

U.S House Committee on Energy and Commerce
Subcommittee on Energy, Climate, and Grid Security &
Environment, Manufacturing, and Critical Materials
Hearing entitled “Keeping the Lights On: Enhancing Reliability and Efficiency to Power
American Homes.”
September 13, 2023
Questions for Mr. Gene Rodrigues

QUESTIONS FROM REPRESENTATIVE JEFF DUNCAN

- Q1. Describe and list your office’s interactions with EPA over the past three years, and include which rules were the subject of your interactions, when those interactions took place, and the DOE and EPA offices involved.
- A1. Since 2021, the Office of Electricity (OE) has been engaged with EPA through meetings set up by DOE’s Office of Policy regarding the DOE-EPA Memorandum of Understanding (MOU) on Electric Reliability.^a

On May 25, 2023, OE attended the North American Electric Reliability Corporation’s (NERC) 2023 Summer Reliability Assessment presentation.^b DOE, EPA, Federal Energy Regulatory Commission (FERC), North American Electric Reliability Corporation (NERC), and National Association of Regulatory Utility Commissioners (NARUC) representatives were in attendance to discuss Federal information sharing associated with the DOE-EPA MOU.

On September 7, 2023, representatives from OE, DOE, EPA, and FERC met with members of the Independent System Operator (ISO)/Regional Transmission Organization (RTO) Council to discuss reliability concerns related to energy transition, efforts to ensure reliability, and Federal information sharing associated with the DOE-EPA MOU. Members of ISO/RTO Council included the California Independent System Operator (CAISO), Electric Reliability Council of Texas (ERCOT), Independent Electricity System Operator (IESO), Midcontinent Independent System Operator (MISO), Independent System Operator New England (ISONE), New York Independent System Operator (NYISO), PJM, and Southwest Power Pool (SPP).

Specific EPA rules were not addressed during any of these discussions.

^a <https://www.epa.gov/power-sector/electric-reliability-mou>

^b https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2023.pdf

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QUESTIONS FROM REPRESENTATIVE MORGAN GRIFFITH

- Q1. Could you provide the most up-to-date statistics on the applicants for DOE’s transformer rebate program? How many of the applicants are utilities?
- A1. As of September 13, 2023, no applications have been received. DOE will accept transformer rebate applications through December 15, 2023.

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QUESTIONS FROM REPRESENTATIVE RICHARD HUDSON

- Q1. What risks to energy transmission and national security are posed when lawmakers pursue policy agendas that rush the electrification of various sectors, like transportation, space heating, and agriculture? How much more serious, or dangerous, would blackouts be in a fully electrified world?
- A1. A reliable power system is critical to the Nation’s economic, energy, and national security. A portfolio approach that takes advantage of the full range of technology, planning, and operational solutions to meet demand due to electrification can best mitigate any risks to the power system including power outages. States have mandates and structures, such as integrated resource planning and participation in regional resource adequacy constructs overseen by independent system operators or regional transmission operators, to ensure adequate power to meet demand.
- Q2. What concerns do you have with expanding the electrification of various sectors, like transportation, industry, space heating, and agriculture, while the federal government, states, and utilities lack an understanding of the potential for impacts on emergency management and infrastructure development?
- A2. Load expansion that would increase system power needs should be accounted for in the planning, design, and development of transmission and distribution systems. Otherwise, there could be increased system congestion that impacts emergency management. States have mandates and structures to ensure resource adequacy and infrastructure development in response to expanding electrification. Rapid load expansion, such as data centers, requires advanced planning and management tools, as well as cooperation and collaboration across the Federal Government, State public utility commissions and energy offices, and utilities, to further ensure a secure and reliable power system.

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QUESTIONS FROM REPRESENTATIVE KIM SCHRIER

- Q1. In a report released in August of this year, the GAO found that DOE has done important work on gathering industry feedback from stakeholders and identifying high-level strategies to alleviate the transformer shortage, but DOE has done little to put forth plans to actualize these strategies. Does DOE acknowledge these areas for improvement in the report, and does DOE intend to follow these recommendations for further planning?
- A1. DOE had been working to drive progress in alleviating the transformer shortage even before the GAO report and plans to continue these efforts.

DOE hosted an Advanced Transformers Workshop in May 2023 to identify the technology gaps and opportunities associated with transformers and other potential substitute and supporting technologies. The workshop addressed transformer specifications, procurement practices, tech-to-market requirements, advanced transformer design and materials, transformer manufacturing perspectives and industry best practices, solid-state transformers, and advanced transformer features including flexibility, modularity, and scalability. Workshop presenters also identified the benefits and limitations of power transformers and distribution transformers, respectively, and discussed the challenges and paths to achieve advanced transformers. The workshop included attendees from utilities, manufacturers, Federal agencies, national laboratories, academia, and research institutions.

To understand the context of the supply chain issue and to determine actions that utilities can perform to minimize the production line changes, the Office of Electricity plans to facilitate discussions in a working group of utilities and manufacturers to develop common configurations and accessory interchangeability for distribution transformers.

The GAO report references Large Power Transformers (LPTs) and the development of a plan to address challenges. A planned joint action with the Offices of Electricity and Cybersecurity, Energy Security, and Emergency Response that responds to the GAO

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report is the anticipated funding opportunity announcement (FOA) for Flexible, Innovative Transformer Technologies. This FOA is expected to look at distribution transformer and LPT modularity, improving performance and monitoring as well as offering greater options for utilities while addressing future supply chain constraints.

OE will also be looking at advanced materials for use in the manufacturing process to improve transformer operating efficiencies without relying on scarce, rare, and imported materials. One such project should be complete in 2029.

- Q2. In the Bipartisan Infrastructure Law, Congress included funding for utility rebates for energy efficient transformers.
- Q2a. Can you talk about the importance of that program, and how it could potentially help with some of the current supply chain difficulties?
- A2a. The transformer rebate program was designed to increase the power grid’s energy efficiency by incentivizing installation of new, efficient transformers while retiring old, inefficient transformers.
- Q2b. I know this program is expiring soon, can you talk about the additional benefits that would come from extending it – even without any additional appropriations?
- A2b. The Office of Manufacturing and Energy Supply Chains (MESC) is implementing this program through its authorization date of December 31, 2023. MESC prepared to continue operating the program, if authorized and/or the program is extended or amended.
- Q3. Part of what makes our transformer supply chain so vulnerable is the fact that a small portion of transformers are manufactured in the US. There are only five US-based manufacturers of large power transformers. So, given how we are overly reliant on manufacturing overseas, how can we better support domestic manufacturers and every step of the supply chain, from worker training to new research and development?
- A3. To understand the context of the supply chain issue and to determine actions that utilities can perform to minimize the production line changes, the Office of Electricity plans to

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facilitate discussions in a working group of utilities and manufacturers to develop common configurations and accessory interchangeability for distribution transformers.

A planned joint Office of Electricity and Office of Cybersecurity, Energy Security, and Emergency Response FOA for Flexible, Innovative Transformer Technologies is expected to look at distribution transformer and LPT modularity, improving performance and monitoring as well as offering greater options for utilities while addressing future supply chain constraints.

OE will also be looking at advanced materials for use in the manufacturing process to improve transformer operating efficiencies without relying on scarce rare and imported materials. One such project should be complete in 2029.