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February 28, 2015

VIA EMAIL TO: DistributionTransformers@energystar.gov

Ms. Verena Radulovic
US Environmental Protection Agency
ENERGY STAR Program, Product Labeling
Ariel Rios Building 6202J
1200 Pennsylvania Avenue
NW Washington, DC 20460

NEMA Comments on ENERGY STAR Distribution Transformers Draft Specification Framework

Dear Ms. Radulovic,

The National Electrical Manufacturers Association (NEMA) appreciates the opportunity to provide the attached comments on the EPA's Draft ENERGY STAR Specification Framework for Distribution Transformers. These comments are submitted on behalf of NEMA Distribution Transformer Section member companies.

As you may know, NEMA is the association of electrical equipment and medical imaging manufacturers, founded in 1926 and headquartered in Arlington, Virginia. The National Electrical Manufacturers Association (NEMA) represents nearly 400 electrical and medical imaging manufacturers. Our combined industries account for more than 400,000 American jobs and more than 7,000 facilities across the U.S. Domestic production exceeds $117 billion per year.

Please find our detailed comments below. We look forward to working with you further on this important project. If you have any questions on these comments, please contact Alex Boesenberg of NEMA at 703-841-3268 or alex.boesenberg@nema.org.

Sincerely,

Kyle Pitsor

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Vice President, Government Relations

NEMA Comments on ENERGY STAR
Distribution Transformers Draft Specification Framework

NEMA appreciates the comment period extension granted by the EPA and the willingness of the EPA to meet in person with NEMA staff and members on February 6, 2015. As mentioned at that meeting and on the webinar of January 14, 2015 NEMA has significant concerns as to whether there is any actual benefit to reforming this program and concerns as to the current and proposed administration processes of EPA for this program.

1. Conflict of Interest: At the February 6th meeting NEMA inquired about the relationship between Mr. Mahesh Sampat, currently a consultant to EPA and the primary source of their analysis for energy savings for including distribution transformers in the ENERGY STAR program, and Metglas. Currently, DOE energy conservation standards for distribution transformers are at an extremely high level (roughly 99% efficiency), and transformers can only be made incrementally higher through the use of amorphous metal material rather than electrical steels. Metglas is the sole global supplier of amorphous metal. During that conversation Mr. Sampat acknowledged that he had consulted to Metglas under contracts from Metglas on this issue in the past but that in fact he is still receiving funds for contracted services to Metglas. He asserted that these current contracts are not for U.S. transformers programs or standards, but we cannot see how he can remain indifferent to the significant benefits to Metglas that elevated performance standards for transformers would create.

   Our concern is not trivial. The Department of Energy after considerable analysis concluded that mandating the use of amorphous core material in transformers was not in the public interest under the Energy Policy and Conservation Act, and that manufacturers of distribution transformers should be given the opportunity to flexibly choose between competing materials to offer their customers. To add distribution transformers to the ENERGY STAR program where the requirements for efficiency will only exceed the already very high mandatory federal standards can only benefit his client, Metglas.

   We respectfully request that EPA cease its consulting relationship with Mr. Sampat or refer this issue to the Inspector General to determine its propriety. Furthermore, NEMA asks that this entire effort to include distribution transformers be abandoned, or, should the EPA decide to proceed further on this proposed program, begin the entire research anew without the assistance of someone who is so obviously conflicted.

2. It is the opinion of NEMA and its members who manufacture distribution transformers that there is no worthwhile benefit an ENERGY STAR program for Distribution Transformers at this time, or any time in the future that we can envision. Our reasons for this conclusion are outlined in the following comments.

3. Regarding the proposed/analyzed TSL4 efficiency level[1] suggested and analyzed for savings potential by EPA: we disagree that this level would ever achieve the 50% saturation claimed in the analysis. Manufacturer observations indicate that most consumers curtailed buying high-performance transformers except occasionally once the

[1] This refers to the DOE Transformer Rulemaking of 2011 and its Trial Standards Levels. The rule was made final at approximately TSL2.

DOE established high standards for these products in years past (the same time that EPA sunset the previous Transformers program). There is no indication that mandatory Federal purchases or purchases made with Federal funds or voluntary high-performance purchases will ever reach the suggested 50% level. We understand that the EPA selected this level because it had the highest Net Present Value in the DOE analysis and that ENERGY STAR attempts to set a performance level clearly at the top of the market's potential, but the lack of clear sales potential severely impacts the EPA's estimates. In this regard, we note the comments from the utility sector referred to in Item 7 below.

4. Regarding the EPA's analysis: We note that the DOE's energy analysis considered a 35% loading factor for operational energy use estimates which favors amorphous design efficiencies while the in-place DOE Test Procedure Efficiency calculation by contrast assumes a 50% load which is more appropriate and accepted by the industry, and favors silicon steel designs. The DOE analysis for payback and energy savings also assumed a 30 year life expectancy, contrary to accepted industry practices. There is no data that confirms that 30 years is a realistic number for distribution transformers life expectancy. Transformer manufactures design and manufacture per ANSI standards which set 20.5 years as the average lifetime. Additionally, commodity costs have changed dramatically in the past 3-4 years, causing notable increases in the cost of materials and production. It is possible that had the DOE used a 50% load factor and 20.5 year life span in the rulemaking's energy and financial estimates, the resulting feasibility and payback analyses would not have justified the 2016 standards. These are some of the reasons NEMA believes the cost analysis that EPA is building on is much understated and should be updated significantly before making any projections or claims.

