

**U.S. House Committee on Energy and Commerce**  
**Subcommittee on Environment, Manufacturing, and Critical Materials**  
**“Securing America’s Critical Materials Supply Chains and Economic Leadership”**  
**[June 13, 2024]**

1. Letter to Chair Carter and Ranking Member Tonko from the National Association of Manufacturers, June 13, 2024, submitted by the Majority.
2. A report from CSIS entitled “Elevating the Role of Critical Minerals for Development and Security” September 2023, submitted by the Majority.
3. National Mining Association Response to the Department of Energy Request for Information regarding Critical Materials Market Dynamics, May 20, 2024, submitted by the Majority.



June 13, 2024

The Honorable Buddy Carter  
Chairman  
House Committee on Energy and Commerce  
Subcommittee on Environment,  
Manufacturing, and Critical Materials  
2125 Rayburn House Office Building  
Washington, DC 20515

The Honorable Paul Tonko  
Ranking Member  
House Committee on Energy and Commerce  
Subcommittee on Environment  
Manufacturing, and Critical Materials  
2322 Rayburn House Office Building  
Washington, DC 20515

Dear Chairman Carter and Ranking Member Tonko:

On behalf of the National Association of Manufacturers, the largest manufacturing trade association in the United States, representing manufacturers in every industrial sector and in all 50 states, I write to thank you for holding the hearing entitled, "Securing America's Critical Materials Supply Chains and Economic Leadership".

Manufacturing in the U.S. requires access to natural resources, such as critical minerals, critical materials, and rare earth elements to produce products that are vital to the U.S. economy and ensure energy security. Capitalizing on natural resource potential in a responsible and sustainable manner and making efficient use of critical materials to ensure long-term access to those resources is critical to competitiveness, supply chain resiliency and national security. Unfortunately, the United States' outdated permitting process and bureaucratic red tape have ensured these resources remain untapped. Congress must enact comprehensive permitting reform to make it easier for manufacturers to secure access to these resources and supports policies that will increase processing capacity and allow for greater research and development into technologies to make these projects more efficient.

To permit a mine within the United States, it currently takes on average 7 to 10 years to complete the process. Two countries with environmental protections that are equivalent to those in the United States, Canada and Australia, have averaged 2 to 3 years to complete the mine permitting process.<sup>1</sup> If the U.S. does not take action to address this gap, it will lose manufacturing investment to foreign nations.

Manufacturers create jobs that support families and local communities, develop and deploy new innovative technologies that make our environment cleaner and improve energy efficiency. These drivers of economic activity cannot be allowed to stagnant. The NAM respectfully urges the Subcommittee to take up comprehensive permitting reform legislation to secure the critical materials supply chain, which will ensure continued growth across the country.

Sincerely,

Chris Netram

Managing Vice President, Policy

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<sup>1</sup> "Leading the World in Resources, Trailing the Competition in Access." *National Mining Association* (2016): <https://nma.org/wp-content/uploads/2016/09/Fact-Sheet-Permitting-Delays-1.pdf>

# Elevating the Role of Critical Minerals for Development and Security

By Daniel F. Runde and Austin Hardman

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## Introduction

Over the next few decades, the role that copper and critical minerals play in achieving the energy transition, spurring economic development, and strengthening national security will continue to grow. The world is slowly shifting its energy mix to one that is greener, but this transition will require significant mining resources. This may seem counterintuitive, but many low-carbon technology components consist of key minerals and metals. According to the **International Energy Agency**, within 20 years, the energy sector's demand for minerals may increase by as much as six times, and demand from the low-carbon energy generation sector will triple. One estimate by **S&P Global** suggests that more copper will need to be mined in the next few decades than has been extracted in the past several thousand years of human history.

Mining and the processing of minerals are also crucial in maintaining the military's technological edge, securing manufacturing supply chains, and pursuing sustainable development practices. The United States Geological Survey (USGS) has **designated** 50 critical minerals "essential to the economic and national security of the U.S.," and the Department of Defense (DOD) has **identified** more than 250 "strategic and critical materials," defined as those "those that support military and essential civilian industry." Yet unlike some strategic allies, such as **Canada**, the United States does not consider copper to be a critical mineral (see Box 1 for more on these definitions).

Mining will also become increasingly important for economic development. The top 40 mining companies had a combined revenue of **\$711 billion in 2022**. The global mining market had a compound annual growth rate of **6.1 percent** between 2022 and 2023, reaching \$2.15 trillion, and is expected to grow to \$2.78 trillion by 2027. In the United States alone, mining accounted for **1.9 percent** of GDP and employed over half a million people.

In this regard, the Western Hemisphere is emerging as a key source of some of these minerals. With their considerable reserves of copper and other critical minerals such as lithium and nickel, countries in the Western Hemisphere have attracted significant investment in mining projects. Latin America, for example, currently supplies **40 percent of the world's copper and 35 percent of the world's lithium**. Mining offers an opportunity for economic development, but the region needs to adjust policies to better steward these resources in order for the sector to continue to play a development role.

### *Mining's Implications for U.S. National Security and Defense*

Even though these minerals and materials are integral to national security, the United States has lost its mining dominance and is not as involved or invested in their extraction or production as it should be. Since the early 2000s, for example, the United States has become **import dependent** for its supply of rare earth oxides.

