

TESTIMONY OF
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BEFORE THE
SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES
COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

REGARDING H.R. 9640
THE EARTH MRI REAUTHORIZATION ACT OF 2026

July 21, 2026

Chairman Stauber, Ranking Member Ansari, and Members of the Subcommittee:

Thank you for the opportunity to submit testimony regarding H.R. 9640, the Earth MRI Reauthorization Act of 2026.

Representative Wittman, thank you for your interest in having me speak today.

My name is Matt Heller. I serve as the State Geologist of Virginia and Director of the Virginia Department of Energy's Division of Geology and Mineral Resources. I am speaking as the leader of a State Geological Survey in the eastern U.S. and as a member of the Association of American State Geologists, which endorses H.R. 9640.

Earth MRI combines on-the-ground geological mapping, geochemical analysis, and investigations that characterize mineral deposits and mine waste with high-resolution airborne geophysical surveys. Together, these complimentary activities identify and evaluate critical domestic mineral resources.

Earth MRI is more than a collection of individual projects. It provides a coordinated national framework that incorporates work completed by State Geological Surveys and the U.S. Geological Survey into a shared scientific foundation. That integrated approach allows discoveries made in one state to inform work in another and ensures that new technologies build upon, rather than replace, decades of geological knowledge.

Virginia has been an active participant in Earth MRI since it launched in 2019. We have completed three Earth MRI projects, have three active projects, and will begin two additional projects within the next year. Two of our completed projects involved mapping areas with heavy mineral sand deposits that are important sources of titanium, zirconium, and rare earth elements. For these projects we mapped or compiled the geology of 600 square miles and collected more

than 100 samples for geochemical analysis. Our work has identified the formations that are more likely to host deposits and the potential source rocks for some of these deposits.

The maps and reports for these projects have been published as precompetitive data that encourages private sector exploration. Rather than directing investment toward a particular company or project, this publicly available scientific information reduces uncertainty for everyone. Mining and processing of heavy mineral sand has resumed in Virginia, and industry stakeholders have expressed gratitude to our staff for this foundational data. We are building on this work in a new Earth MRI project, using geochronology and geochemistry to support the development of a model for heavy mineral sand deposit formation that can be applied to other areas in Virginia and adjacent states.

The third project we have completed used high-resolution lidar imagery in combination with historical mining records to identify and map mine waste stockpiles at abandoned mineral mining sites. We found more than 100 large stockpiles in several critical mineral focus areas and are now sampling some of these stockpiles to estimate the mineral resources that each contains. Locating critical minerals in mine waste creates a double opportunity as recovering valuable minerals can both strengthen domestic supply chains and offset the costs of addressing legacy environmental liabilities.

My agency is participating in another Earth MRI project in collaboration with the North Carolina and South Carolina geological surveys. This project involves sampling regolith above granites in the Piedmont province to determine the enrichment and mobility of rare earth elements. Our work may identify new deposits of rare earth elements like those being mined today in other parts of the world. Collaborative work is encouraged under Earth MRI, and this allows smaller geological surveys to share expertise and resources and provide a consistent portrayal of mining districts that cross state lines. This type of collaboration is one of the defining strengths of Earth MRI. Mineral systems do not follow state or political boundaries, and neither should the scientific framework used to understand them. By coordinating work across states, Earth MRI produces a more complete and consistent picture of regional geology than any individual survey could accomplish.

Additionally, we have supported the U.S. Geological Survey and neighboring states in designing four geophysical surveys covering more than 90,000 square miles, including approximately 22,000 square miles in Virginia. The footprints of these surveys overlap at least fifteen distinct critical focus areas containing documented mineral deposits. Preliminary data from the most recent survey reveal previously unknown intrusions of igneous rocks that may host critical minerals. These discoveries demonstrate that the value of modern geophysical surveys extends well beyond a single mineral target. New datasets often reveal previously unrecognized geological features that become the basis for future mapping, new scientific investigations, and additional resource assessments. We have proposed a project to map intrusions with mineral resource potential within the most recent survey footprint, improve our mapping of known intrusions, and sample in the areas of greatest potential.

