November 12, 2021

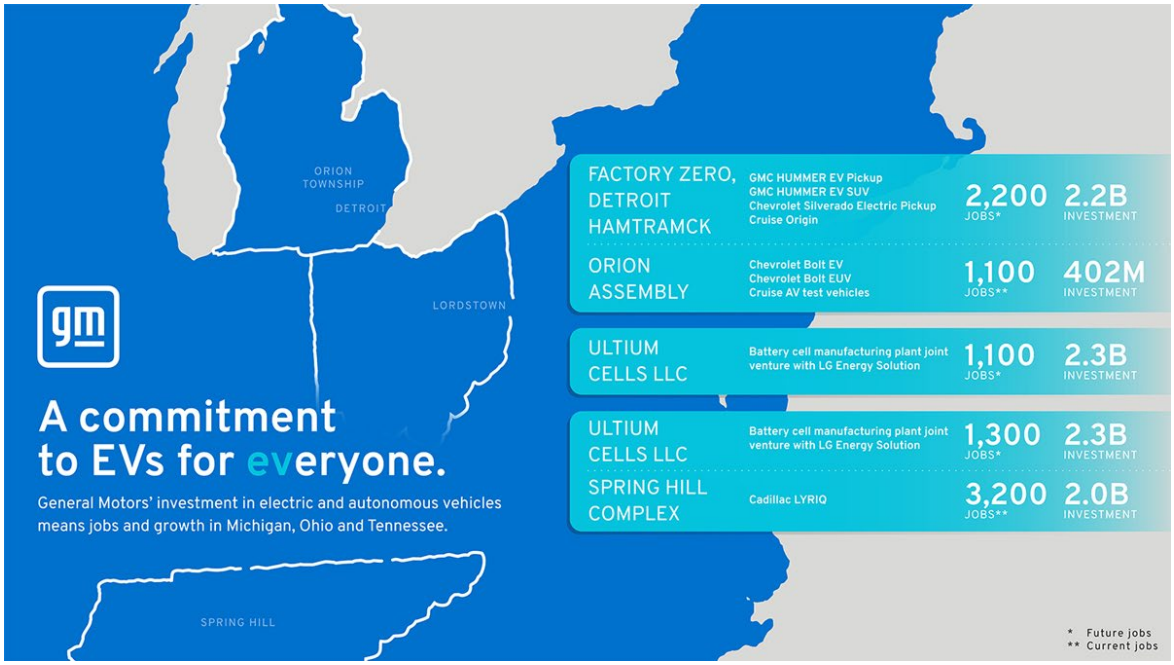
**The Honorable Gina Raimondo**
**Secretary, U.S. Department of Commerce**
**Attn: Bureau of Industry and Security, Office of Technology Evaluation**
**1401 Constitution Ave NW**
**Washington, DC 20230**

**Re: Request for Public Comments ("RFC") on Section 232 National Security Investigation of Imports of Neodymium-Iron-Boron ("NdFeB") Permanent Magnets (BIS 2021-0035)**

Dear Secretary Raimondo,

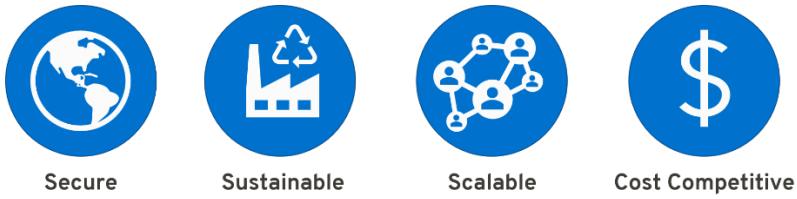
General Motors Company ("GM") appreciates the opportunity to respond to the RFC published by the Department of Commerce (the "Department") on September 27, 2021.[1]

GM is focused on advancing toward an all-electric future that is inclusive and accessible to all. Electric vehicles ("EVs") are a key enabler of our vision for a world with Zero Crashes, Zero Emissions, and Zero Congestion. GM will spend more than $35 billion through 2025 in the design and manufacture of EVs and Autonomous Vehicles. This investment supports our plan to eliminate tailpipe emissions from our light duty fleet by 2035.