Recent trends suggest the sustainability of a mineral-dependent national defense is in jeopardy. The **DOD's Strategic and Critical Materials 100-day Sector Review** identified several risks in this sector, including the concentration of supply, single-source suppliers, price shocks, human-capital gaps, forced labor, and conflict minerals and organized crime. The National Defense Stockpile (NDS) previously held about 14,000 metric tons of rare-earth materials—roughly 7 percent of current international market holdings—but much of the stock was **liquidated after the Cold War**.

Moreover, the U.S. government has also missed numerous opportunities to protect the interests of U.S. mining firms, for example during the renegotiation of the North American Free Trade Agreement and other free trade agreements. This oversight has threatened U.S. foreign direct investment in countries such as Mexico, where leaders have sought to nationalize several mines.

#### **BOX 1: DEFINITIONS**

The **definitions** of “critical minerals” and “strategic and critical materials” are derived from prior executive orders and the **Strategic and Critical Materials Stock Piling Revision Act of 1979**. The United States has designated **50** “critical minerals” and more than 250 commodities and minerals as “strategic and critical materials.”

- A **critical mineral** is defined as “a non-fuel mineral or mineral material essential to the economic and national security of the U.S. and which has a supply chain vulnerable to disruption. Critical minerals are also characterized as serving an essential function in the manufacturing of a product, the absence of which would have significant consequences for the economy or national security.” Examples include aluminum, used across many sectors; lithium, a metal common to all rechargeable batteries; and germanium, which has fiberoptic and night-vision uses.
- “**Strategic and critical materials**” is a broader concept that includes “downstream products and materials produced outside of mining activities (e.g., carbon fibers).” The Strategic and Critical Materials Stock Piling Revision Act of 1979 defines them as any materials that “(A) would be needed to supply the military, industrial, and essential

civilian needs of the United States during a national emergency; and (B) are not found or produced in the United States in sufficient quantities to meet such need.” Strategic and critical minerals are particularly essential to the semiconductor, large-capacity battery, and pharmaceutical industries.

- Rare earth elements (REEs) are a group of 17 metals—lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, scandium, and yttrium—that are also **essential ingredients** in many industries, including defense technology. REEs are used in high-tech consumer products such as cellphones, computer hard drives, electric and hybrid vehicles, and flatscreen monitors and televisions. In the defense sphere, they are used in electronic displays, guidance systems, lasers, and radar and sonar systems. For example, each Virginia-class nuclear-powered submarine needs about **9,200 pounds of rare earth materials to produce**, and the F-35 multipurpose fighter jet requires over **900 pounds**.

China and its state-owned enterprises are **significantly ahead of the United States** in production and ownership of smelting, refining, and mining assets, thereby giving it a leg up with respect to global processing. After making a shrewd bet in the 2000s by running operations at a loss with state subsidies making up the difference, China now dominates the industry. China **accounts** for 63 percent of the world’s rare earth mining and has the most reserves of REEs in the world with **44 million** metric tons of as of 2022. Meanwhile, the United States ranks sixth with 2.3 million metric tons. As of 2019, **China** was processing 65 percent of the world’s cobalt, an important component of permanent magnets used in military technologies such as **smart bombs, aircraft, and precision-guided missiles**. What is most concerning is that China has already demonstrated its willingness to exploit supply-chain vulnerabilities by imposing sanctions against **U.S. defense contractors** and limiting exports of germanium and gallium; a Chinese trade policy official **warned in July 2023** that such export controls are “just the start.”

The United States has too little production capacity and possesses too few of the world’s reserves to entertain the idea of self-sufficiency. It will need the support of partners and allies. Fortunately, countries in the Western Hemisphere are promising sources for many critical minerals, including REEs. Chile and Peru lead the world’s **copper production**, while Mexico and Peru lead in **silver production**. **Colombia** is positioning itself to become a leading copper and gold producer. Moreover, Argentina, Bolivia, and Chile together possess roughly half of the world’s current lithium reserves. Brazil has the third-largest reserves of REEs (tied with Russia) at 21 million metric tons.

Latin America’s emergence as a source of some of these critical minerals is gaining attention, and competition for investment is increasing in the region. China is investing heavily in mining and energy projects throughout Latin America. State-owned enterprise PowerChina has more than **50 current energy projects** across at least **15 countries** in Latin America, including in Argentina, Brazil, Bolivia, Chile, and Peru. China has invested over **\$10 billion** in Peru’s mining industry, “controlling seven

of Peru’s largest mines, 100% of Peru’s iron production, and 25% of their copper output.” In 2021, Chinese company Ganfeng Lithium **partially purchased** one of Argentina’s leading lithium mining projects, and Chinese company Zijin Mining plans to invest \$380 million in a lithium carbonate plant in Argentina. The United States cannot afford for China to carry on without contest.

### *Broaden the Definition of Which Minerals Are ‘Critical’*

First, the U.S. government needs to reassess its current mineral-related definitions since rigid lists can stifle innovation, limit manufacturing capacity, and create future bottlenecks. For example, copper is the DOD’s **second-most utilized material**, making it central to national security. Copper is an **ideal material** for building a sustainable world due to its resistance to corrosion, high ductility, malleability, recyclability, and **thermal and electrical conductivity**. Yet unlike some strategic allies, the U.S. **government** does not consider copper to be a critical mineral. **The Canadian Critical Minerals Strategy**, for example, recognizes copper’s significance, and Canada has proposed a Critical Minerals Exploration Tax Credit of 30 percent to companies that support the exploration of copper and other minerals. In February 2023, a bipartisan group of U.S. senators wrote an open **letter** questioning the USGS’s **rejection** of copper as an official critical mineral. The USGS’s **response** acknowledged copper’s importance and the possibility of reevaluation but ultimately dismissed its concerns.

