# Subcommittee on Energy and Mineral Resources
Paul Gosar, Chairman
Hearing Memorandum

December 11, 2017

**To:** All Subcommittee on Energy and Mineral Resources Members

**From:** Majority Committee Staff
Subcommittee on Energy and Mineral Resources (5-9297)

**Hearing:** Oversight Hearing entitled *"Examining Consequences of America's Growing Dependence on Foreign Minerals"*

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The subcommittee will hold a hearing on **Tuesday, December 12, 2017, at 2:00 P.M. in room 1324 Longworth House Office Building,** focusing on reasons for the declining self-sufficiency of the United States for mineral commodities and the consequences of relying on foreign sources for these critical materials.

**Policy Overview**

- Sourcing raw materials domestically keeps costs down, creates both direct and indirect jobs, reduces the holistic impact of mining by minimizing transportation costs, and keeps the dollars invested in American infrastructure in the United States.

- The defense industry, among other critical industries, relies upon a healthy supply of strategic minerals – many of these are imported from unfriendly countries, leaving America's supply chain vulnerable.

- Decades of withdrawing public lands from mineral entry has exacerbated the import reliance situation.

- Many of the needed raw materials are available in the United States; however, access is stymied by an arduous and uncertain regulatory scheme.

**Invited Witnesses (in alphabetical order)**

*Mr. Ronnie Favors*
Administrator
Defense Logistics Agency Strategic Materials
U.S. Department of Defense
Ft. Belvoir, Virginia

*Dr. Murray Hitzman*
Associate Director for Energy and Minerals
United States Geological Survey
U.S. Department of the Interior
Reston, Virginia

*Dr. Richard Silberglitt*
Senior Physical Scientist
RAND Corporation
Washington, D.C.

*Ms. Katie Sweeney*
Senior VP, Legal Affairs, and General Council
National Mining Association
Washington, D.C.

*Ms. Carletta Tilousi*
Council Member
Havasupai Tribe
Supai, Arizona

## Background

America's mines play an indispensable role in powering and building our nation. The aggregates industry's products form the literal foundation of many of our infrastructure projects, but infrastructure cannot be simply thought of as roads and bridges. Everything from railroads to seaports, power plants to wind farms, waste treatment facilities to communications grids and data storage centers – America's infrastructure projects begin with mining.

Roads, railways, buildings, stadiums, bridges, airports, and other structures are supported primarily by steel and concrete. There are over 4 million miles of roads in the U.S.,[1] and the U.S. National Highway System contains 6 billion tons of steel.[2] The primary ingredients of steel production are metallurgical coal and iron ore. 98 percent of the iron ore mined in the world is used to make steel, the foundation of the world's tallest buildings.[3] For instance, there are roughly 57,000 tons of steel contained in New York City's Empire State Building. The exterior of the Empire State Building is composed of 200,000 cubic feet of Indiana limestone and granite, 10 million bricks and 730 tons of aluminum and stainless steel.[4]

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[1] United States Geological Survey, "Materials in Use in U.S. Interstate Highways, https://pubs.usgs.gov/fs/2006/3127/2006-3127.pdf
[2]United States Geological Survey, "Materials in Use in U.S. Interstate Highways, https://pubs.usgs.gov/fs/2006/3127/2006-3127.pdf
[3] World Steel Association, https://www.worldsteel.org/publications/factsheets/content/00/text_files/file0/document/fact_raw%20materials_2014.pdf
[4] Empire State Realty Trust and Buildings.com, http://www.esbnyc.com/sites/default/files/esb_fact_sheet_4_9_14_4.pdf; http://www.buildings.com/article-details/articleid/3180/title/the-empire-state-building-an-innovative-skyscraper.aspx

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Import Trends

In 1986, the U.S. was dependent on foreign sources for 30 non-fuel mineral materials; of those, 6 were entirely imported to meet the nation's requirements, with another 16 imported to meet more than 60 percent of the country's needs.[5] However, by 2017, the U.S. import dependence for non-fuel mineral materials more than doubled from 30 to 64 commodities.[6] Twenty commodities were imported entirely to meet the nation's requirements, and another fifty commodities required imports of more than 50 percent.[7] This import reliance is further highlighted when commodities are broken down by country of origin. A map detailing major import sources for mineral commodities for which the U.S. was more than 50% dependent upon can be found in Appendix A. China alone accounts for over 19 of these mineral commodities.

