



VIA E-MAIL:

Verena Radulovic, EPA, at [Radulovic.Verena@epa.gov](mailto:Radulovic.Verena@epa.gov) and (202) 343-9845

**Comments from Hitachi Metals America Ltd. and Metglas Inc. regarding the ENERGY STAR Transformer Program**

Dear Ms. Radulovic:

Based on the ENERGY STAR Distribution Transformers Draft Specification Framework document dated December 9, 2014 and the Webinar meeting held January 14, 2015, Hitachi Metals America Ltd. and wholly owned subsidiary Metglas Inc., a United States-based company incorporated in Delaware, are hereby providing comments and our recommendations. Metglas<sup>®</sup> amorphous core material was invented in the United States with support from EPRI, and thus was partially funded by US utilities as an extremely successful industry sponsored energy conservation initiative. The Metglas Inc. business, headquartered at its manufacturing facility in South Carolina, has been producing amorphous alloys since 1989 and operated under US companies AlliedSignal and Honeywell. In 2003, Hitachi Metals Ltd. purchased Metglas Inc. and has since made significant investments in capacity expansion and manufacturing excellence.

We applaud EPA's recognition of distribution transformers for the ENERGY STAR program and firmly believe that current technology and materials are commercially and readily available to meet and succeed EPA's proposed energy efficiency levels. We also feel there could be further savings and support as outlined below.

**Product Class:** In addition to the medium voltage, liquid-immersed distribution transformers already proposed, we believe the program should include low and medium voltage dry-type transformers to capture additional energy and financial savings. Our recommendation would be to apply Trial Standard Level (TSL3) to low voltage, dry-type transformers. By including low voltage, dry-type transformers at TSL3 in the program, an additional 0.62 quads<sup>1</sup> of energy savings could be achieved (with 100% adoption) with a 41M ton<sup>2</sup> reduction in CO<sub>2</sub> emissions beyond the adopted TSL 2 level. Our additional recommendation would be to apply TSL3 to medium voltage, dry-type transformers. By including medium voltage, dry-type transformers at TSL3 in the program, an additional 0.24<sup>1</sup> quads of energy savings could be achieved with a 20M ton<sup>2</sup> reduction in CO<sub>2</sub> emissions beyond the adopted TSL2 level.

<sup>1</sup>Federal Register/Vol. 28, No. 75/Thursday, April 18, 2013/Rules and Regulations p 23408

<sup>2</sup>Federal Register/Vol. 28, No. 75/Thursday, April 18, 2013/Rules and Regulations p 23410

Low voltage, dry-type equipment purchases and installations are typically based on the premise of lowest first cost and lowest efficiency because the decision making process often does not include the involvement of the end-user and/or rate payer. Applying the ENERGY STAR program to the low voltage, dry-type equipment class could greatly simplify and influence planning and purchasing decisions toward the goal of more energy, financial and environmental savings.

**Technology and Materials:** Manufacturing data (from reputable Original Equipment Manufacturers [OEM's]) was presented and utilized by the Department of Energy (DOE) for the 10 CFR Part 431 Energy Conservation Program: Energy Conservation Standards for Distribution Transformers; Final Rule. These data proved that existing technologies and material grades (including Grain Oriented Electrical Steel [GOES] and Amorphous Metal [AM]) could be competitively utilized at efficiency levels beyond those chosen in the aforementioned Final Rule.

During the DOE's Negotiated Rulemaking, one of the transformer OEM's presented data on actual transformer shipments. Using that data for medium voltage, dry-type transformers, Metglas Inc. calculates that Design Lines 9-13B loss reductions at TSL3 are 15% - 39% below the current 2010 DOE standard (2010 DOE standard was the OEM's baseline). The data showed that TSL3 can be achieved on a commercial basis using GOES (grades M4 to H1). For medium voltage, liquid immersed transformers, Metglas Inc. calculates that Design Lines 1-5 (pole mounted and pad mounted) loss reductions at TSL4 are 15% - 25% below the 2010 DOE standard. The data show that TSL4 can be achieved using GOES (grades M2 and M3). Metglas Inc. internal analysis concludes that low voltage, dry-type transformers at TSL3 can be constructed with GOES (grades M3 or H0 Domain Refined) and can be constructed with equipment that has been available for decades.

**Amorphous Capacity:** Metglas Inc. is committed to supply the market with a current amorphous metal capacity of 45,000 tons from its United States production facility. There is an additional amorphous metal capacity of 60,000 tons located at our Hitachi Metals Metglas production facility in Japan. If additional capacity becomes a need, Hitachi Metals Ltd. (our parent company) would highly consider undertaking further expansion commensurate with market demand. Lastly, beyond the AM capacity at our production facilities in the U.S. and Japan, there are two (2) other commercial AM producers.

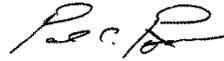
**Recommendation:** Hitachi Metals America Ltd. and Metglas Inc. recommend that the EPA move forward with the ENERGY STAR Program for 1) medium voltage, liquid-immersed transformers at TSL4 (as already proposed), 2) low-voltage, dry-type transformers at TSL3 and 3) medium voltage, dry-type transformers at TSL3. These levels can be manufactured by a wide array of existing technologies and materials and would enable an additional combined energy savings of 3.25 quads<sup>1</sup> and reduce carbon emissions by 253 million tons<sup>2</sup> beyond the current respective adopted levels set forth in the DOE policy.

<sup>1</sup>Federal Register/Vol. 28, No. 75/Thursday, April 18, 2013/Rules and Regulations p 23408

<sup>2</sup>Federal Register/Vol. 28, No. 75/Thursday, April 18, 2013/Rules and Regulations p 23410

Thank you for giving Hitachi Metals America Ltd. and Metglas Inc. the opportunity to comment.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "P.C. Ryan". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Paul C. Ryan  
Executive Director / Product Group Head  
Hitachi Metals America Ltd. / Metglas Inc.