Rather than overlooking what is not deemed “critical” or “strategic,” the mineral security strategy should be more expansive. It is impossible to know which minerals future generations of cutting-edge technology will require. Disfavoring certain minerals could inhibit innovation and create shortages down the line. The validity of a mining operation should not be contingent on lists that fail to update at a satisfactory rate or rely on limited data. Rather, the U.S. mineral strategy should seek to be as nimble as possible.

### *Designate a Lead Agency and Craft a Comprehensive Strategy*

Second, the U.S. government should designate a lead agency to spearhead a comprehensive mining strategy and harmonized federal regulations. **Since 2010**, U.S. policymakers have been refocusing attention on critical mineral supply chains by forming interagency working groups, issuing executive orders, and publishing white papers. However, the U.S. government has a fragmented approach in which several agencies and bureaus—including the **Department of Energy**, the **Department of Labor**, the **Department of the Interior**, the **Department of Agriculture**, the **Army Corps of Engineers**, and the **Environmental Protection Agency**—are involved in drafting mining regulation. Consolidating the development, management, and execution of mining policy would allow all branches of government to carry out a singular, comprehensive, and well-coordinated mining strategy that weaves this central sector into the economic, energy, environmental, and national security of the United States. Harmonizing U.S. agencies’ efforts would benefit mining-related activities by preventing duplicative or clashing domestic and foreign policy agendas.

This is yet another way in which China is clearly outpacing the United States. Mining is a priority for China’s economic diplomacy, especially through its Belt and Road Initiative—to which 22 Latin American countries have **signed on** since its launch in 2013. Beijing has free trade agreements with Chile, Costa Rica, Ecuador, and Peru, granting it easier access to their exports of minerals such as lithium, copper, gold, and iron ore. Nicaragua has also reportedly **completed** negotiations for a free

trade agreement with China, and Honduras began its own negotiations in July. By contrast, U.S. engagement on mining issues in its backyard is woefully behind.

### *Increase Extraction and Processing at Home to Signal Commitment Abroad*

Third, increasing mining operations domestically would signal to potential partners in the Western Hemisphere that the United States is not merely a buyer and is invested in developing its own mining capacity. In other words, the United States needs to overcome a firmly held “not in my backyard” attitude and start **digging** at home.

One main challenge is the cumbersome permitting process that stifles the level of domestic extraction. The U.S. permitting process is headed by the Department of Interior, which has timelines that are unfeasible for investors. In addition, it is not unheard of for the government to retroactively revoke permits, further disincentivizing firms from establishing domestic operations. In 2023, for example, the Army Corps of Engineers, at the Environmental Protection Agency’s behest, **retroactively revoked a permit** to expand nickel and copper mining operations in Minnesota after Indigenous groups protested that the mine would fail to comply with more stringent tribal environmental standards.

Overhauling the permitting process has been dismissed as too daunting a task, but reforming the 151-year-old Mining Law of 1872 would not take much time—especially compared to the **7 to 10 years** the average U.S. mining company waits to obtain a permit. For perspective, obtaining a mine permit takes 2 to 3 years in Australia and Canada.

### *Develop a More Compelling Narrative*

Fourth, the United States needs to develop a more compelling narrative on the need to invest in mining abroad. China is central to U.S. supply chain vulnerabilities, but many developing nations see this as irrelevant. More captivating messaging could make potential partners in the Western Hemisphere view the United States as more attractive than China.

Similarly, the argument for U.S. defense needs falls flat with many Latin American countries, many of which already view expanded cooperation with the United States with a certain degree of suspicion. Some Latin American countries have raised concerns that U.S. attempts to spur greater collaboration on exploring, extracting, and processing critical minerals may not be mutually beneficial. For example, the establishment of the **Minerals Security Partnership (MSP)** in 2022, which does not include any Latin American countries, has reinforced worries that the United States is merely interested in extracting resources, not developing local industry. The United States should identify the areas in which it has comparative advantage and showcase its competitive strengths (including transferring technology and know-how, employing local professionals, and applying quality standards in mining and processing) to deter these countries from doing business with China.

At the same time, U.S. foreign policy is sometimes at odds with its domestic agenda. The Inflation Reduction Act of 2022 seeks to prioritize domestic production of minerals, yet few such operations exist. The Clean Vehicle Tax Credit and the Advanced Manufacturing Production Tax Credit of 2022 privilege domestically sourced critical materials over most foreign-sourced products—conflicting with other U.S. requirements for obtaining minerals from partners and coming as a shock to

countries such as Brazil, with whom the United States had **established** a Critical Minerals Working Group in 2020.

