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Vice President, Government Relations

July 21, 2016

VIA EMAIL TO: UPS2016TP0018@ee.doe.gov

Ms. Brenda Edwards
US Department of Energy
Buildings Technologies Office
950 L'Enfant Plaza, SW
Suite 600
Washington, DC 20024

Re: NEMA Comments on Energy Conservation Program: Test Procedures for Uninterruptible Power Supplies

Docket Number: EERE-2016-BT-TP-0018
Regulatory Information Number: 1904-AD68

Dear Ms. Edwards,

As the leading trade association representing the manufacturers of electrical and medical imaging equipment, the National Electrical Manufacturers Association (NEMA) provides the attached comments on the Department of Energy Proposed Test Procedures for Uninterruptible Power Supplies. These comments are submitted on behalf of NEMA Power Electronics Section Member companies.

NEMA, founded in 1926 and headquartered in Arlington, Virginia, represents nearly 400 electrical and medical imaging manufacturers. Our combined industries account for more than 350,000 American jobs and more than 6,500 facilities across the U.S. Domestic production exceeds \$117 billion per year.

Please find our detailed comments attached. Our Member companies count on your careful consideration and we look forward to an outcome that meets their expectations.

If you have any questions on these comments, please contact Alex Boesenberg of NEMA at 703-841-3268 or alex.boesenberg@nema.org.

Sincerely,

A handwritten signature in black ink that reads "Kyle Pitsor". The signature is written in a cursive, flowing style.

Kyle Pitsor
Vice President, Government Relations

NEMA Comments on Energy Conservation Program: Test Procedures for Uninterruptible Power Supplies

General Comments:

1. NEMA is very concerned that the DOE has proposed to change the well-established and well-accepted international definition of a UPS to call it a battery charger in the NOPR . This proposal will cause global confusion and contradiction if DOE proceeds with this change. The proposed change to the definition of a UPS, as compared to that in IEC 62040-3 2nd edition: 2011, directly contradicts the very reason for referencing international standards in regional regulations. To reference, but then immediately change, an accepted international standard is an unforced mistake which can only cause disruption. Due to the wording of the existing definition of a battery charger in 10 CFR 430.2¹, there is no confusion or ambiguity that a UPS is a battery charger, and therefore no adjustments to the definition of a UPS are needed. Office of Management and Budget Circular A-119 provides for and encourages use of international standards, incorporated by reference, in establishing regulations when effective and appropriate in the fulfillment of legitimate objectives of the agency and the underlying statute. [Circular A-119, Sec. 5(h)]. Those criteria are met by using the definition of UPS in IEC 62040-3, 2nd edition. Finally as DOE attempts to harmonize these regulations with Canada and the European Union, DOE will note the CSA C813.1 specification in Canada, and the European Norms are referenced to IEC 62040-3 2nd edition: 2011. This would make U.S. DOE UPS regulations impossible to harmonize to international norms.
2. We note further that IEC Standard 62040-3 is already adopted as a NEMA standard, NEMA PE-1², and is in balloting to be adopted as an American National Standard. We restate again our position in Comment 1, that because this IEC standard is so widely adopted and is consistent with fulfillment of the legitimate policy objectives under EPCA, the policy in Circular A-119 clearly commends to executive branch agencies its application to rules such as this one in the interest of global harmonization.
3. NEMA disagrees most strongly with the DOE's proposal to increase the sample size from one to two units. This will nearly double testing costs and is not justified given the lack of evidenced issues in the ENERGY STAR UPS program to date. Further, the ENERGY STAR program reduced the surveillance testing by 50% in 2015 as a result of industry performance. DOE is a part of the ENERGY STAR program, and the aforementioned results are available to DOE for review so it is difficult to understand how these objective facts can be cavalierly overlooked in this ill-conceived push to increase costly and unnecessary testing that is not supported by industry or existing facts and data.
4. The DOE has not adequately investigated the number of SKUs involved in this rulemaking, and as such does not appear to understand the scope of impact and associated cost burden on manufacturers if they become required to retest all products, revise markings and published performance information within 180 days.