5. Test Procedures and Performance Levels: as we mentioned in the February 6th meeting, concerns exist regarding realistic actual energy savings in the field due to varying amounts of load by application and time of day. To preclude an overly complex test procedure and related analysis, the DOE settled on a single load point test. Industry agrees with this practice. We do not support the creation of variable load curves and varying certification and qualifications based on estimated loads. The potential variable curve-based solution at the program level is too complex to warrant the time spent, and would still be rife with inaccuracies in terms of actual field applications. The balance between loading factors and estimated use is best managed in the field by customers in collaboration with manufacturers, which is the practice today.

6. The EPA has not adequately assessed the significant capital expenditures that would have to be made by manufacturers to establish or expand their capability to process amorphous metal into transformers to sufficiently populate a program. Besides this, and perhaps more importantly, the potential capital expenditures are not well balanced by reasonable expectations of market demand. Keeping in mind EPA's standard response to participation challenge concerns that the ENERGY STAR program is "voluntary" and not all manufacturers need to participate, this contradicts the EPA's insistence that there will in fact be sufficient supply and participation to yield the 50% saturation rate and the reliance of the EPA's analysis on *mandatory* purchases. It is NEMA's belief, shared by our customers (see following item) that there will NOT be sufficient demand from mandatory purchases and little to no voluntary purchasing otherwise. We suggest the EPA re-run their energy savings analysis for a 10% saturation rate and examine limited product scope and availability due to lack of complete catalogs for amorphous designs.

7. With respect to market demand: NEMA has been in contact with representatives from the Edison Electric Institute (EEI), National Rural Electric Cooperative Association (NRECA), and the American Public Power Association (APPA) and none of them indicated to NEMA any strong interest in sourcing from the proposed program. We hope that EPA will note that neither transformer manufacturers nor a large representation of their transformer customers are in favor of this proposed program. This alone should cause the proposal to be withdrawn.

8. We should note that to the best of our knowledge, DOE did not identify the TSL4 efficiency values for all covered transformer kVA ratings. We are only aware of values for the five design lines. EPA would have to develop and provide these values for industry and consumers to analyze and comment on. We note in fairness that TSL4 efficiency levels might allow a few silicon steel design options on single phase transformers, but amorphous metal designs would be the most likely option for three phase transformers.

9. Regarding qualification and verification test procedures: We appreciate the EPA's interest in examining the potential for new test procedures in addition to the existing DOE test procedures (since EPA is obliged to use DOE as their primary source of test procedures). Industry uses ANSI/IEEE design and production test methodologies for certification and compliance for non-DOE programs. These test procedures have been the standard of the industry for decades and all manufacturers' current practices for design efficiency verification incorporate them to some degree. As to third party certification and verification potential, we remind EPA that in the prior ENERGY STAR program for medium voltage liquid-filled distribution transformers certification and compliance were based on these ANSI/IEEE standards.

10. Size and weight considerations in the installed base: We encourage EPA to review the research and analysis performed by DOE during its last rulemaking specific to size and weight concerns related to large efficiency increases. Significant data was collected by DOE showing weight and size concerns and we are not aware of any new technical advances that would change these facts. As efficiency requirements increase there will be some ratings and configurations that cannot be provided at the higher efficiency levels proposed due to production, size (footprint), weight or other constraints. Note as well that customer-driven constraints also drive construction. These include requirements for: Impedance, Regulation, Unit Size, Weight, and more. Challenges to meet consumer requirements in addition to efficiency requirements would be very common at the TSL4 level. The aforementioned challenges could result in haphazard availability of products for the required efficiency levels, consumer confusion regarding availability, cost increases and dissatisfaction from all as a result.

11. Sole source material availability: as we mentioned in the webinar and at the February 6th meeting, the higher efficiency levels under consideration require heavy reliance on amorphous metal which is available worldwide from a single source. No changes in material availability have taken place since the DOE rulemaking and none are anticipated. While NEMA members can source amorphous metal in sufficient quantities today for the limited demand, and we understand Metglas has assured all parties they can satisfy increased demand, the risks associated with sole-source availability do not balance out the potential benefits (which we note above as very few, if any). We ask the ENERGY STAR program to inquire of EPA Counsel as to the legality and risks of sole

source material requirements in an ENERGY STAR program. From the industry standpoint, it is a bad business risk.

12. Anticipated longevity of the program: EPA has not been able to assure industry that there will be sufficient longevity of the proposed ENERGY STAR Distribution Transformers Program to pay back the efforts of those who decide to invest in the capability to participate and sufficiently populate an ENERGY STAR Qualified Products List. That is to say, that if the significant efforts and investments are made to stand up a useful program there is no guarantee those who make these investments will see any market advantage or payback of their investments before the DOE revises the existing high standards even higher and negates the ENERGY STAR program. This has happened before, and we thank the EPA for being frank at the February 6th meeting in admitting that there is nothing to prevent this from happening again.

13. NEMA believes the program as proposed requires considerable rework and changes to bring it to the point it would be able to be objectively and accurately reviewed by both users and manufacturers. Should the EPA wish to continue these efforts, despite the above stated lack of interest, NEMA will reply to future publications of material for comment.