Determining Criticality

Central to the debate about import reliance is the concept of criticality. Criticality is a measure that looks at the importance of a material and the risk of supply disruption.[8] Criticality is a mineral's or material's relative vulnerability to supply chain disruption. Different material end users will use different definitions of criticality and consider different variables based on their business models.

In general, some of the important considerations include: the market growth for the mineral (consumption and production), availability of substitutes, diversity of sources, risks associated with sources (stability, friendliness), and the consequences of supply disruption. The USGS maintains an effort to evaluate the criticality of certain minerals in partnership with other federal agencies.[9]

Defense Implications

A number of minerals are key ingredients for essential defense systems for the U.S. industry. To safeguard against shortages, the Department of Defense maintains the Defense Logistics Agency (DLA) Strategic Materials program.[10] The program was created through the Strategic and Critical Materials Stockpiling Act.[11] The list of materials under the purview of this program ranges from Aluminum to Zirconium. Any given material on the strategic materials list

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[5] United States Geological Survey, "Mineral Commodity Summaries 2017", https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf
[6] *Id.*
[7] *Id.*
[8] U.S. Department of Energy, 2010 Critical Materials Strategy Summary, https://energy.gov/sites/prod/files/edg/news/documents/Critical_Materials_Summary.pdf
[9] USGS Critical Minerals Resources for the 21st Century, https://minerals.usgs.gov/east/critical/index.html
[10] Defense Logistics Agency Strategic Materials, http://www.dla.mil/HQ/Acquisition/StrategicMaterials.aspx
[11] 50 U.S.C. 98 et seq.

has a critical role for defense applications. For example, tantalum is used for high temperature aerospace engine parts, night vision goggles, global position, and missile systems.[12] The United States has no significant tantalum production and is completely import reliant for this critical mineral.[13]

The DLA Strategic Materials program is important for sustaining a stockpile of defense related minerals and materials. However, the program must gain congressional approval before adding or removing materials from its stockpile. Disruptions to the global supply chain could create vulnerabilities to the defense industry. A 2016 GAO report concluded that the Department of Defense could better manage national security risks pertaining to the rare earth materials supply chain.[14] To overcome some of the global supply challenges the DLA works with the USGS for assessing and modeling supply disruptions and future material stockpile requirements. It is with this data that the DLA recommends to congress changes for its stockpiling requirements.

Mining is a Critical Industry

Currently the United States lacks a coherent national policy to assure long-term, domestic availability of minerals essential for national economic well-being, national security, and global economic competitiveness. The Nation's dependence on China for rare-earth elements and rare metals, elements necessary for telecommunications, military technologies, health-care technologies, and conventional and renewable energy technologies, is the most prominent example. Hardrock mining of federal land in the United States has a storied past, a challenging present, and multiple needs for reform.

Mineral production is a key economic activity, supplying the raw materials for all infrastructure projects. Mining of mineral resources creates tangible value, introducing new money into the nation's economic system. Additional value is added to the raw mined product through manufacturing, construction, and other uses. Harvesting domestic mineral resources contributes to local economies, creates jobs, and benefits our nation's overall economic security. In 2016 alone, the value of nonfuel mineral production in the U.S. was $74.6 billion.[15]

According to the National Research Council, one of the primary advantages the U.S. possesses over its strongest international industrial competitors is its domestic resource base.[16] The U.S. is among the world's largest producers of many key metals and minerals, particularly

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[12] Tantalum, http://www.dla.mil/HQ/Acquisition/StrategicMaterials/Materials.aspx
[13] U.S. Geological Survey Commodity Report Tantalum, https://minerals.usgs.gov/minerals/pubs/commodity/niobium/mcs-2014-tanta.pdf
[14] Government Accountability Office Report 16-161, "Rare Earth Materials- Developing a Comprehensive Approach Could Help DoD better Manage National Security Risks in the Supply Chain", February 2016
[15] United States Geological Survey, "*Mineral Commodity Summaries 2017*", https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf
[16] The National Academies, National Research Council Report "*Competitiveness of the U.S. Minerals and Metals Industry*" 1990

copper, gold, lead, molybdenum, silver, and zinc.[17] Although substantial domestic reserves of these resources still exist, mineral exploration within the U.S. stagnated or declined during most of the 1990s and 2000s while global mineral exploration trends were strongly positive.[18]

Public Land Withdrawals

The ability to withdraw public lands from access under the Mining Law of 1872 and the 1920 Mineral Leasing Act is one of the most detrimental means the federal government can affect the mining industry. Once withdrawn new mining claims are disallowed and mineral exploration is stymied, while existing mining claims are subject to expensive validity exams to prove the discovery of a valuable mineral deposit.

