



National Electrical Manufacturers Association

The Association of Electrical Equipment
and Medical Imaging Manufacturers
www.nema.org

Prepared Testimony of
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Hearing to examine the United States' increasing dependence on foreign sources
of minerals and opportunities to rebuild and improve the supply chain in the United States

Senate Committee on Energy and Natural Resources
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Chairman Murkowski and Ranking Member Cantwell, and Members of the Committee,

Thank you for the invitation and opportunity to provide the following remarks on behalf of the National Electrical Manufacturers Association (NEMA) on the topic of minerals availability and the importance of minerals access for the U.S. electroindustry and medical imaging manufacturers.

NEMA represents 350 electrical and medical imaging manufacturers at the forefront of electrical safety, reliability, efficiency, and energy security. Our combined industries account for more than 400,000 American jobs and more than 7,000 facilities across the United States, including Alaska, Washington, Nevada, and the other 47 states. Domestic production exceeds \$114 billion per year and exports top \$50 billion.

NEMA supports policies that provide greater assurance to U.S. electroindustry companies of stable, continuous and affordable supplies of inputs for domestic manufacturing. We also support legislation, regulations and resulting processes (e.g., permitting) that are at the minimum essential, transparent, easily understood and quickly accomplished.

Challenging supply conditions and volatile prices of basic inputs can be a significant challenge to U.S. electroindustry companies in multiple sectors. When we speak with our Member companies about these issues, they are understandably somewhat reticent. Competition is intense. Innovation is ongoing and the future is being developed in our companies' laboratories, design centers, and testing facilities. Supply chain risk management is part of every manufacturer's DNA.

While some of our Member companies source raw materials, many companies are one or more steps away from that and purchase semi-processed or processed material that is ready to be used in product manufacturing. These sources of supply are domestic, but also foreign. Supply chains are

“longer than before for many raw materials and other inputs”, one of our companies told us as we were preparing this testimony.

A survey of our Member companies found that, in addition to the well-known usage in our industries of elements such as copper, tin, aluminum, and lithium, many of the so-called rare earth elements are used by our companies in products they now manufacture or are developing for the market. While U.S. firms remain dependent on rare earth materials from China, the supply crisis/scare that many of our member companies faced several years ago has improved somewhat, in large part because China has removed its export restrictions. Technological improvement and changes in the market have also had a profound effect in our most affected sectors, energy efficient lighting and permanent magnet applications (lighting, electric motors, renewable energy generation). However, reliance on foreign sourcing of raw and processed rare earth materials remains a point of significant risk depending on the location of that source (e.g., China, Mexico or Canada).

For example, in terms of manufacturing of stationary and mobile energy storage systems, availability of lithium and other materials is essential. As we build and deploy energy storage as well as electrified, intelligent, and connected transportation, manufacturer access to minerals and metals is a fundamental issue to be addressed. U.S. Geological Survey research points to a dependence of greater than 50 percent on foreign sources of lithium, as demand continues to increase.

We are hearing more from our Members about the state of the domestic aluminum manufacturing industry and the primary factors that are leading to constrained conditions. A number of our manufacturers of electrical wire and cable report that previous suppliers have gone out of business or significantly reduced capacity.

There is another substance of critical importance to medical imaging manufacturers and patients on which I would like to provide a brief summary.

Molybdenum-99 (Mo-99), the parent isotope of Technetium-99m (Tc-99m), is used in approximately 40,000 diagnostic medical procedures every day in the U.S. Tc-99m, an ideal radioisotope for certain medical imaging, has a very short half-life and therefore must be produced on a continuous basis to meet the needs of the medical community. Any interruptions in the supply of Mo-99 or in the production of Tc-99m can place patients at great risk of not getting the right test at the right time. Uses of Tc-99m include mainly cardiac diagnostics, diagnosing and monitoring cancer treatments.

The U.S. consumes approximately one-half of the world’s supply of Mo-99, but has no domestic source. The reactors around the world are aging and Canada, which used to supply the U.S with half of its needs, ceased routine production in 2016.

Over the past decade, unplanned shutdowns of the world's reactors resulted in shortages impacting supply to drug manufacturers and patients. In 2012, Congress enacted S. 99, the American Medical Isotopes Production Act (AMIPA) of 2011, as part of the Defense Authorization bill. S. 99 addressed some of the technology and waste disposal issues that were obstacles to the development of new Mo-99 production facilities. However, industry must now convert its technology from highly enriched uranium (HEU) to non-HEU sources. While removing HEU from medical isotope production is important for non-proliferation, concern remains that the conversion has placed additional costs on the industry, patients and their providers.

NEMA thanks the Committee for its work on S. 99 and encourages the Committee to use its oversight authority to monitor implementation of AMIPA to ensure a domestic source of Molybdenum-99 that will allow patients to get the right test at the right time.

Returning to the bigger picture, we support the federal role in critical minerals policy, including research and development as well as minerals information and analysis. It is important to add that critical minerals policy is an important support for domestic manufacturers and workers.

We commend the work of the research communities at the Critical Minerals Institute at Ames National Laboratory and the Colorado School of Mines. Partnerships with other institutions, including some of our companies, have helped to accelerate progress and advance the state of knowledge in many areas, including supply diversification, development of substitute materials, more-efficient use of critical materials and the challenges of reclamation and recycling. We were gratified to see CMI announcement earlier this month of a new partnership aimed at lithium-ion battery recycling.

The Minerals Commodity Summaries and other minerals information and analysis work published by the USGS Minerals Information Service is bedrock material that helps inform sources on which NEMA and our industries' economic forecasters rely.

Greater supply chain awareness has inspired many of our companies to institute sustainability programs. These vary by company but can include measures such as diversion from the waste stream during the manufacturing process and reutilization of pre-consumer raw materials, such as poly-vinyl chloride (PVC) and copper, as well as recycling of aluminum and steel products.

However, despite significant efforts to date, many manufacturers' dependence on foreign sources of critical minerals, including rare earths and other raw materials, remains a concern. Companies manage this risk by diversifying sources of supply, if possible, and holding more inventory, both of which can impact operating costs and overall competitiveness. Having access to more secure, price competitive supplies closer to home is desirable.

At the end of the day, the issue we are discussing today is about whether and what U.S. electroindustry and medical imaging companies will be able to manufacture a product and where

they will be able to manufacture it. Our companies are working to meet the Nation's future needs in energy, health care and transportation. NEMA would support initiatives to improve the prospects that U.S. industry and their workers will have access to the minerals, related information and financial environment they need to be globally competitive.

Thank you again for the opportunity to provide these brief remarks and I would be pleased to consider any questions Members of the Committee may have.