Critical minerals and raw materials such as rare earth elements play an important role in our strategic vision. Secure and resilient supply chains of these rare earth elements are critical to enabling an all-electric, clean transportation future. Additionally, rare earth elements and other critical minerals must remain affordable so that electrification can be achieved at scale and available to everybody.

[1] 86 Fed. Reg. 53,277.



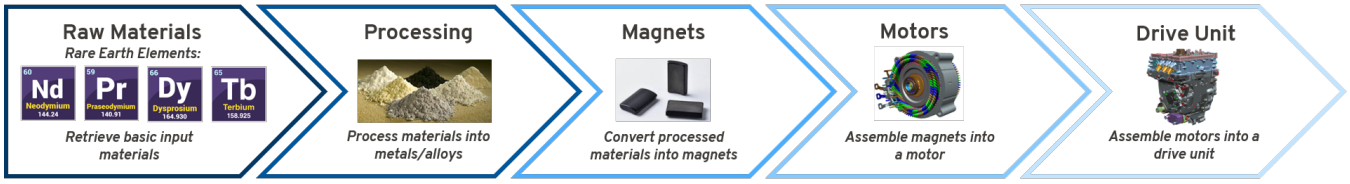

**GM Priority: Identify and execute strategic opportunities and partnerships to secure the EV value chain.**

GM is actively pursuing opportunities to localize as much of the supply chain as possible, but we cannot do it all overnight or on our own. As demand for raw materials for EVs increases, GM sees a growing need for U.S. government policy support to encourage development of new, secure, sustainable, and scalable supply chains and raw materials sources by onshoring extraction and processing where possible and by working in partnership with other countries. We also must ensure the overall competitiveness, including cost, of these new supply sources.

**Rare Earth Elements and EV Drive Units**

Rare earth elements are utilized for permanent magnet motors in EV drive units that use the energy stored in the battery to propel the vehicle. The rare earth elements for EV drive units include:

- Terbium (Tb)
- Dysprosium (Dy)
- Neodymium (Nd)
- Praseodymium (Pr)




Rare earth elements are critical to achieving magnetic properties that enable desired motor performance and increased coercivity, which improves a magnet's tolerance to high temperatures. EV motors can permanently lose performance due to demagnetization after running at temperatures higher than acceptable limits. "Light" rare earth elements (Nd, Pr) are utilized for magnet strength and motor torque, while "heavy" rare earth elements (Tb, Dy) are used to mitigate high temperature demagnetization. These magnets have the highest performance of any magnet used for automotive applications. They come at a cost premium but have the necessary robustness to temperature while yielding the highest torque.

**Key Cost Drivers for EV Motors**

Rare earth elements also represent one of the most important, high-cost, and potentially supply-constrained, components for EV drive units. Ensuring that ready, cost-competitive availability of these rare earth elements is essential to maintaining a resilient EV supply chain. As such, GM is actively working to secure supply of rare earth elements and on-shore the related magnet manufacturing footprint.

As part of these efforts, GM recently announced the signing of a non-binding Memorandum of Understanding ("MoU") with GE Renewable Energy to evaluate opportunities to improve supplies of heavy and light rare earth materials, magnets, copper, and electrical steel used for manufacturing of electric vehicles and renewable energy equipment.

**Global Supply Chains for Rare Earth Elements**

As a global company, GM relies on a global supply chain and works with vendors worldwide. And while GM is investing heavily in the U.S. and creating American jobs through local battery manufacturing and EV production, EV drive unit supply chains are necessarily global in nature, as much of the "upstream" raw materials and "midstream" processing capabilities are distributed around the world.

For the supply chains of these rare earth elements, the majority of current upstream mining and midstream processing capacity are concentrated overseas. Just as important, the midstream refining and processing capabilities necessary to convert the rare earth elements into usable formats for EV drive units are dominated by non-U.S. suppliers.