Virginia's experience is not unique. Similar successes are occurring throughout the eastern United States. Thirty-two mapping and sampling projects have been funded by Earth MRI in 13

states east of the Mississippi River since 2019. These diverse projects have provided new data about more than 30 critical minerals in targeted areas. As an example, Alabama's mapping in two areas confirmed high-grade flake graphite deposits with vanadium and barium co-products and led to the designation of an expanded graphite – vanadium belt as a new Earth MRI focus area.

Seven eastern states have participated in the Earth MRI Mine Waste program and at least 8 projects are underway to characterize mineral mine waste stockpiles potentially containing 11 different critical minerals. The North Carolina Geological Survey just published a report on their assessment of the tailings at the Tungsten Queen Mine, where significant amounts of tungsten, fluorine, manganese, and zinc were discovered.

Fourteen additional high-resolution geophysical surveys have been flown in the eastern U.S., and hyperspectral surveys have been flown in Florida to identify phosphate and heavy mineral sand deposits. These surveys are making new geologic discoveries a regular occurrence at state geological surveys beyond mineral resources. As examples, Pennsylvania has identified deep geophysical anomalies in the Appalachian Plateau that are previously unrecognized crustal structures or unknown mineral systems, and South Carolina has identified previously unknown geologic structures in separate areas that are spatially associated with earthquakes. These examples highlight an important point, that Earth MRI does not simply generate information about critical minerals. It strengthens our broader understanding of the Nation's geology, creating scientific knowledge that benefits natural hazard studies, groundwater investigations, infrastructure planning and future research.

Not every deposit or mine waste resource identified through Earth MRI is economically viable today. That should not be viewed as a limitation of the program. Mineral processing technologies continue to evolve rapidly, including important work underway at Virginia Tech. Resources may become viable in the future as extraction technologies improve, markets change and domestic demand grows. The geology will not change, but our ability to utilize it will. That is one reason the data produced by Earth MRI will continue to increase in value over time.

While the eastern U.S. has benefitted greatly from Earth MRI, a remaining challenge in completing the supply chain for some resources, such as rare earth elements, is a lack of processing facilities. While Virginia is home to North America's largest mineral separation plant, there is no facility in this part of the country to extract rare earth elements from the monazite that is mined. Additional deposits discovered through Earth MRI can encourage an industry to make a multi-year capital decision to establish here. Once established, our world class ports and rail and road networks provide an opportunity for future growth.

In summary, Earth MRI demonstrates what can be accomplished when the U.S. Geological Survey and State Geological Surveys work together toward a common national objective. It allows states with local expertise to assess critical mineral resources in a tailored and targeted way while contributing to a coordinated national effort. Even in the East we are discovering new resources characterizing existing resources, and adding value to mining by-products once regarded only as waste.

Just as importantly, we are creating publicly available geoscience information that will support decisions for decades to come. These data reduce uncertainty for industry, inform government decision-making, advance scientific research, and provide a foundation for discoveries that cannot yet be anticipated. This is a federal investment whose returns compound rather than depreciate; but only if the work goes on. Continued funding at an elevated level allows State Geological Surveys to build up our programs and grow in expertise. This is especially important for smaller surveys in areas where the critical minerals industry and workforce pipeline are not as well established.

Earth MRI is working. The partnership between our State Geological Survey and the USGS is strong, is matched around the nation, and has produced measurable results and established a durable framework for identifying and understanding America's critical mineral resources. HR9640 will allow that work to continue, incorporate new technologies, strengthen Federal-State collaboration, and complete a mission that remains unfinished. I ardently support reauthorization of Earth MRI through H.R. 9640.

Thank you for the opportunity to provide this testimony and for the Committee's leadership on an issue of national importance.