The withdrawal of lands has had massive impacts on the ability for the U.S. to be self-sufficient for many important minerals. The various agencies and bureaus responsible for withdrawing land have no requirement for coordination and do not consider the cumulative effects on the future domestic production of important metals and minerals.[19] Thus, the full extent and impact of these withdrawals is not known.

Exploration Trends

In the early 1990s, the U.S. accounted for 20 percent of the worldwide exploration budget; today it hovers around 7 percent.[20] Without increased domestic exploration, significant declines in U.S. mineral production are unavoidable as present reserves are exhausted.

Factors contributing to the decline in domestic mineral exploration activities and other downward trends in the domestic mining industry are attributed to regulatory and administrative changes during that period, including revisions to the Bureau of Land Management's 3809 Regulations and the Solicitor's Millsite Opinion.[21]

The lack of exploration expenditures and other factors has led to an increased import dependency for non-fuel mineral materials. President Trump's budgetary blueprint requests more than $900 million for the Department of the Interior's U.S. Geological Survey (USGS) to focus investments in essential science programs. This includes funding for the Landsat 9 ground system, as well as research and data collection that informs sustainable energy development and

[17] *Id.*
[18] National Research Council, "Competitiveness of the U.S. Minerals and Metals Industry", National Academy Press, Washington, D.C., 1990
[19] C. Lee, G. Benethum, "*Is Our Account Overdrawn*?", Mining Congress Journal, American Mining Congress, September 1975
[20] SNL Metals & Mining, World Exploration Trends 2015 Special Report for the PDAC International Convention
[21] U.S. Department of the Interior, Bureau of Land Management, " 43 CFR Subpart 3809", http://www.blm.gov/wo/st/en/prog/planning/nepa/webguide/cfr/43_cfr_3809.html

responsible resource management.[22] This proposal is a step in the right direction as it returns the USGS to its mission of geological exploration.

Permitting

In the U.S., any mining activity is preceded by years of environmental studies, permitting, bonding, and stakeholder engagement, both at the state and federal level. This lengthy permitting timeline greatly impedes domestic mining activity and adds substantial delays.

Navigating the permitting process has become increasingly costly and cumbersome over time, as federal and state agencies with various land management and regulatory responsibilities in mineral exploration and development projects often work at cross purposes to one another. Legal challenges to Records of Decision by anti-mining groups also contributed to delays and uncertainties. As such, the U.S. now averages 7 to 10 years for final permitting approval.[23] Indeed, in the "*Ranking of Countries for Mining Investment,"* by the Behre Dolbear Group (mining industry advisors), permitting timelines were identified as the most serious risk to mining projects in the United States.[24]

In the 2012 and 2013 reports, the U.S. ranked last with Papua New Guinea (out of 25 major mining countries) in permitting delays. Although in 2014, the U.S. improved its overall ranking, the 7 to 10 year permitting timelines still presented the greatest risk to mining projects in the United States.[25]

By comparison Canada has demonstrated an ability to provide specific timelines without compromising environmental protections. Canada reformed its permitting regime with Bill C-38 "*Jobs, Growth and Long-Term Prosperity Act*", which received Royal Assent on June 29, 2012.[26] One of the major elements of this legislation was the "one project, one review, two year maximum" provision.[27]

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[22] Office of Management and Budget, "America First: A Budget Blueprint to Make America Great Again", https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/budget/fy2018/2018_blueprint.pdf

[23] 2014 Ranking of Countries for Mining Investment. http://www.dolbear.com/wp-content/uploads/2016/04/2014-Where-to-Invest.pdf . 2014

