

Critical Electric Infrastructure and Supply Chain Constraints

- The reliability of the electric grid and the nation's economy are threatened by critically short supplies of distribution transformers and other critical electric infrastructure materials.
- The American Public Power Association (APPA) urges Congress to appropriate funds toward enhancing the domestic supply chain for the manufacture of electric grid components.
- APPA urges the federal government to work directly with manufacturers to identify short- and long-term solutions addressing the root causes of the distribution transformer shortage, as well as to encourage domestic production.

Background

Distribution transformers are essential for electric utilities to expand capacity, provide electricity to new communities, and restore service when existing infrastructure is damaged during a natural disaster. APPA surveys have shown that 80 percent of public power utilities have significantly lower inventories of distribution transformers than in 2018, and 30 percent reported a high risk of running out of stock in a month. Lead times to purchase new distribution transformers have grown from three months in 2018 to over two years or more today. Manufacturers indicate that a lack of skilled labor and materials are the cause of supply shortages.

Shortages of distribution transformers have caused public power utilities to defer or cancel one in five infrastructure projects that would require more resources than available. Additional electric capacity is needed to power new residential and commercial development, new manufacturing facilities, and support a rapidly expanding electric vehicle fleet. Public power utilities are investing heavily in clean energy technologies to meet environmental goals. Simultaneously, the industry is facing more frequent and severe extreme weather events, requiring more resource-intensive response and restoration.

To ensure supply chain constraints do not impact reliability, utilities are taking extraordinary measures to meet current demand with limited supply. That includes refurbishing older equipment and identifying equipment that can be swapped in the field to generate spares from underutilized equipment. These are necessary, last-ditch efforts to protect the safety of electric customers and sustain other sectors that depend on electricity, but they move the industry further away from clean energy, efficiency, and affordability goals.

Even with a strong mutual aid program in place, for the first time, public power utilities are raising concerns that they may not have the stocks to share with other utilities following an extreme weather event or disaster.

Administrative and Industry Action

In June 2022, President Biden authorized the use of the Defense Production Act (DPA) to accelerate the domestic production of clean energy technologies. Specifically, the President authorized the Department of Energy (DOE) to use the DPA to “rapidly expand American manufacturing of five critical clean energy technologies: photovoltaic modules and module components for solar panels; building insulation; heat pumps; equipment for making and using clean electricity generated fuels, including electrolyzers, fuel cells, and related platinum group metals; and critical power grid infrastructure, such as transformers.” In September 2022, DOE issued a request for information seeking stakeholders’ input on how to use its authority under Title III of the DPA to address

supply chain issues. APPA filed comments urging a focus on providing support to increase labor and material acquisition. APPA and other stakeholders also advocated for Congress to appropriate \$1 billion toward DPA authorities to help address the distribution transformer supply chain shortage. Funding for DPA-related activities never came to pass.

In December 2022, DOE issued a notice of proposed rulemaking (NPR) to increase conservation standards for distribution transformers. APPA and a coalition of impacted industries advocated against the proposed rule as it would have exacerbated the ongoing transformer shortage and only provide minimal efficiency savings. Responding to industry and congressional concerns, DOE in April 2024 released a final rule that scales back the required efficiency improvements and allows for five years for implementation rather than three years, as was in the proposed rule.

APPA also participated in a Supply Chain Tiger Team established by the Electricity Subsector Coordinating Council to address resiliency and security concerns arising from supply chain constraints. The association has set up a web service to facilitate a voluntary transformer exchange where APPA members can contact other members to address urgent equipment needs. In March 2023, APPA hosted a Supply Chain Summit to discuss issues unique to public power regarding critical grid components.

Congressional Action

Congressional action in 2023 was predominately focused on pushing back against DOE's proposed rule to increase conservation standards for distribution transformers. Early in 2023, APPA and its member utilities took the lead in seeking support for bipartisan congressional letters to DOE, led respectively by Representative Dianna Harshbarger (R-TN) and Senator Hagerty (R-TN), requesting it reconsider efforts on transformer efficiency standards. In June 2023, Representative Richard Hudson (R-NC) and Senator John Barrasso (R-WY) introduced the Protecting America's Distribution Transformer Supply Chain Act (H.R. 4167/S. 2036). This legislation would prohibit DOE from moving forward on its NPR to increase conservation standards for distribution transformers over the next five years. Similar language to prevent DOE from using funding to move forward on the NPR, as well as designating appropriations to help address labor and materials shortages – issues identified as the main impediments to increasing transformer production – was included in both the House and Senate Fiscal Year (FY) 2024 appropriations bills. APPA strongly supported these efforts and believes they were key to convincing DOE of the need to issue a more reasonable final rule.

In April 2024, APPA joined a coalition of electric utility, building, and manufacturing trade groups in sending a letter to the leaders of the House and Senate Appropriations Committees asking for assistance in expanding domestic manufacturing capacity for transformers. The letter expresses appreciation that DOE's final rule is an improvement of the proposed rule that provides a "manageable production framework for manufacturers" and "as such, industry discourages further attempts to delay or postpone the rule through the Fiscal Year 2025 funding process." However, the letter notes, the final rule does not solve the shortage of distribution transformers that existed before DOE's proposed rule, nor did it address the length in lead times to procure products. The FY 2025 House Energy and Water Development Appropriations bill includes report language stating DOE "is encouraged to conduct activities that will expand domestic manufacturing capacity within the distribution transformer supply chain, including efforts to increase the energy efficiency of the manufacturing process." It also directs DOE to "continue its efforts to engage with utilities, manufacturers, and other industry stakeholders in the supply chain to analyze and help identify potential solutions that can help ease the supply-demand mismatch." APPA appreciates this report language but continues to advocate for Congress to appropriate funds in FY 2025 appropriations bills to help address ongoing supply chain concerns related to distribution transformers and other critical grid components.

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The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government and protect the interests of the more than 54 million people that public power utilities serve and the 96,000 people they employ.