January 14, 2022

Submitted electronically to www.regulations.gov/docket/DOE-HQ-2021-0020

Re: **Request for Information (RFI) on Energy Sector Supply Chain Review**

To Whom It May Concern:

The National Rural Electric Cooperative Association (NRECA) respectfully submits the following comments in response to the U.S. Department of Energy's (DOE) Request for Information (RFI) on Energy Sector Supply Chain Review.

NRECA is the national trade association representing nearly 900 local electric cooperatives and other rural electric utilities. America's electric cooperatives are owned by the people that they serve and comprise a unique sector of the electric industry. From growing regions to remote farming communities, electric cooperatives power 1 in 8 Americans and serve as engines of economic development for 42 million Americans across 56 percent of the nation's landscape.

Electric cooperatives operate at cost and without a profit incentive. NRECA's member cooperatives include 62 generation and transmission (G&T) cooperatives and 831 distribution cooperatives. The G&Ts generate and transmit power to distribution cooperatives that provide it to the end of line co-op consumer-members. Collectively, cooperative G&Ts generate and transmit power to nearly 80 percent of the distribution cooperatives in the nation. The remaining distribution cooperatives receive power directly from other generation sources within the electric utility sector. Both distribution and G&T cooperatives share an obligation to serve their members by providing safe, reliable, and affordable electric service.

We appreciate the opportunity to provide NRECA's perspective in response to DOE's RFI. Electric cooperatives interact with and are directly impacted by multiple aspects of the energy sector supply chain. As cooperatives transition their generation sources to new resources as well as build infrastructure to support increased electrification of the U.S. economy, it is vital that electric cooperatives can secure the necessary materials and products to ensure affordable, reliable power to their consumer-members. As smaller utilities, electric cooperatives can be at more of a disadvantage when compared to larger utilities because of a lack of access to multiple supply chains for some products.

The importance of a secure, sustainable and resilient supply chain with ample domestically sourced options is more important than ever. Today, supply chain delays are contributing to an alarming shortage of the most basic machinery and components essential to ensuring continued reliability of the electric system. These delays mean that some electric cooperatives face impossible choices as they restore power after an outage, work to provide new service to areas under construction or upgrade existing service to ensure reliability. The compounding impact of ongoing supply chain delays, COVID-related workforce dynamics, and scarcity of fuel supplies could result in significant consequences for all Americans, including higher electric bills amidst price increases economywide.

We appreciate DOE's attention to addressing any gaps or vulnerabilities in the energy sector supply chain. However, we want to urge DOE to consider the feedback received in conjunction with this RFI in coordination with other agencies across the federal government that have jurisdiction in the energy sector in the areas explored here, such as the U.S. Federal Energy Regulatory Commission, the Commerce Department, and the U.S. Department of Agriculture's Rural Utilities Service.

It is also important that DOE does not confine its review of the energy sector supply chain to clean energy technologies as the scope of the RFI suggests. Breakdowns in supply chains for other products that are essential to reliability and resiliency, such as gas-fired generation or transmission that is supporting more than just renewable generation, are also critically important. DOE should pay due consideration to the supply chains supporting these vital components of the energy sector as well.

Where the scope of the RFI suggests that DOE's review will "support" clean energy technologies, we believe that DOE's role is limited to funding support for research and development (R&D) and technical assistance to the states. In our view, DOE's role does not extend to assessing what policies are necessary to implement an energy transition or identifying and addressing regulatory barriers associated with clean energy policies. Addressing supply chain issues negatively impacting the utilization of a clean energy technology may be an appropriate role for DOE, whereas the agency taking on an advocacy role for a particular technology or consumer incentive to encourage adoption of that technology would be outside of DOE's purview.

We urge DOE and the federal government to consider actions that will shore up the domestic supply chain to mitigate the challenges and bottlenecks facing electric cooperatives today and to prevent these issues from recurring in the future. Below, we address specific issues/technologies raised in the RFI of particular interest to America's electric cooperatives.

2. Solar PV Technology

We are concerned that the limited domestic supply chain to source materials and components for solar projects will only be exacerbated as the power sector decarbonizes, particularly in the short amount of time as envisioned by the Biden administration. Electric cooperatives are already facing increased costs and uncertainty on their planned solar projects because of a confluence of circumstances such as solar import tariffs in effect and under consideration and enforcement actions to address labor practices abroad. In addition, the solar industry has been challenged by widespread backlogs, increasing shipping costs and times, and increasing steel costs. All of these factors mean that some electric cooperatives have not been able to even secure quotes from solar suppliers for their projects because there is too much uncertainty at this time.