[24] *Id.*

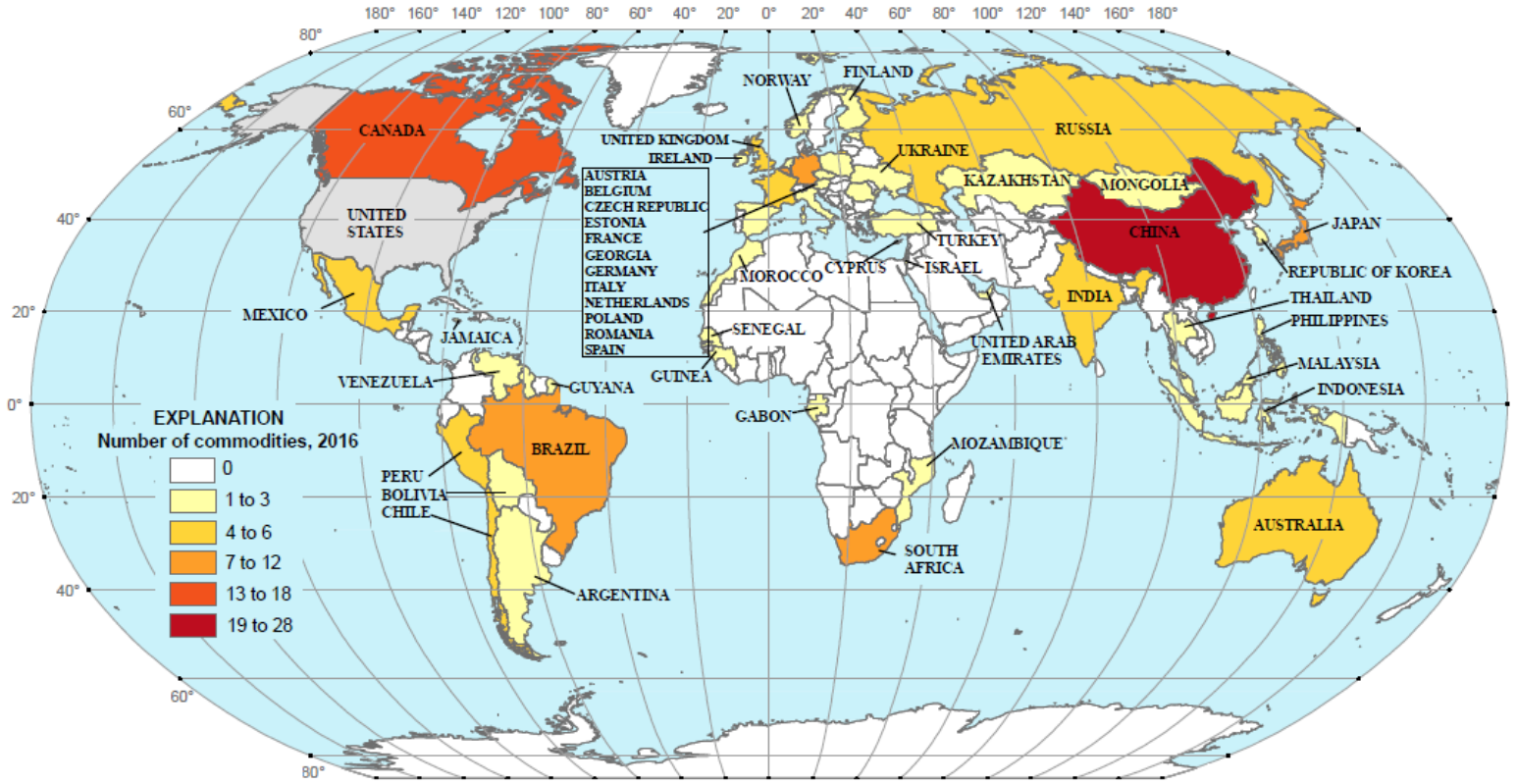
[25] *Id.*

[26] Canadian Law C38. "Jobs, Growth and Long-Term Prosperity Act." (2012).

[27] Canadian Office of Finance. *Economic Action Plan 2012*. http://www.budget.gc.ca/2012/plan/pdf/Plan2012-eng.pdf. March 2012

**Appendix A**

# MAJOR IMPORT SOURCES OF NONFUEL MINERAL COMMODITIES FOR WHICH THE UNITED STATES WAS GREATER THAN 50% NET IMPORT RELIANT IN 2016




Source: U.S. Geological Survey