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The Association of Electrical and Medical
Imaging Equipment Manufacturers
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Comments on Energy Star Enhanced Qualification and Verification Testing

Thank you for your opportunity to provide the following comments on the proposals EPA and DOE have made to enhance qualification and verification requirements in order to protect and defend the integrity of the Energy Star mark and brand.

The series of teleconferences Energy Star held on these proposals in late March and early April – in the context of the report by the Government Accountability Office on the product qualification process – was helpful for transparency purposes but also undoubtedly underscored for Energy Star the diversity of products that are covered by Energy Star programs and the diversity of issues associated with the paths to market and consumers.

For its part, NEMA assists member companies in multiple industry sectors in their engagement with the Energy Star product certification programs as well as the Homes and Buildings programs. Rather than make multiple comment submissions, each for a separate industry, this document presents consensus views of each industry. We trust that these comments will be shared with program managers and other appropriate individuals within the Energy Star agencies and contractor organizations.

The comments are organized into the following sections:

- Compact Fluorescent Lamps and Integral LED Lamps (pages 2-4)
- Residential Lighting Fixtures and Solid State Lighting Luminaires (pages 5-6)
- Uninterruptible Power Supplies (pages 7-8)
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Compact Florescent Lamps and Integral LED Lamps

NEMA manufacturers of CFLs and LED lamps are pleased that Energy Star feels the qualification and verification requirements Energy Star put in place for these products areas are effective and appropriate. Key performance criteria are required to be tested in NVLAP-accredited laboratories and resulting test data must be submitted to Energy Star for each model for which qualification is being sought. Test results from manufacturers' NVLAP-accredited labs must remain acceptable for Energy Star qualification. As long as a lab is properly certified, manufacturer ownership should not be an issue.

The rationale behind manufacturer-owned labs is that they allow for faster time to market, as IP on new products can be prepared in parallel with the qualification testing (which can take several months). If only outside labs were permitted, products could not be released for testing until the IP was filed.

The proposed qualification testing approach would also require that the product, or its results, be certified by a third-party according to ISO 65. The presentation provided by the EPA on April 6 mentions both. This is a significant change to existing practice and may have a number of unintended consequences including greatly increasing costs and greatly limiting the number of labs available for testing. We believe the current system works well for lighting products and no change is necessary in this area.

The title of ISO 65:1996 is "General requirements for bodies operating product certification systems". The document talks about a certifying body which will certify that a product meets a specified standard. The certifying body will issue a certification mark and have the ability to maintain, suspend, or withdraw the certification.

Using CFLs as an example, this structure already exists. The EPA, or its designee, is the certifying body. They receive and review reports from accredited laboratories and certify that the product meets the requirements of the program. The certification mark is the ENERGY STAR logo. It is currently referred to as such in the CFL program requirements.

Thus, it does not appear possible to only certify the results of the testing to ISO 65. The product itself would have to be certified.

It is not clear from the April 6 presentation if EPA wishes to outsource the certification process. If they do, the following issues need to be considered:

- Certifying bodies, at least in the U.S., are typically Nationally Recognized Testing Laboratories (NRTLs) as designated by OSHA. Examples of NRTLs are UL, CSA, and Intertek. Thus the test lab would not only have to be NVLAP accredited, but would need to be an NRTL as well. This would reduce the number of available laboratories for testing.
- Would certifying bodies outside the U.S. be accepted?

- Certifying bodies would be able to independently authorize use of the certification mark directly, i.e. without review by EPA.
- Would the certifying body use their own certification mark, which could lead to confusion in the marketplace, or would they be able to grant use of the Energy Star logo?
- Having multiple certifying bodies opens the possibility of different interpretations of the program requirements.

If the concern driving the ISO 65 requirement is that labs are submitting false data, then the specific lab's NVLAP accreditation needs to be addressed with NIST. Loss of accreditation may be an excellent deterrent.

Turning to the subject of verification testing: For Energy Star CFLs, there is already a sufficient program in place for verification testing that was just recently revised and updated in the conversion to Energy Star 4.0 in December 2008. The verification program for CFLs appears, in fact, to be the model that EPA is prescribing be adopted for all Energy Star product categories. This program, although only relatively recently defined, has been successful and should be allowed to proceed as planned without revision.

However, based on comments made during the April 6 Energy Star presentation, there are concerns within our membership that Energy Star is considering the requirement that all Energy Star CFLs be revalidated. This would cost hundreds of thousands of dollars in testing, which would simply tend to increase the cost to the consumer without providing any greater assurance on the quality of the lamps, which only recently been qualified under the Version 4.0 specification. Unlike other Energy Star programs, the CFL program has required test reports prior to product listing on Energy Star websites. This has served both Energy Star and the lamp industry as well as consumers..