## *Conclusion*

Mining's strategic importance in ensuring decarbonization, strengthening national security, and contributing to economic development is understated, and the U.S. government currently lacks a coherent approach to it. The mineral-related imbalance in which the United States finds itself will only worsen if it does not adopt a comprehensive and bipartisan strategy. As the Department of Defense has articulated, correcting course will require a **whole-of-government** approach that includes companies, nongovernmental organizations, and government agencies. Mining's centrality to an effective, green transition and to military readiness makes reaching a consensus on this issue dire. ■

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May 20, 2024

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Re: “Critical Materials Market Dynamics Request for Information” (RFI)

The National Mining Association (NMA) appreciates the opportunity to comment on the Department of Energy’s (DOE) RFI on Critical Materials Market Dynamics. As the DOE correctly identified, certain market dynamics including non-competitive practices and price volatility are impacting the U.S. mining industry’s ability to scale up operations to ensure secure supply chains for the energy transition. The NMA strongly agrees DOE and other federal agencies can play an important role in developing policies that support market stability and price transparency for a resilient domestic mineral supply chain.

The NMA is the only national trade organization that serves as the voice of the U.S. mining industry and the hundreds of thousands of American workers it employs before Congress, the federal agencies, the judiciary, and the media, advocating for public policies that will help America fully and responsibly utilize its vast natural resources. We work to ensure America has secure and reliable supply chains, abundant and affordable energy, and the American-sourced materials necessary for U.S. manufacturing, national security, and economic security, all delivered under world-leading environmental, safety and labor standards.

## Introduction

These comments highlight considerations regarding mineral market fluctuations and other risks and provide suggestions for federal government policies to support a resilient and secure domestic mineral supply chain – from exploration and extraction through end-product manufacturing. Urgent action is needed to address these vulnerabilities. As noted in DOE’s Critical Materials Assessment, minerals demand is skyrocketing and “demand for these materials will only continue to grow, especially as some nations aim to achieve net-zero emissions by 2050.”<sup>1</sup>

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<sup>1</sup> U.S. Department of Energy, Critical Materials Assessment 2023, p. x. Available at [https://www.energy.gov/sites/default/files/2023-07/doe-critical-material-assessment\\_07312023.pdf](https://www.energy.gov/sites/default/files/2023-07/doe-critical-material-assessment_07312023.pdf).

Due to the concentrated and often opaque nature of many mineral supply chains, individual minerals and their pricing are susceptible to significant influence from political, regulatory, and social disruption factors, and competing technological demand. Long lead times for mining projects exacerbate our supply constraints, further impeding our inability to rapidly ramp up production for minerals essential to most of our economic sectors.

To illustrate the wide-ranging impacts of vulnerable mineral supply chains, the United States Geological Survey (USGS) in 2022 identified and modeled 56 mineral commodities, including base metals, precious metals, industrial minerals, and minor metals and their uses by industrial sectors. Using the most recent economic input-output available data from 2012, USGS mapped mineral uses to 182 industries, with those industries related to dozens of others. Ultimately, the analysis identified over 28,000 scenarios that could result in supply disruption impacts across all sectors of the economy. The report concludes that “the value of a mineral commodity to the overall economy is often much greater than the simple measure of mineral commodity price multiplied by the quantity of mineral commodity supply that is disrupted. Many industries can be affected, not just those that directly consume the mineral commodity.”<sup>2</sup>

## Responses to Selected RFI Questions

### ***1. For a given critical material, are there particular market dynamics DOE should be aware of?***

Due to the cyclical nature of demand for mineral commodities, there have been and will always be periods of lower commodity prices. The mining industry has weathered and can weather such downturns through appropriate planning based on reliable forecasts. What the industry lacks, however, are robust tools to address non-competitive market distorting actions such as foreign, state-mandated production from countries like China and Russia. These tactics oversaturate the market, depress prices and thwart domestic producers’ ability to compete on a level playing field, highlighting the need for U.S. government intervention.

Non-market actions used by governments to create inequalities in global commodity markets and prices even today can include export restrictions and production quotas, among other tactics. Even today, production quotas are still used by countries like China to oversaturate the market regardless of demand for a given mineral, which depresses global commodity prices, and therefore deterring investment in new market entrants, making it impossible for the U.S. and our allies to compete on price or expand our production capacity. For example, in 2024, China again raised its production quota on several rare earth elements (REE) despite oversupply and reduced global prices.

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<sup>2</sup> Ross L. Manley, Elisa Alonso, Nedal T. Nassar, “A model to assess industry vulnerability to disruptions in mineral commodity supplies, resources policy,” Volume 78, 2022, <https://doi.org/10.1016/j.resourpol.2022.102889>.

China's tactics bear close attention as it is the leading producer and/or supplier of 66 percent of mineral commodities listed as essential to U.S. economic and national security including lithium, rare earths and other battery metals.<sup>3</sup> According to USGS, production concentration has increased markedly over the past few decades for many mineral commodities with the most notable global shift has being the increasing production of mineral commodities in China.<sup>4</sup> China has used its dominant position to restrict access to key minerals and inflict damage on U.S. mineral competitiveness, particularly for REE's.<sup>5</sup> In 2010, China used its control of rare earths as geopolitical leverage and temporarily cut supplies to Japan over a maritime dispute. Geopolitical aggression continues to manifest through China's willingness to weaponize its mineral supply dominance. In August 2023, China blocked the export of gallium and germanium, two critical minerals essential for the manufacture of semiconductors, for which the U.S. is entirely reliant upon China. This breakdown of trade led to skyrocketing prices for the minerals and required a drawdown of U.S. limited stockpiles that would last two to three months at most.<sup>6</sup>

