

“American Metals and Mineral Security: An Examination of the Domestic Critical Minerals Supply and Demand Chain”
Testimony before the Committee on Natural Resources, Subcommittee on Energy and Mineral Resources
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Chairman Lamborn, Ranking Member Holt, and Members of the Subcommittee, thank you for the opportunity to appear before you this afternoon. The views I will share are framed by more than 25 years of experience in the private sector working with both large and small firms in the defense and intelligence markets, from technically advanced electronics firms, to those that produce body armor, to crashworthy seats, to ships. Over that time I have had the opportunity to work with nearly every aspect of goods and services the Department acquires. From 2009 until 2013 I also had the honor of serving as the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy under three Secretaries of Defense and two Undersecretaries of Acquisition, Technology, and Logistics.

Today I appear before you as the Senior Fellow of the National Defense Industrial Association (NDIA) with the responsibility of leading NDIA’s effort to help the Department of Defense and other U.S. Government agencies better understand how to shape and sustain the national security supplier base, specifically at the lower tiers, that our nation needs now and in the future. My testimony today is based upon both my public and private sector experience with complex supply chains necessary to produce the advanced systems upon which our warfighters depend.

The hearing today offers a unique opportunity to discuss details of our industrial base that rarely are visible to many except for a small number of experts and specialists who focus their efforts on the lowest tiers of the supply chain.

The end products used by our warfighters are produced using a wide variety of minerals that often compose critical components. These products are used by an extremely diverse set of companies that provide, directly and indirectly, to the Defense Department. Therefore, references to "the" defense industrial base that imply a monolithic entity are not analytically useful. The defense industrial base includes companies of all shapes and sizes resourced from around the globe, from some of the world's largest public companies to sole proprietorships to garage start-ups. Some companies deal directly with the federal government, while the vast majority acts as

suppliers, subcontractors, and service-providers in a value chain that leads to those prime contractors.

Companies at any tier, and of any size, may offer critical or hard-to-make products that ultimately lead to the systems used by our warfighters and are dependent on access to minerals at the lowest level of the supply chain.

Some products and services sold by companies in the defense industrial base are unique to defense applications, while most have substantial levels of non-defense demand or are even sold exclusively on commercial terms such that the supplier may not even know that the product is used in military systems; and likewise, the Department may not know it depends upon a primarily commercial component – this is particularly true the further down the supply chain one examines.

In short, there is not a single defense industrial base that uses a unique set of minerals. There is a defense market serviced by a diverse selection of companies which span, and often reflect, the greater global economy for goods and services.

The entire manufacturing base of the United States relies upon access to basic materials needed for producing intermediate products, components, and finished products, which require robust and diverse material supply chains supported by international and commercial trade. U.S. manufacturers need access to basic raw materials which are often imported from nations who may not be our closest allies. This trade in materials may also be subjected to export restrictions which can limit trade, affect prices, and can further be restricted by government policies on mining activities. Because the base upon which defense draws generally represents only a small share of the overall demand for U.S. materials, it depends on a market sustained by commercial products. A vibrant commercial manufacturing base is therefore vital for reliable access and reasonable prices for those products which enter the defense supply chain.

Given the global and increasingly commercial nature of the base upon which the Department relies, particularly at the lower tiers, access to materials is essential. Potential restrictions to this access can add costs and time to system development and deployment.

For example, in 2010, rare earth elements gained wide public attention due to the constraint caused by China's market behavior. China constituted over 95 percent of the global sources of raw rare earth elements, though it holds only 30 percent of the world's known deposits. Some of these elements, once processed, are found in such defense products as anti-missile systems, missile guidance, lasers, communications, and advanced aircraft.

Each rare earth element has its own distinct market, meaning that certain elements' supply chains are more fragile and critical than others. For example, certain

heavy rare earth elements that produce high purity oxides, metals, alloys, and rare earth permanent magnets are of particular interest to the Department of Defense. As stated in the last Defense Industrial Capabilities Report produced by the Department of Defense, the domestic supply chain for these was thin and sometimes nonexistent, such as for sintered neodymium-iron-boron magnets. China and Japan are the principal sources of these magnets, but China is the main source of the rare earth materials required to manufacture them. While the United States continues its effort to secure independent sources for the production of certain finished magnets, global trade is still essential in this unique rare earth element marketplace.

In 2010, China announced regulations limiting exports of rare earth elements and halted production of three of its eight major rare earth mines, raising concerns of a possible shortage of rare earths. The Department followed this issue very closely, long before the increased public concern, and worked closely with other government agencies and organizations outside government to ensure continued access. Moreover, the U.S. Government, along with our allies, effectively and successfully prosecuted the case against China before the World Trade Organization. In 2012, there was a reversal in some of these worrisome trends. The forecasted demand for rare earths fell by 20 percent between 2011 and 2012, due to the substitution of other materials for rare earths, an overall reduced usage of rare earths in individual applications, a drawdown in inventories accumulated in 2011, and an increase in exports of rare earth materials from outside of China. In fact, prices for rare earth metals and oxides fell by approximately 60 percent since the 2011 summer peak.

Moreover, the rare earths supply chain has expanded current and planned production of rare earths in such nations as Australia, Canada, India, Malaysia, and Thailand, so the United States will continue to fortify and diversify its rare earth material supply chain. Issues with the Chinese rare earths supply chain have precipitated more than 400 rare earth projects underway around the world, over 40 of which are in advanced stages of development in various countries worldwide. In short, the market worked.

The Department of Defense continues to work with its industrial partners and allies to identify fragile and critical points in its materials supply chain. It is working with domestic producers to create an economically and environmentally superior process for producing and manufacturing rare earth materials and has provided funding for research projects focused on addressing gaps in supply chains and domestic supplies of heavy rare earth elements. The Department has also provided two reports to Congress over the last several years on this important topic, including one focused on recycling, recovering, and reprocessing rare earth elements from the Department's waste streams.

These efforts represent what I believe to be an important and reasonable approach to ensure the Department has access to necessary materials. This approach

pursues three separate, but important, efforts and includes the diversification of suppliers, the constant assessment of potential technical alternatives, and the pursuit of reclamation through recycling.

In sum, the challenges and opportunities of basic materials in the defense supply chain largely mirrors those found in other sectors of defense supply. The global demand for materials continues to increase while the role of the Defense Department remains relatively steady; therefore government must increasingly track and understand commercial suppliers in its plans and sourcing strategies. The first step is to understand the Department's role as the "tail" rather than the "dog" in the materials market. That recognition will drive different approaches to sourcing that are more globally-integrated and commercially-focused than ever before.

Thank you again for the opportunity to appear before the Committee today, and I look forward to answering any questions that you may have.