The collaborative effort that led to the verification testing program (that was incorporated in Energy Star 4.0 for CFLs less than 2 years ago) represents the best efforts of all parties to ensure a robust and rigorous program for CFLs and this should be allowed to proceed forward without any additional changes or adjustments.

With regard to the upcoming integral LED lamp standard recently finalized, manufacturers believe it is critical that NVLAP/CALiPER accredited labs be allowed for initial qualification testing. The standard already requires submitting test data every three years that appears to make third party audits unnecessary and redundant. Third party testing requiring use of a limited number of third-party accredited labs is likely to greatly increase costs on an already expensive product. The industry feels that even under today's program, there are not enough SSL accredited labs. Further restricting the number of labs will greatly exacerbate this problem.

Verification testing of labeled products available in the market – as is underway for CFLs and is ramping up for LED lamps – ensures that the consumer is getting the genuine article and can trust it will perform as well as or better than specified by Energy Star. Independent third-party

labs and an independent third-party administrator are essential components of the verification process.

Prior to 2009, the cost of such testing for CFLs was shared by various industry stakeholders (mostly utilities). Now the cost is paid entirely by manufacturers. We assume the cost of testing of other products like LED could be even higher. This was raised as a huge concern during the April 6 teleconference, especially by smaller LED companies. This may actually hinder the product introduction of highly efficient LED devices which is counter to the purpose of EPA and DOE programs.

To subsidize the overall verification program, EPA could consider additional penalties for partner companies whose products fail testing. EPA could also consider returning to a model where the expense is shared among all parties who benefit from the Energy Star logo (as with CFLs pre-2009).

Residential Lighting Fixtures and Solid State Lighting Luminaires

For many years NEMA and ALA have maintained, for the benefit of all Energy Star Residential Lighting Fixture (RLF) partners, a matrix of lamps and ballasts that can be selected and referenced by RLF partners in their qualification of a new fixture model for Energy Star. At the end of 2009, there were over 800 different linear fluorescent and compact fluorescent lamps in the matrix and over 100 different ballasts.

Given the excessive number of products that may need to be tested, it is unclear to us how a full regime for third-party testing for Energy Star qualification could work. There may not be enough capacity in the industry to retest and certify currently qualified products in a timely manner. We welcome the opportunity to further clarify the qualification and verification testing requirements with EPA in this area. As one senior executive of a member company told NEMA staff specifically, “The [Energy Star] proposal as written would likely be a bonanza for 3rd party labs but a major drain on manufacturers’ resources.”

The industry needs clarification on accreditation of laboratories on slide 3 of the April 6 presentation and how this may be extended to allow manufacturers to utilize internal testing capabilities. Otherwise significant costs will be incurred by manufacturers, which will lead to higher prices. Lead times to production will also be greatly extended due to the accessibility to the few qualified labs that are available. Energy Star could actually encourage manufacturers to introduce fewer products rather than incentivize broader product selections for consumers.

The NVLAP certification process is performed by the National Institute of Standards and Technology (NIST). NIST is a federal technology agency that develops and promotes measurement, standards, and technology. Therefore, the testing performed in these laboratories is certified by the government. Some manufacturers maintain electrical laboratories that are both ISO 9000 (with ISO 17025 calibration), and UL and ETL certified. That is, both UL and ETL accept these labs’ electrical and thermal measurements, with an annual audit. To require third party laboratories will, perhaps, add credibility, but will not add accuracy or precision, and will certainly be more costly and less time effective. Highly credentialed laboratories, even if internal, should be accepted.

Requalification for fluorescent products are usually done if different ballasts are used or a different GU24 lamp is to be included with the product. Multiple qualifications are often done to provide manufacturing with options on electrical components. Requalification due to use of different components is understood. However, what specific performance changes is Energy Star targeting that would require the product to be sold under a new model number? If a company has a process in place to correct stock without changing model numbers, Energy Star should accept that.

On qualification for SSL fixtures, the current program requirements allow qualification of individual SKUs or SKU-“families” and allow slight variations within the group in terms of finishes, reflectors, diffusers and even light sources and power supplies, as long as the “same quantity and quality of light” is produced. SSL luminaires are very expensive to test especially if lumen maintenance tests are required. Independent testing labs have very limited capacity and

expertise with regard to SSL luminaires that will be restrictive for a long period of time. Testing standards for all aspects of SLL luminaires are not complete; the IESNA is just starting to address this area. In summary, do to significant costs and limited lab capacity and expertise, NVLAP /CALiPER accredited labs must be allowed for initial qualification testing.

On the verification side for fluorescent fixtures, for several years EPA has administered Quality Assurance (QA4) Testing for RLFs. In addition, PEARL has performed some testing on fixtures. The proposed transition to a full third-party verification system would be much more ambitious and comprehensive – and costly for luminaire manufacturers.