Export bans do not begin and end with China, but instead have proliferated for years. In 2023, Malaysia has also signaled it would ban the export of REE's.<sup>7</sup> In addition, Indonesia has placed limits on nickel exports, and Ghana, Zimbabwe, and Namibia have advanced similar mineral export bans.<sup>8</sup>

As described in the findings by the bipartisan congressionally authorized *U.S.-China Economic and Security Review Commission*, "China has subverted the global trade system and moved further from the spirit and letter of its obligations under its WTO [World Trade Organization] accession protocol. China's subsidies, overcapacity, intellectual property theft, and protectionist nonmarket policies exacerbate distortions

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<sup>3</sup> Notably this reliance comes despite existing U.S. resources. In the 2022 Mineral Commodity Summaries, the USGS indicated the U.S. had an estimated 48 million metric tons (mt) of copper that can be mined and processed economically, 69 million mt of cobalt, 340 million mt of nickel and 750 million mt of lithium. Regardless, in 2021, the U.S. imported 48 percent of U.S. consumption of nickel, 76 percent of cobalt, 45percent of copper, and more than 25 percent of lithium.

<sup>4</sup> Nassar, N.T., Alonso, E., and Brainard, J.L., 2020, Investigation of U.S. Foreign Reliance on Critical Minerals—U.S. Geological Survey Technical Input Document in Response to Executive Order No. 13953 Signed September 30, 2020 (Ver. 1.1, December 7, 2020): U.S. Geological Survey Open-File Report 2020–1127, p. 4. <https://pubs.usgs.gov/of/2020/1127/ofr20201127.pdf>

<sup>5</sup> Department of Defense, "Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States," Sept. 2018. P. 33. <https://media.defense.gov/2018/Oct/05/2002048904/-1/-1/1/ASSESSING-AND-STRENGTHENING-THE-MANUFACTURING-AND%20DEFENSE-INDUSTRIAL-BASE-AND-SUPPLY-CHAIN-RESILIENCY.PDF>

<sup>6</sup> Reuters, "China gallium, germanium export curbs kick in; wait for permits starts." August 1, 2023; <https://www.reuters.com/markets/commodities/chinas-controls-take-effect-wait-gallium-germanium-export-permits-begins-2023-08-01/>

<sup>7</sup> Reuters, "Malaysia to ban export of rare earths to boost domestic industry." Sept. 11, 2023.

<https://www.reuters.com/markets/commodities/malaysia-ban-export-rare-earths-boost-domestic-industry-2023-09-11/>

<sup>8</sup> Center for Strategic and International Studies, "Resource Nationalism Is Not the United States' Biggest Minerals Problem," September 15, 2023. <https://www.csis.org/analysis/resource-nationalism-not-united-states-biggest-minerals-problem>

to the global economy. These practices have harmed workers, producers, and innovators in the United States and other market-based countries.”<sup>9</sup>

Another example of China’s control and manipulation of markets is its’ control of copper supply. China spent decades investing in foreign copper mines and mineral rights in Africa, South America, and Asia. Over the past three decades the U.S. lost 30 percent of its copper mining capacity and 57 percent of its copper metal production. Meanwhile, China built 40 copper smelters and is presently planning to build four more. This resulted in Chinese copper production increasing by 1570 percent.<sup>10</sup> Further, China’s imports of recyclable copper have reached record highs in 2023.<sup>11</sup> China continues to support its growing market share of copper consumption through vertical integration upstream in Africa and South America along with massive downstream investment in domestic smelters and semi fabrication operations. Global pricing is currently heavily influenced by China. As China’s share of the supply chain grows, it secures more control over global prices.<sup>12</sup> In addition, volatile prices will continue to make proposed new copper projects or expansion of existing operations in the U.S. and in allied countries unattractive to companies. This could be offset if copper is added to the USGS Critical Minerals list, expanding eligibility for incentives like the 45X Advanced Manufacturing Production Tax Credit and loans like DOE Title 17 to help spur more investment in domestic capacity. Doing so will also support certainty of return on investment during times of high price volatility.

***b. For a given critical material, are there differences in cost of production domestically versus cost of production in other countries? How are those differences in cost of production reflected in prices?***

Several factors play a role in the cost of production such as labor, energy and equipment costs. There are significant costs associated with operating under world class standards under the oversight of extensive state and federal authorities that are not necessarily borne by producers in other countries. The NMA’s members are proud to utilize such a high operational bar in their domestic and global operations but we note that countries without similarly robust environmental, human rights and safety and health standards such as China, can gain a cost advantage. An even greater competitive advantage can be gained by countries with non-market economies where costs may not always be relevant to whether a country opts to begin or continues

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<sup>9</sup> U.S.-China Economic and Security Review Commission, 2022, Executive Summary; p. 16.

[https://www.uscc.gov/sites/default/files/2022-11/2022\\_Executive\\_Summary.pdf](https://www.uscc.gov/sites/default/files/2022-11/2022_Executive_Summary.pdf)

<sup>10</sup> Testimony of Dr. Michael Moats, Missouri University of Science and Technology, before the House Natural Resources Committee, Feb. 9, 2023. <https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=412764>

<sup>11</sup> Bloomberg, “China’s rising copper imports belie manufacturing gloom,” Nov. 28, 2023.