Global demand for these critical minerals is likely to increase over the next ten years and the percentage share of this global demand required for EV batteries, drive units, and raw materials is also likely to increase with the growth of EV adoption.

EV supply chains are also evolving as a result of governmental policies in major markets as U.S. trading partners seek to maximize opportunities in the EV space. There is a global race underway for intellectual property, raw materials extraction and processing, and footprint for EV technology. Global ambitions are driving governments to aggressively invest and implement supportive policies. For example, the European Commission has worked with industry to develop a strategic manufacturing plan for Europe and devoted over $3 billion to support the development of EV and battery materials, manufacturing, and recycling. China has also devoted more than $50 billion to vehicle electrification initiatives.

GM and other U.S. companies are aggressively pursuing localization initiatives for key EV components, including rare earth magnets, but these efforts will take time. In the interim, adding tariffs to imports of NdFeB magnets and component materials would increase costs for U.S. EV manufacturers and potentially divert resources that may otherwise be invested in the development of a U.S. supply chain. Indeed, increased tariffs could well benefit non-U.S. EV manufacturers and incentivize assembling drive units outside the U.S.

To this end, as part of its Section 232 investigation, we recommend that Commerce consider the feasibility of a domestic action plan or transition period that supports, rather than hinders, efforts by U.S. manufacturers to develop domestic sources for NdFeB magnets. Supply chains for mining, extracting, and processing rare earth elements in the U.S. are currently underdeveloped. Domestic policy incentives – and sufficient lead times for development – for mineral mining, extraction, and processing, as well as EV component production (e.g., magnets, motors, drive units, batteries), at the federal, state, and local level are also essential for developing resilient U.S. EV battery supply chains. All of these areas should be explored for:

1. Onshoring/nearshoring using existing known reserves and processes
2. Investment in research and innovation in extraction and industrial refining/processing methods to make the supply chain more efficient, less costly, and more sustainable

Additionally, longstanding trading partners like Canada and Australia could be a fruitful avenue. For example, Australia possesses significant rare earth reserves, the capability to process these elements, and other advantages that can complement and support EV production in the U.S.

A combination of domestic policy incentives for rare earth element sourcing and processing, EV motor production, and U.S. government collaboration with similarly situated countries to diversify and promote additional rare earth element supply chain development would be helpful to securing supply. No single company is capable of localizing the entire supply chain on its own, and close industry and government cooperation is needed to accomplish this shared goal.

Lastly, policy measures to support further development of a domestic workforce with the necessary skills are also critical for the EV value chain. Prior to the COVID-19 pandemic, a significant concern for the supply base was its ability to identify, attract, and retain skilled labor. The pandemic has further intensified the competition for talent in the U.S. manufacturing industry. However, U.S. federal, state, and local policy actions and incentives can help attract, develop, and retain the skilled workforce that will support the growth and competitiveness of the domestic EV value chain.

**Conclusion**

GM supports the U.S. government's goal of diversifying and securing supply chains for and promoting domestic investment in strategic and critical materials such as the rare earth elements used for EV motors and other automotive applications. Achieving these priorities requires continued collaboration with the U.S. government and industry on policy measures to ensure that minerals and elements are sustainably sourced wherever possible, and that refining and processing capabilities are developed domestically at scale to meet U.S. industry demand. U.S. policy actions can also drive cost competitiveness of sourcing and processing these rare earth elements and other critical raw materials for U.S. industry.

U.S. government leadership can help create and secure robust, sustainable, and economically viable supply chains for these materials and will help ensure that the U.S. continues apace with EV adoption. GM encourages the U.S. government to pursue policies that leverage American resources, culture of innovation, and well-developed trading relationships to support a strong presence in the electric transportation future. As demonstrated by our substantial, enduring commitment of product and resources to an all-EV future, GM is a leader in this space, and we look forward to working with the Administration on a concrete set of policies and programs to address these issues.

Please do not hesitate to contact me should you have any questions or if there is any additional information we can provide.

Respectfully submitted,

Omar Vargas
Vice President and Head of Global Public Policy
General Motors Company