For SSL luminaires, verification is performed through a random/nomination process similar to that used for CFL and LED lamps.

Another concern within our membership is the 20 percent per annum testing target. A few random independent tests in conjunction with manufacturers' rigorous internal and external certifications (UL DAP, NAVLAP, etc...) should suffice. New SSL luminaires frequently have 1,500+ SKUs, which under this proposal would result in 300 independent tests. While testing may be a cost of doing business, this many tests will add little value to the consumer, who must ultimately bear the cost.

Maybe the program could be set up to sample 20% of partner manufacturers a year, and set testing level appropriate to verified conformance. For example: Year 1 a manufacturer is selected to verify. EPA verifies 10 products at random. All 10 products verify, No further testing is required for that year. If products do not verify additional testing is required and verification in following years is mandatory, not random.

While we realize ENERGY STAR is a voluntary labeling program, it is really becoming a de-facto "standard" since our manufacturers are seeing a growing number of their customers requiring ENERGY STAR on their RFIs. Therefore, this is very important and a cause for concern if it increases manufacturers' expenses and delays launch to market of new products.

NEMA looks forward to working closely with Energy Star to construct qualification and verification requirements that provide the consumer a high degree of assurance that their lighting fixture meets the Energy Star specifications without placing unreasonable requirements on manufacturers.

Uninterruptible Power Supplies

As a new program now in development, the Energy Star program for UPS units is still being defined. In that sense, the timing is good to discuss the requirements for qualification and verification testing. We look forward to further discussions with Energy Star on these matters. In the interim, we offer the following suggestions.

Consumer UPS products are limited to single-phase units, with line cord and plug, to approximately 2 kVA. Larger kVA units are not typically intended for the general or retail consumer and are sold through other channels.

Larger UPS products need to be differentiated from consumer-type products for the purposes of Energy Star qualification and verification testing.

- Large systems are manufactured in small quantities.
- Large systems are highly configurable.
- Large system designs are produced over many years.
- Large systems are often installed in commercial/industrial areas such as emergency power, emergency lighting, or medical and other applications where “always-on” reliability is paramount over efficiency.
- Large systems are always tested at the point of manufacture because most third-party labs do not have the power and/or load capability to operate the systems.
- Individual components (not comprising a functional UPS) cannot be tested reliably, but need to be tested as whole, complete and specific systems. Components of UPS equipment should not be allowed to qualify under Energy Star; only complete UPS units should be eligible.
- Systems employing redundant components should be tested in the simplest (zero redundancy) form.

Value Added Resellers (VARs), which do not put their brand name on the UPS product, should be kept out of any requirements. Their main purpose is to recommend and supply systems that are often comprised of several different manufacturers’ products and technologies.

Qualification

Use of qualified in-house testing labs should be acceptable for Energy Star qualification of all UPS products. Large UPS units, especially, should be eligible for witness testing in manufacturers' labs for the reasons stated above. Moreover, for large units, only a single unit should be tested due to test energy-cost considerations and site limitations on testing.

Verification

Verification testing should be limited to small, consumer UPS products. Production volumes of UPS other than consumer products may be too low to be of value and verification testing of large systems may place an undue financial burden on the manufacturer.

Large UPS units should not be subject to verification testing. As these units are built-to-order, customer configurable, have low sales volume, and are costly to ship, verification testing would be expensive and meaningless.

For small units, verification testing should be conducted, but Energy Star and its designated third-party testing administrator should ensure that multiple labs are available to perform this testing. Manufacturers should then be able to select from among these available labs.

Should large UPS units ultimately be subject to verification testing, the Energy Star program should be very specific regarding responsibility for payment of testing costs. Since NEMA is not in favor of verification testing for large UPS units, NEMA believes any testing costs for these units should not be borne by the manufacturer.

Regarding the verification testing panel, which nominates 50 percent of the product to be subjected to verification testing each year, we strongly suggest that NEMA represent the UPS industry and that no individual UPS manufacturer serve on that panel.

Conclusion

As you can see, there are still many issues to be worked out in the development of the Energy Star program for UPS. We look forward to further constructive dialogue with Energy Star to that end.

Climate Controls

Comments on the entire Energy Star proposal for a Climate Controls specification, including qualification and verification testing requirements, are being submitted today (April 30) to Energy Star under separate cover per the March 31 letter to stakeholders from Abigail Daken.

Thank you for your consideration of these comments as you proceed, on a product-by-product basis, to implement strong but reasonable requirements for qualification and verification testing. We look forward to keeping in touch with Energy Star and assisting in this effort.

If you have any questions on these comments, please contact Craig Updyke of NEMA at (703) 841-3294 or cra_updyke@nema.org.