<https://www.reuters.com/markets/asia/chinas-rising-copper-imports-belie-manufacturing-gloom-2023-11-28/>

<sup>12</sup> Nasdaq, “Copper soars to 7-month high on Chinese plans to cut output,” March 13, 2024.

<https://www.nasdaq.com/articles/metals-copper-soars-to-7-month-high-on-chinese-plans-to-cut-output>

operations and may even be encouraged to mine at a loss to gain market share advantages.

***c. What, if any, impact has market volatility and price instability had on various market participants?***

Several examples can be provided, including when in 2023, Jervois Global announced it was suspending its Idaho Cobalt Operation, citing low commodity prices, which is widely attributed to China's influx of capacity and manipulation of the market.

A similar situation occurred when Molycorp operated the Mountain Pass rare earth mine in California. The company saw a way to capitalize on market opportunities to reduce our import reliance on REE's following the 2010 China-Japan dispute. After taking on considerable liabilities to expand the project's capacity, they were eventually bankrupted by artificially depressed commodity prices. Today, MP Materials owns and operates the Mountain Pass mine, which has seen greater operational success due to vertical integration at domestic operations and federal support.<sup>13</sup>

***2. What measures can DOE take to promote market stability within a given critical material market?***

***(b). How can DOE support critical material projects beyond capital grants and loans? Are there particular programs or policy mechanisms DOE should leverage with existing statutory authority to support critical material projects and successful project offtake? Are there particular aspects of the supply chain that DOE should focus on?***

DOE has taken significant steps beyond what other federal agencies have done to support the development of domestic mineral supply chains. For example, DOE has provided financial support for new processing projects in the U.S., including in Nevada and North Dakota. Recently, the Loan Programs Office has clarified that it can and will pursue efforts to support extraction projects that increase the domestically produced supply of critical minerals.<sup>14</sup> The NMA urges DOE to expand the inclusion of extraction projects throughout all existing and future efforts and programs that are intended to secure mineral supply chains for energy technologies.

To increase opportunity and incentivize certainty of commercial investment in domestic mineral supply chains, the DOE should also consider greater utilization of its Other Transaction Authority (OTA) to bolster mining projects domestically by providing a

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<sup>13</sup> Grist, "A once-shuttered California mine is trying to transform the rare-earth industry," June 2023. <https://grist.org/energy/a-once-shuttered-california-mine-is-trying-to-transform-the-rare-earth-industry/>

<sup>14</sup> U.S. Department of Energy, "How LPO Can Support All Stages of the Critical Minerals Supply Chain," April 30, 2024. <https://www.energy.gov/lpo/articles/how-lpo-can-support-all-stages-critical-minerals-supply-chain>

flexible and efficient mechanism for engaging with industry, academia, and other stakeholders. This authority allows the DOE to enter into agreements that are not subject to traditional federal procurement regulations, enabling streamlined partnerships and collaborations.<sup>15</sup> Through OTAs, the DOE can expedite the development and deployment of innovative mining technologies, facilitate research and development initiatives, and incentivize private sector investment in critical mineral extraction and processing projects. In fact, the same approach was deemed necessary and beneficial by the Department of Defense, which recently announced the use of OTA for Defense Production Act Title III activities for energy and battery storage, strategic and critical materials, workforce development, and more.<sup>16</sup>

DOE can also support critical minerals production by continuing to support improving the permitting process for minerals. In 2022, Secretary Granholm at an energy conference presented on the need to increase domestic mineral production to support the energy transition and discussed the need to streamline the permitting process, declaring, “It takes forever to get a new permit. How crazy is that?”<sup>17</sup> More recently, Maria Robinson, the director of DOE’s Grid Deployment Office, addressed the permitting challenge more broadly at an event held by the U.S. Chamber of Commerce. She noted that permitting related to energy projects is “one area where we can all agree there’s certainly room for some improvement.”<sup>18</sup> The lack of more efficient permitting increases the risk that DOE efforts and funding will be wasted.

### **3. What indicators of market volatility demonstrate the need for support? What are effective measures or guiding principles DOE or the Federal Government could take to support critical materials?**

Significant efforts by individual federal agencies to secure our supply chains have shown signs of success, including through funding and incentive programs at the DOE, DOD, the Export-Import Bank and the Department of Commerce. The federal government must continue to expand its objectives and support further actions to address the mineral supply chain bottleneck for key energy, defense, and manufacturing needs. This means enacting policies that support the entirety of the supply chain – from mining all the way through to the final manufactured product. This requires a comprehensive and coordinated strategy.

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<sup>15</sup> DOE Guide to Other Transactions, August 2023. <https://www.energy.gov/sites/default/files/2023-09/OT%20Guide%20final%20Sept%202023.pdf>

<sup>16</sup> U.S. Department of Defense, “DOD Releases Open Announcement Through Other Transaction Authority for U.S. and Selected International Partners,” May 14, 2024. <https://www.defense.gov/News/Releases/Release/Article/3774005/dod-releases-open-announcement-through-other-transaction-authority-for-us-and-s/>

<sup>17</sup> March 11, 2022, Secretary of Energy Granholm Remarks as reported at <https://www.reuters.com/article/ceraweek-conference-mining-idTRNIKCN2L81WC>.

