The Distribution Transformer Efficiency & Supply Chain Reliability Act of 2024

Background: Distribution transformers are a vital component of our modern electric grid, responsible for "stepping down" higher-voltage electricity generated long distances away for use by end-use customers like residents and businesses. They are commonly mounted overhead on utility poles or secured to the ground on a pad.

The Energy Policy and Conservation Act (EPCA) provides energy conservation standards for various consumer products and certain commercial and industrial equipment, including distribution transformers. EPCA also requires the U.S. Department of Energy (DOE) to periodically determine whether more-stringent standards would be technologically feasible and economically justified and would result in significant energy savings.

In January of 2023, the DOE published a proposed rule regarding the *Energy Conservation Program: Energy Conservation Standards for Distribution Transformers* (Proposed Rule).[1] The Proposed Rule, if finalized, would marginally increase efficiency standards on distribution transformers and effectively require all distribution transformers to shift from the industry standard grain oriented electrical steel (GOES) cores to amorphous steel cores. GOES currently accounts for more than 95 percent of the domestic distribution transformer market and manufacturers' production lines are tooled for designs that use GOES.

Irrespective of the Proposed Rule, the transformer manufacturing industry is currently struggling due to a significant increase in demand, supply chain issues with transformer components, and a lack of readily available workers. These factors have made it hard for manufacturers to meet current demand for distribution transformers, creating challenging lead time conditions and concerns regarding grid reliability and resiliency. A final rule that adopts DOE's current proposal would meaningfully worsen the current supply chain shortage by requiring manufacturers to change production lines to utilize less readily available amorphous steel by 2027, while also eliminating the primary market for U.S. producers of GOES.

The United States only has one small domestic producer of amorphous steel. Moving to amorphous steel cores, as proposed by DOE, would require this sole domestic supplier which relies on imported foreign substrate to produce the material, to rapidly scale operations from its current market share of less than five percent to accommodate the entire distribution transformer market. This presents a very serious vulnerability to the nation's grid and threat to our national security. Furthermore, such a recalibration of the supply chain will further delay manufacturing production timelines – currently estimated to be a minimum of 18 months to two years. Between 2020 and 2022, average lead times to procure distribution transformers went from eight to 12 weeks to up to three years. This multi-fold increase is directly impacting the electric power industry's grid modernization and reliability efforts, as well as its ability to respond and recover from natural disasters. The Proposed Rule would exacerbate these existing challenges and for extremely minimal efficiency gains for distribution transformers that are already meeting efficiency levels over 99 percent.

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[1] *Energy Conservation Program: Energy Conservation Standards for Distribution Transformers,* 88 *Fed. Reg.* 1722 (Jan. 11, 2023).

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Solution: The *Distribution Transformer Efficiency & Supply Chain Reliability Act of 2024* would establish directly in EPCA, rather than through rulemaking, a new standard that provides for increased energy efficiency of transformers but at levels that preserve market opportunities for GOES as well as amorphous steel.

Furthermore, the legislation would provide a phase-in window of 10 years before the new standard goes into effect to provide the certainty and time necessary for GOES and transformer supply chains to properly adapt to the new standards without further exacerbating supply chain challenges, and grid reliability and resiliency.

This bill supported by the National Rural Electric Cooperative Association, National Electrical Manufacturers Association, Edison Electric Institute, National Association of Home Builders, Leading Builders of America, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) Local 3303, UAW Local 4104, and Cleveland-Cliffs