 Classes 0.5 or 1.0
- ANSI C12.20 Classes 0.2 or 0.5

Current Transformer Accuracy Standards

- IEC 60044-1 Classes 0.1, 0.2, 0.2 S, 0.5, 0.5 S, 1, 3 or 5
- IEC 61869-2 Classes 0.1, 0.2, 0.2 S, 0.5, 0.5 S, 1, 3 or 5
- ANSI /IEEE C57.13 Classes 0.3, 0.6 or 1.2

Test Method

We are very pleased with the proposed changes to the test method. In particular, the newly granted ability to provide and directly reference test guidance documents should go a long way toward ensuring test repeatability by third parties. Changes related to alarm suppression and stability checking, and formulas for the calculation average power and efficiency are also beneficial.

Multiple Normal Mode UPSs

Limiting the requirement that UPSs with multiple normal modes must ship in their highest input dependency mode to only those products that qualify because of multiple normal mode averaging is another welcome change. We also agree with EPA's decision to not require transfer time declaration on the PPDS as characterizing such complex behavior in a single number would be inadequate.

Modular UPSs

We are in strong agreement with EPA's new position that vendors should have the freedom to set the minimum and maximum tested and qualified configurations of modular UPS systems different from the physical limits of the chassis. This change will avoid disqualifications of entire product families due to non-conformance of extreme configurations and will therefore increase participation in the program.

PPDS and Data Reporting Forms

We support EPA's plan to continue to develop the PPDS, with the cooperation of stakeholders, even after the version 1.0 specification is complete. A simple and focused PPDS and a well designed data submission form will be critical to the success of the program and simplify the experience for manufacturers, CBs and consumers. We suggest that the refinement process should continue until a few products are piloted through the independent Certification Body test and submittal processes and EPA's proposed electronic comparison tool is at least prototyped.

Conclusion

This document is a consensus document that was subject to peer review and comment within the more than 200 member companies of the Green Grid who are stakeholders in data center efficiency. Our members collectively own, operate, or manage over 2,000 data centers globally and as such have a vested interest in the adoption of an internationally recognized standard for UPS energy efficiency. Again, we believe the EPA has made huge strides in the development of this specification and the related test method and we look forward to a successful launch of the program in a few months.