<sup>18</sup> May 15 remarks as reported by Brian Dabbs, Energywire, “DOE grid chief pushes for permitting overhaul,” May 15, 2024 at <https://subscriber.politicopro.com/article/eenews/2024/05/15/doe-grid-chief-pushes-for-permitting-overhaul-00157945>.

Specifically, there can be no mining without first exploring for and successfully discovering minerals. Therefore, we recommend that the DOE should expand activities and the focus of this RFI to include the mineral exploration and mining market forces, which impact the mineral processing and manufacturing markets.

It would be shortsighted for the U.S. to assume our guaranteed access to our allies' minerals even as they may also struggle to meet their own anticipated domestic demand in the near and longer-term. Though mining exploration investments increased slightly from 2021 due to higher commodity prices, just several years earlier in 2015, mining and exploration investment experienced the second largest year-over-year decline since the U.S. Bureau of Economic Analysis began tracking it in 1948.<sup>19</sup>

We encourage the DOE and the federal government to develop and implement policies and programs that support U.S. exploration investments. For example, the Japanese Ministry of Economy, Trade, and Industry's Agency for Natural Resources and Energy provides subsidies for joint resource exploration projects, including geological surveys, carried out abroad in the early stages by private companies and public bodies. Subsidies cover the costs of geological, geochemical, geophysical and borehole surveys.<sup>20</sup> A similar approach can be taken for domestic exploration projects in the U.S.

## ***6. What other tools outside of market exchanges could support price transparency, market stability, and/or reduce emissions from critical material production?***

### Align and Coordinate Federal Efforts to Address Regulatory and Permitting Constraints

The right policies to support domestic mineral production and our energy supply chains are integral to supporting market stability, investment, certainty, and the success of DOE's and federal mineral supply chain security efforts.

Unfortunately, the administration has in various instances exhibited uncoordinated and insufficient, and in several instances, regressive stances toward U.S. minerals policy. This is all despite its initial assertion it was prioritizing responsible mineral sources, domestic supply chains that use a highly compensated and skilled U.S. workforce.

Examples of regressive policies include: the Interagency Working Group on Mining Regulations, Laws and Permitting, which largely includes problematic recommendations that would disrupt and discourage investment in mining; restrictions on access to minerals and ancillary uses on federal lands, including through the Ambler Access

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<sup>19</sup> Energy Information Administration, "U.S. mining and exploration investment declined 35% in 2015," January 2016.  
<https://www.eia.gov/todayinenergy/detail.php?id=24912>

<sup>20</sup> Japan Ministry of Economy, Trade, and Industry, "METI Geological Survey Funding," Oct. 26, 2023.  
<https://www.iea.org/policies/16637-meti-geological-survey-funding>

Projects permit denial, mineral withdrawals, conservation areas and Resource Management Plan amendments. This also includes the Department of the Interiors reluctance to meaningfully fulfill congressional intent within section 40206 of the Infrastructure Investment and Jobs Act. The provision required DOI to submit a report to Congress implementing already enacted steps to increase the timeliness of permitting activities for the exploration and development of domestic critical minerals. Only after two years of congressional requests for updates from the agency did it release three metrics focused primarily on pre-consultation rather than dynamic metrics to support increased efficiency in the permitting process.

Conversely, over the past few years, Canada released a strategy to position itself as the “global supplier of choice for clean energy minerals;”<sup>21</sup> the United Kingdom released a critical minerals strategy;<sup>22</sup> Australia released its 2023-2030 Critical Minerals Strategy to “maintain and grow our sovereign [minerals] capability;”<sup>23</sup> the European Union unveiled a comprehensive proposal including various permitting efficiency actions to ensure the EU’s access to a secure, diversified, affordable and sustainable supply of critical raw materials;<sup>24</sup> and in 2024 Saudi Arabia announced it was adding the mining sector as the third foundational industrial pillar of its larger economic and security strategy to become the preeminent leader of middle east mineral production.<sup>25</sup>

It is essential that all-of-government efforts sustain robust and sufficient policies that include factoring permitting timelines or regulatory processes as a key determinant in implementing sound supply chain security initiatives. Matching the speed and scale of rising material demands requires a permitting regime that enables the mining sector to respond to market signals.

Current U.S. permitting timelines and those of several of our allies do not. Opening or expanding a mine in the U.S. involves multiple agencies and the navigation of tens or even hundreds of permitting processes at the local, state, and federal levels. Government authorizations now take an average of seven to ten years to secure. Even more troubling is an analysis of major mines that became operational between 2010 and 2019 shows that it takes more than 16 years on average to develop projects from discovery to first production (although exact duration varies by mineral, location and

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<sup>21</sup> Natural Resources Canada News Release, “Countries Commit to the Sustainable Development and Sourcing of Critical Minerals,” Dec. 12, 2022. <https://www.canada.ca/en/natural-resources-canada/news/2022/12/countries-commit-to-the-sustainable-development-and-sourcing-of-critical-minerals.html>

<sup>22</sup> Department for Business, Energy and Industrial Strategy, “Resilience for the future: The UK’s critical minerals strategy, 22 July 2022. <https://www.gov.uk/government/publications/uk-critical-mineral-strategy/resilience-for-the-future-the-uks-critical-minerals-strategy>

<sup>23</sup> Australian Government, “Critical Minerals Strategy 2023-2030,” June 20, 2023. <https://www.industry.gov.au/publications/critical-minerals-strategy-2023-2030>

<sup>24</sup> European Union’s Critical Raw Materials Act, March 16, 2023. [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/european-critical-raw-materials-act\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/european-critical-raw-materials-act_en)

<sup>25</sup> Arab News, “Saudi Arabia invites global firms to join mining exploration program,” April 7 2024. <https://www.arabnews.com/node/2489456/business-economy>



mine type).<sup>26</sup> Onerous litigation is often used by groups to stop the responsible development of our mineral resources. It is imperative that judicial reforms are enacted to prevent diminished financial outlooks of projects caused by extensive delays from litigation.