Overall electric cooperatives are facing delays and increasing costs as they transition to new renewable resources such as solar. In our view, supply will not be able to keep up with demand across the power sector and beyond to meet the Biden administration's targets to decarbonize the power sector by 2035 and to reach a net zero carbon economy by 2050. We urge DOE and other agencies across the federal government to consider ways to provide certainty to the solar industry that will help stabilize prices and timelines for project delivery in the utility sector.

5. Electric Grid – Transformers and HVDC

The U.S. needs to significantly invest in growing the domestic manufacturing capacity for transformers and high-voltage, direct current (HVDC) technology. As today's supply chain constraints and delays demonstrate, current manufacturing capacity cannot keep up with demand – leading to unprecedented lead times for delivery of transformers and other critical equipment to support the power sector. For large power transformers imports supply 80 percent of the demand. There is only one manufacturer of grain-oriented electrical steel (GOES) in the U.S.[1] For distribution transformers, some of the manufacturers are sourcing their products from overseas and for those manufacturing domestically their capacity is still constrained by persisting labor shortages. These circumstances create national security vulnerabilities and potentially risks to economic growth and electric reliability.

Today's supply chain delays hamper the ability of electric cooperatives to provide new electric service, to upgrade electric service in currently served areas and could lead to delay in recovery efforts down the road. In some cases, our members are being forced to tell developers that completion of new homes or other construction will be delayed because of the unprecedented lead times they are now experiencing. We anticipate the push for decarbonization in the power sector and electrification of the broader economy as envisioned by the Biden administration will only exacerbate these problems by creating even more demand in a short amount of time – unless the federal government takes action to increase domestic manufacturing capacity.

The government could support new capacity in the long term through capital expenditure loans or other financial incentives to encourage domestic manufacturers to expand their operations. In our view, the limited domestic manufacturing options to produce transformers and HVDC utilized by the power sector create an inherent risk to the Biden administration's targets to decarbonize the power sector by 2035 and to reach a net zero carbon economy by 2050.

12. Carbon Capture, Storage, and Transportation Materials

While carbon capture and storage (CCS) will be critically important to decarbonize industry in the U.S. and abroad, NRECA has concerns regarding whether sufficient depth exists within the labor pool to build out the necessary infrastructure required for CCS. CCS has the potential to abate millions of tons per year of CO_2 emissions, but there will need to be a robust manufacturing and construction workforce available to bring such projects to operation.

In polling the experiences of NRECA contractors, labor shortages are a significant concern for any project, and particularly projects of such scope as commercial scale CCS deployment. Shortages can be problematic not just at the "craft labor" level, but at all levels. NRECA and its contractors work with or follow many CCS projects and there are very few people with the necessary experience in this field to supply sufficient engineers, project managers, construction managers, and craft labor to widely deploy CCS projects. A significant build out of CCS projects in any industry will require significant investment

[1] See page 9, U.S. Department of Commerce Bureau of Industry and Security Office of Technology Evaluation October 15, 2020 report, "The Effect of Imports of Transformers and Transformer Components on the National Security" at https://www.bis.doc.gov/index.php/documents/section-232-investigations/2790-redacted-goes-report-20210723-ab-redacted/file

and recruitment of labor and manufacturing capability across the entire value chain and not just in one specific category.

13. Cybersecurity and Digital Components

Electric cooperatives are dedicated to maintaining a strong cybersecurity posture throughout their operations and to mitigating risks that could impair their ability to provide affordable, reliable power to their consumer-members. As such, it is vitally important that the supply chains providing equipment to the power sector appropriately build in measures to ensure that it is secure and protected from interference, including cybersecurity vulnerabilities.

We urge DOE to prioritize efforts on addressing any gaps or vulnerabilities identified with regard to digital components in the energy sector industrial base at the bulk power system level. The potential to impact the interconnected bulk power system from transmission facilities is substantially greater and different than that from distribution facilities.

