



National Electrical Manufacturers Association

The association of electrical equipment
and medical imaging manufacturers
www.nema.org

March 31, 2022

U.S. Department of Energy
Office of Fossil Energy and Carbon Management
Attn: Patrick Mayle
Forrestal Building
1000 Independence Ave., SW
Washington, DC 20585

Via email: REEdemoRFI@netl.doe.gov

RE: DE-FOA-0002686-RFI: Rare Earth Element Demonstration Facility

Dear Mr. Mayle:

The National Electrical Manufacturers Association (“NEMA”) welcomes the opportunity to submit comments in response to the Office of Fossil Energy and Carbon Management’s (“Office”) request for information (“RFI”) on the creation of a domestic rare earth element (“REE”) and critical mineral (“CM”) demonstration facility. We are the leading trade association representing more than 325 manufacturing companies which produce safe, reliable, and efficient electrical products serving six key economic markets: buildings, lighting systems, industrial products and systems, utility products and systems, transportation systems, and medical imaging. Our members produce many of the commercial and consumer goods being used to decarbonize and modernize the American economy. The manufacture of these products relies on the continuous availability of multiple REEs and CMs. NEMA applauds any effort which could lead to the increase in domestic supply of REEs and CMs in an environmentally conscious, equitable, and economically efficient manner.

The historic Bipartisan Infrastructure Law (“BIL”) will further the electrification of the American economy and help the nation achieve its clean-energy goals of a 100% carbon-free electricity sector by 2035 and a net-zero emissions economy by 2050. Meeting these aggressive timelines will require a robust and resilient supply chain which can predictably deliver necessary materials to transitioning markets. This could include reorganizing the supply chain itself and investing in research and development projects, such as a REE Demonstration Facility.

The RFI states that the demonstration facility being considered shall be “first-of-a-kind” in terms of producing REEs and CMs from unconventional and secondary sources, such as coal waste. The Department of Energy has noted in another BIL-related RFI¹ that the industrial sector is ‘difficult to decarbonize.’ NEMA was pleased to submit comments on the decarbonization of the

industrial sector.² This charge translates into an opportunity for America to showcase the best it has to offer in creating such a facility; the structure itself should be a model of how the convergence of modern technology and building design can achieve decarbonization goals practically and to scale.

In addition to the important goal of demonstrating the production of REE materials critical to the supply chain, NEMA encourages the Office to prioritize and incorporate technologies in the facility which can further other decarbonization policy outcomes. This includes but is not limited to the adoption of digitally controlled and automated processing systems; the digital integration of lighting, lighting controls, fire suppression, industrial controls, and other automated systems to create an energy-saving and efficient “smart” facility; and the modernization of the transmission and distribution elements of the power grid to supply clean energy needed for the facility. A wholistic technical approach in the creation of a modern and connected facility could attract continued investment to this project once BIL-funding expires.

Furthermore, NEMA feels the Office should consider how this BIL investment can address and expand the country’s capacity for *processing* of REEs and CMs, in addition to their extraction from secondary and unconventional sources. Ascertaining practical and economic ways to increase domestic REE and CM sourcing is important for national security, environmental, supply chain resiliency, and other purposes. However, these policy goals are set back if converting those elements into usable materials for manufacturing requires foreign processing.

As an example, neodymium ore is a REE with abundant domestic sources throughout the United States. Byproducts of neodymium are used heavily in the production of magnets, which are then found in numerous applications, including motors for wind turbines, drive motors for hybrid and electric vehicles, battery storage, LED lighting sources, medical imaging equipment, as well as for defense industry purposes. Generally, the environmentally degrading and toxic side effects of processing make local acceptance socially, economically, and politically undesirable. Developing a modern facility that can also spotlight and prove these processes will encourage magnet producers and other REE/CM refiners to open American-based facilities.

As noted in the RFI’s background, a vast majority (more than 80%) of the nation’s REEs are imported. For context, China extracts roughly 65% of REEs but processes about 85%.³ In practice, this supply chain imbalance and overreliance on foreign sourcing for these raw and processed materials means America’s decarbonization goals are extremely vulnerable to geopolitical motivations and logistical variables. Access to domestically produced REEs and CMs would provide greater resilience to supply chains which incorporate these products. It would also reduce the added site-to-source greenhouse gas and carbon emissions created by an extended supply chain. Developing more modern and clean production and processing facilities, especially those capable to scale commercial demands, will reduce harmful side effects and make these chains less prone to disruption, certainty which is needed to attract capital investment.

In addition to expanding the RFI's scope to include processing, NEMA recommends that the document also incorporate capable and available domestic entities which can facilitate smaller workflows within the extraction process. Instead of trying to expand the capabilities of the demonstration facility to do all things under a single roof, there are other existing and feasible domestic capabilities which can be adjusted readily and easily that could complement the goals the facility. NEMA encourages the Office to consider a wholistic approach when preparing its funding opportunity announcements.

In closing, NEMA believes the greatest outcome to be gained from this demonstration facility is insight on how domestic extraction and processing can be amplified broadly across this industry sector. While the facility may focus on the extraction of a few specific REEs and CMs, the outcomes and knowledge gained from this project should not be limited to just those materials. Empowering the whole domestic marketplace with information as to what is economically, socially, and politically possible in producing and processing these materials will help lower barriers to entry into this important space.

Again, NEMA appreciates the opportunity to submit comments regarding this BIL provision. If you have any questions or need additional information, please contact me at Peter.Ferrell@Nema.org.

Sincerely,



Peter B. Ferrell
Manager, Connectivity and Data Policy

Endnotes

¹<https://www.energy.gov/eere/amo/articles/request-information-industrial-decarbonization>

²<https://www.nema.org/docs/default-source/advocacy-document-library/nema-comments-to-doe-industrial-decarbonization-rfi.pdf>

³https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/critical_minerals_supply_report.pdf