¹ <http://www.ecfr.gov/cgi-bin/text-idx?rgn=div8&node=10:3.0.1.4.18.1.9.2>

² <http://www.nema.org/Standards/Pages/Uninterruptible-Power-Systems-Specification-and-Performance-Verification.aspx>

5. There is no justification to change existing practices by adding a battery to the circuit for efficiency testing. This will add time/cost and possibly disqualify currently compliant products in ENERGY STAR. Adding a battery to the test regime will overly complicate the testing by variability of sizes among batteries supplied (many UPS units use different size batteries), the battery chemistry type and if the battery is a flooded cell or one that has absorbed electrolyte.
6. Losses of qualified products to ENERGY STAR UPS, and lost investment in them, will not only result from the Test Procedure changes but also from the cost of retesting and requalification. Additionally, the ENERGY STAR UPS program will be forced to update their specification, with assistance from industry, causing additional burden on industry resources and personnel. These additional testing and requalification costs will not be trivial, because the EPA requires a 3rd party certification and testing at manufacturer's expense. Even if the EPA takes some time to update their specification, the DOE's insistence on a 180 day implementation will negate this in practical terms, possibly forcing manufacturers to perform two tests and report two different efficiency levels in the near term, one to DOE and one to EPA.
7. The DOE has not adequately justified these proposed changes to established test procedures or explained why changes are needed to begin with. In our comments below, we propose several modifications to the NOPR which will reduce burden while assuring international alignment and cooperation. In our assessment, the DOE has not offered sufficient, rational justification for the aforementioned proposals.

Issues on Which DOE Seeks Comment

Although comments are welcome on all aspects of this proposed rulemaking, DOE is particularly interested in comments on the following issues.

1. DOE requests comment on the proposal to include specific test provisions for UPSs in the battery charger test procedure. See section III.A for further detail.

NEMA Comment: We agree with the establishment of test procedures for UPS, consistent with our comments cited by the DOE in this NOPR, in which we expressed concern for any potential gaps in availability of Federal Test Procedures for these products in light of pre-existing regulations in California for these devices.

2. DOE requests stakeholder comments on the type of changes that are being considered for the revised IEC 62040-3 standard and how it may impact the test procedure proposed today. See section III.B for further detail.

NEMA Comment: There are presently no planned changes to IEC 62040-3 2nd edition: 2011 that would affect the manner in which a UPS is tested for efficiency.

The changes proposed by DOE for this test procedure are unjustified and ill advised. The international community utilizes the IEC 62040-3 2nd edition: 2011 unaltered to represent UPS performance globally. Significant effort was spent to create the ENERGY STAR for UPS Specification 1.0 and California Energy Commission test procedures, which are substantially different from the proposed changes of the DOE UPS Test Procedure. The changes proposed by the DOE are significant enough that all prior test results will not be usable by the DOE to project energy savings as a result of this test procedure proposed change. In the effort to

internationally align regulations with Canada and the European Union, DOE will also be different from and will not be in a position to compare results across the international spectrum of UPS products. The test procedure also requires testing to prove what the industry also already knows with respect to the architecture of the UPS systems (VFD, VI, and VFI), creating additional and unnecessary burden.

3. DOE requests comment on all proposed definitions, particularly those that are not defined in existing industry standards. See section III.C for further detail.

NEMA Comment: We remind the DOE of its own decision to narrow the scope of UPS down to consumer products more accurately, as evidenced in the Framework document for the Computer and Battery Backup Systems rulemaking³,

“DOE is considering identifying consumer type UPSs as those operated at 120 V AC on a standard wall plug receptacle as commented by NEMA and Schneider Electric.”

We remind the DOE of NEMA comments⁴ to this consideration, in which we provided detailed means by which the scope can be further clarified.

“Without undermining our general comment #4 above, and solely to answer the Department’s question, we agree with the approach which examines the typical types and electrical characteristics of products common to household use (i.e. consumer products). We suggest the DOE consider further clarifications such as: non-rack mounted, FCC Class B compliant, operation at 120 Volts AC, 12 Amps or less power draw (these two previous characteristics equate to 1500 Volt-Amperes operation), and whose input characteristics are either Voltage and Frequency Dependent (VFD) or Voltage Independent (VI). Products outside these parameters are commercial in nature or have power consumption and electrical characteristics which place them outside use in typical consumer environments.”