We also urge DOE and other federal agencies with applicable jurisdiction to directly engage with vendors that provide equipment to electric utilities to address any concerns the government may have about risks in the supply chain. The vendors are best suited to address such questions. The electric utility industry's ability to influence the security measures undertaken by industry suppliers is limited, and particularly so for smaller utilities. Though vendors are outside the direct authority of the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC), DOE may use its influence to affect supplier practices by encouraging suppliers to adopt shared security practices, and encourage their use of programs like DOE CyTRICS which are intended to work with vendors who volunteer to test and identify security concerns with products intended for use in the energy sector, including the bulk energy system.

DOE's long-term strategy to address protection of critical electric infrastructure and supply chain risks posed to the energy sector should be based on risk. This risk assessment should be accomplished with the input of industry, vendors, other stakeholders, and other regulators with jurisdiction over the bulk power system. NERC issued multiple alerts in 2020 related to Executive Order 13920, *Securing the United States Bulk Power System,* requiring utilities to respond about equipment or vendors associated with foreign adversaries. DOE should consult with NERC's Electricity Information Sharing and Analysis Center (E-ISAC) on whether the responses to those alerts shed any new light on risks associated with equipment and systems serving the bulk power system posed by the supply chain.

Again, the primary responsibility for demonstrating the security of their supply chain for all equipment, components, and sub-components used for critical electric infrastructure should rest with the vendors and manufacturers. Electric utilities do not regularly have access to information from the manufacturer of a finished product about who may have sub-contracted the design and/or manufacturing of the components they might purchase. Software bills of materials (SBOM) can help solve this problem. The vendors and manufacturers hold the information, including the extent to which a foreign entity may play a role in their supply chain, that would make up the SBOM. It is critical that DOE work directly with equipment manufacturers and vendors to identify areas of concern before taking any action. Utilities should be an important and valued partner to DOE in these efforts. For example, DOE could work with manufacturers to test their products and also use SBOM that give a breakdown on where they are being

sourced from. DOE could develop a standard for vendors of equipment that connects to the bulk power system that involves a defined process for review of code in software and chip sets for this equipment. Such approaches will be more effective than trying to replace equipment later found to pose a risk after it has already been installed. Regardless of the approaches and tools that DOE utilizes, diversification of asset options rather than limiting or promoting single vendors will help enhance the ability of the sector to be resilient.

Any new requirements or guidance that DOE issues should provide clarity on the definition of assets, including at the sub-component level as needed, that would be considered to pose a foreign ownership, control, and influence risk depending on the country of origin. DOE should also provide information regarding threats, mitigations, and remediations through channels like the E-ISAC. Further, DOE should also provide use cases/examples regarding the long-term implementation of such requirements, e.g., how utilities are expected to respond/comply where a current domestic supplier is purchased by a foreign entity or vice versa. DOE should recognize that assets cannot be inherently "secure" or "not secure." Power systems are secured by the owners and operators through many avenues - including by proper implementation of assets, such as through network segmentation, network monitoring, intrusion detection and prevention, multi-factor authentication, least-privilege authorization, and other measures – but cannot by themselves solve for security issues inherent within a vendor's product.

Finally, NERC Critical Infrastructure Protection (CIP) standards cover necessary critical infrastructure and only took effect on October 1, 2020. Sufficient time should be afforded for utilities to implement these standards and for NERC to assess their effectiveness. DOE should work with FERC and NERC to determine whether the existing supply chain standards are sufficient for addressing any DOE supply chain concerns with respect to national security. If DOE determines additional requirements are needed, DOE should work with NERC to update the existing standards before DOE considers imposing new requirements aimed at the same objectives.

In summary, it is vital to electric cooperatives that the federal government take short and long-term actions within its authority to address the gaps and vulnerabilities in the energy sector supply chain. DOE should work with other federal agencies with jurisdiction in the energy sector to fully capture the gaps and vulnerabilities in the supply chain and consider options to mitigate problems as appropriate. The federal government should consider ways to support domestic manufacturing capabilities for all technologies needed to support the energy sector. The grid is expected to undergo significant change in the decades to come and a secure, sustainable and resilient supply chain will be vital to ensuring electric cooperatives and other utilities can deliver affordable, reliable power.

Thank you for considering our comments. Please contact me at stephanie.crawford@nreca.coop or 703-907-5732 if you have any questions regarding these comments.

Sincerely,

Stephanie Crawford

Stephanie Crawford
Senior Regulatory Manager
National Rural Electric Cooperative Association