Simply put, if mines are not able to produce, minerals essential for U.S. competitiveness will not be available. Supply challenges also compound concerns regarding demand shocks—situations in which demand increases significantly faster than supply, resulting in higher prices that affect consuming industries.

### Preferential Sourcing for Existing and Potential Future Government Stockpiles

The federal government has other tools available that are already being used to help support price transparency and market stability, while also reducing emissions from critical material production. Currently, the U.S. Department of Defense, through the Defense Logistics Agency, stockpiles materials to decrease and preclude dependence upon foreign sources or single points of failure for strategic materials in times of national emergency. DOD can use a waiver of prohibition which overrides regulations barring certain purchases from the China for materials necessary for national security purposes.<sup>27</sup> However, because China controls a majority of one or several stages of the supply chain for many minerals and materials, the waiver system is often employed as necessary to sustain our national security needs.

The DLA, and other potential future government stockpiles of key minerals and materials, can support investment certainty in domestic projects that produce and process minerals using high environmental, labor and safety standards by developing a tiered sourcing system that prioritizes these standards. The federal government should be required first to fulfil mineral and material demands using domestic producers. Second, for demands not sufficiently supplied through domestic producers, the next tiered sourcing requirement should be from our foreign allies like Canada, and Australia, and other countries with which the U.S. has a congressional authorized free-trade agreement. Finally, for remaining demand not met through these two tiers, a waiver of prohibition can be provided for sourcing other foreign minerals. However, guardrails that lay the groundwork for our long-term national security posture should limit our ability to freely use the waiver system and instead should reduce waiver limits over a period of several years so as not to continue our overreliance on non-aligned foreign sources. This reduction in waivers granted over time would incentivize the growth in investment in our domestic mining sector and availability of responsibly produced domestic and allied minerals.

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<sup>26</sup> IEA.org, “Promoting exploration, production and innovation.” <https://www.iea.org/reports/introducing-the-critical-minerals-policy-tracker/promoting-exploration-production-and-innovation>

<sup>27</sup> U.S. Department of Defense Prohibited Sources Subpart 225.770-5 – Waiver of Prohibition. Revised October, 30, 2023. [https://www.acq.osd.mil/dpap/dars/dfars/html/current/225\\_7.htm#225.770-5](https://www.acq.osd.mil/dpap/dars/dfars/html/current/225_7.htm#225.770-5)

## DOE Coordination with the Office of the United States Trade Representative

DOE should also consider coordination and cooperation with the Office of the United States Trade Representative (USTR) to support mutual efforts to advance U.S. supply chain resilience. Pursuant to Executive Order (E.O.) 14017, “America’s Supply Chains,” the President directed a whole-of-government approach to assessing vulnerabilities in, and strengthening the resilience of, critical supply chains. It specifically indicated that we need to establish strategies to mitigate and minimize supply chain disruptions both domestically and internationally. USTR is the lead of the interagency Supply Chain Trade Task Force.

To provide long-term investor certainty and growth of domestic and allied countries’ mining sectors, DOE should assist the USTR as necessary to support a range of targeted tools to address anti-competitive market activities. Supporting commodity identification and assisting USTR actions will enable investor protections needed for sustainable mineral exploration and extraction.<sup>28</sup>

## Promoting U.S. Operators and Projects in International Partnerships

The U.S. should actively promote our operators and projects during international engagements on minerals. As demand rises, countries are leveraging international collaboration to advance their companies and projects. The U.S. has not been as proactive, evidenced by the absence of U.S. operators or projects in the Minerals Security Partnership.

We participate in several international partnerships and dialogues on minerals. If we do not promote our industry in these forums, while other countries are actively doing so, we will fall further behind. Given the heightened scrutiny to ensure that demand for critical minerals is met responsibly, the U.S., along with Canada and Australia, should take the lead in maximizing domestic production.

## **Conclusion**

Every tool available will be needed to meet the speed and the scale of the demand now upon us and maintain the course against persistent geopolitical headwinds. The domestic mining industry – and our ready and capable workforce – must be at the center of this holistic effort. Solutions to meet our mineral demand while, simultaneously rebuilding our domestic supply chains, must be comprehensive and start with increased domestic mineral exploration, production and processing, while ensuring strategic alliances with allied nations, increased recycling, and the reprocessing of mine waste.

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<sup>28</sup> See NMA comments to the Office of the United States Trade Representative to inform objectives and strategies that advance U.S. supply chain resilience in trade negotiations, enforcement, and other initiatives, submitted April 22, 2024.  
<https://www.regulations.gov/comment/USTR-2024-0002-0161>