We call the DOE’s attention specifically to our proposal of October 2, 2014 which, due to National Electrical Code (NEC) requirements⁵, proposes that true plug-load consumer products should be “non-rack mounted, FCC Class B compliant, operation at 120 Volts AC, 12 Amps or less power draw”.

A UPS should be defined as:

Uninterruptible Power Supply means a combination of convertors, switches and energy storage devices (such as batteries), constituting a power system for maintaining continuity of load power in case of input power failure.

Regarding the DOE’s focus on AC output UPS, we agree with this focus, but caution the DOE that there are UPS on the market which include a USB charging port for small IT appliances such as smartphones or tablet computers. The DOE may clarify this by adding an exception. NEMA proposes the following:

³ <https://www.regulations.gov/#!documentDetail;D=EERE-2014-BT-STD-0025-0001>

⁴

[http://www.nema.org/Policy/Documents/EERE2014BTSTD00250001%20NEMA%20comments%20DOE%20Computer%20Systems%20Framework%20August2014%20Final%2002Oct2014%20\(2\).pdf](http://www.nema.org/Policy/Documents/EERE2014BTSTD00250001%20NEMA%20comments%20DOE%20Computer%20Systems%20Framework%20August2014%20Final%2002Oct2014%20(2).pdf)

⁵ See NEC clause 210.23

“Exception: a consumer UPS does not include devices designed to primarily provide DC output in the event of a power failure. Devices with USB charging port capability in addition to a primary function as 120VAC output are not included in this exception.”

4. DOE requests comment on the proposed test conditions. See section III.D for further detail.

NEMA Comment: We agree with DOE’s decision to only test UPS in normal mode since this is their primary mode of operation.

While we respect the DOE’s concerns stated at the June 9th public meeting that some testers “might attempt” [NEMA emphasis] to use increased airflow to skew their test results, these concerns are speculative and unfairly casts the entire test community in an unfavorable light. If DOE has evidence of intentional manipulation of test procedures or results, it has more than enough authority to act against the specific entity suspected of this behavior. We submit that the threat to the market from intentionally misdirected testing attempts is much smaller than the threat to the market that would be caused by dis-harmonized UPS test procedures from region to region. Disharmony is guaranteed to result if the DOE does not respect the IEC TP standard.

Rather than attempt to modify the internationally accepted test method by adding parameters such as airflow, for no credible reason, the DOE should instead respect the international acceptance of IEC 62040-3 2nd edition: 2011 and incorporate it by reference to define the testing conditions for a UPS system.

5. DOE requests comment on the proposed two different methods of calculating average power. DOE requests comment on the comparability of the results from the two methods. See section III.G for further detail.

NEMA Comment: NEMA sees no value in confusing the industry further with different formulas for calculating efficiency. The DOE should follow those promulgated in IEC 62040-3 2nd edition: 2011 or at the very least those that are working successfully in the ENERGY STAR UPS program. The DOE’s proposed changes lack justification as to why they need to be different from well-established international norms.

6. DOE requests comment on the proposed output metric for UPSs. See section III.H for further detail.

NEMA Comment: “Active mode” means a UPS system is actively conducting power conditioning, measurement, and monitoring of the UPS systems mains input power and distribution of mains power to the load. This is the primary function of a UPS system, with the battery being charged occasionally to maintain the system and not as a normal active mode power consumption function of the UPS system. By comparison, the only case that could be used to identify whether a battery charger is in the active mode is if the battery is continuously trickle charged.

Standby is non sequitur to UPS systems, as the system is either off or active.

Off mode occurs, when the UPS System 1) turned off, 2) is disconnected from mains power for a long period, for instance when the UPS system is shipped or intentionally disconnected. There is an off button on the UPS. While it is not used often, there is one.

NEMA agrees with DOE's conclusion that measuring the energy use of a UPS in normal mode effectively captures the energy used during the entirety of the time that a UPS is connected to mains power.

7. DOE seeks comment on whether the proposed test procedure changes will have a significant impact on a substantial number of small entities. See section IV.B for further detail.

NEMA Comment: The proposed changes will have a significant impact on all entities, large and small. The DOE should rescind all the cited unnecessary changes so as not to add unwarranted burden arising from a transition to and then continued use of a DOE Test Procedure for UPS.