



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

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The Honorable Pete Stauber
Chairman
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Stauber:

Enclosed are responses prepared by the U.S. Geological Survey to questions for the record submitted following the September 13, 2023, oversight hearing before your Subcommittee, titled "Examining the Methodology and Structure of the U.S. Geological Survey's Critical Minerals List."

Thank you for the opportunity to respond to you on these matters.

Sincerely,

Pamela Barkin
Acting Legislative Counsel
Office of Congressional and
Legislative Affairs

Enclosure

cc: The Honorable Alexandria Ocasio-Cortez, Ranking Member
Subcommittee on Energy and Mineral Resources

Questions for the Record
House Natural Resources
Energy and Mineral Resources Subcommittee
Hearing Examining the Methodology and Structure
Of the U.S Geological Survey's Critical Minerals List
September 13, 2023

Questions from Rep. Stauber for Dr. Nedal Nassar

Question 1: In response to a question from Congressman Collins regarding the possibility of incorporating subcategories of critical minerals by sector or end use into the critical minerals list, you replied this was an interesting idea to consider. How might USGS go about creating such categorizations?

Response: The analysis used in developing the list of critical minerals estimates the impact of mineral commodity supply disruptions across the entire U.S. economy. Doing so allows for the incorporation of compounding or second order effects—effects that may otherwise be missed when performing an analysis that is solely focused on an individual sector, industry, or technology. In addition, the analysis identifies specific industries that may be most impacted by different mineral commodity supply disruptions. In the future we will also highlight and report the vulnerabilities of individual industries, and work with partner federal agencies to inform policy options for reducing the risks faced by those industries.

Question 2: When can Congress expect the publication of the Annual Critical Mineral Outlook as required by the Energy Act of 2020?

Response: The first edition of the Annual Critical Minerals Outlook will focus on the production capacity of several mineral commodities. This new product is currently in development and is expected to be ready for publication by the end of the calendar year. The President's 2024 budget request includes an increase for critical minerals work that will help expand and accelerate our ability to develop additional forecasts and scenario analyses for critical mineral supply chains as called for elsewhere in Energy Act section 7002(j)(1) "Analysis and Forecasting." This increase would build on existing USGS analyses of supply chain disruptions and their economic impacts, by investing in systems for more nimble forecasting and providing early forecasts of supply chain vulnerabilities and near-real-time identification of the economic impacts during supply chain disruption events.

Question 3: Given the requirements for forward-looking data gathering in the Energy Act of 2020, does USGS have all the statutory authority it needs to utilize forecasting analysis in the formation of future iterations of the critical minerals list should it be directed to do so by Congress?

Response: Currently, the USGS relies on information and data gathered through entirely voluntary surveys. We have built valuable relationships with domestic industry and global partners to obtain and secure the data that they provide. The USGS does not have the statutory authority to mandate responses to those surveys, which, in some cases, may hinder data collection and analysis,

especially as we expand into scenario analyses that require not only information on current production and consumption but also plans and expectations for future expansions and closures.

Question 4: How was the Fraser Institute's policy perception index, an opinion survey of mining executives, decided on for the sole source of data on a country's ability to supply resources (ASI)?

Response: While the Fraser Institute's Policy Perception Index is based on survey responses, the survey of mining companies is completed by mining and exploration executives who ultimately make the decisions on whether or not to operate in those jurisdictions. Moreover, the survey includes 15 factors that directly influence company decisions: uncertainty concerning existing regulations; uncertainty concerning environmental regulations; regulatory duplication and inconsistencies; legal system; taxation regime; uncertainty concerning disputed land claims; uncertainty concerning what areas will be protected as wilderness, parks, or archeological sites; adequacy of infrastructure; socioeconomic agreements; trade barriers (tariff and non-tariff); political stability; labor regulations; quality of geological databases; level of security; and availability of labor. Unlike other country-level indices that may be more general or focused solely on political stability, these survey questions are comprehensive in their coverage of issues specifically related to a jurisdiction's ability to continue to supply mineral resources.

Question 5: Were non-subjective sources of data on the socio and geopolitical stability of source countries (for example, Uppsala University's Uppsala Conflict Data Program) considered as measures of a country's ability to supply (ASI)? If so, why were they not utilized?

Response: We reviewed other country-based indices, such as the World Bank's Worldwide Governance Indicators, but ultimately selected the Fraser Institute's Policy Perception Index because, unlike other indices, it utilizes factors that are directly related to the mining of mineral commodities. Specifically, the Policy Perception Index accounts for factors beyond socio and geopolitical stability (as indicated in the response to the previous question) that other country-based indices do not. Importantly, many of these similarly themed country-based indices are moderately or strongly correlated to each other and also to the Policy Perception Index, indicating that the selection of a different index would have had limited impact on the supply risk assessment. Nevertheless, as a science agency, we are always seeking ways in which the analysis can be improved and we will be reviewing and, where possible, improving this component of the analysis as we prepare the next list of critical minerals.

Question 6: The methodology for trade exposure (TE) reviews trade activity for a mineral at a single point in time. How does this methodology address minerals with no immediate critical need, but which are predicted to become critical under common scenario analyses?

Response: Although annual data are used in the referenced analysis, these data are also examined across several years, and experience confirms that early warning signs of increased supply risk are revealed in these trends. For example, the analysis highlighted several mineral commodities for which the supply risk has been increasing notably over time, including cobalt and gallium. The

recent export controls on gallium products imposed by the People's Republic of China highlights the usefulness of the analysis.

Carefully constructed scenario analyses can describe the outcome of various possible futures and also be useful to decisionmakers in developing policies and strategies that are resilient to potential future events. Our work in developing supply and demand scenarios is helping address this gap. The President's 2024 budget request includes increases that would help accelerate this initiative.

Question 7: The methodology relies heavily on the accurate and fulsome identification of source countries. How were the source countries identified, and what criteria was used in determining whether a single or multiple countries would be examined as a source for a mineral?

Response: As documented in the analysis, data on domestic and global production of mineral commodities were obtained predominantly from published USGS sources. These sources provide the most comprehensive and reliable data available on mineral commodity production, and the availability of those data determines our ability to properly characterize mineral commodity production at an individual country level. As noted in a response to a previous question, USGS relies on information and data gathered through entirely voluntary surveys. Historically, responses to our voluntary surveys have produced highly valuable information, although any gaps could impact the quality and quantity of our data.

Question 8: If the USGS had not interpreted the Energy Act of 2020 as barring uranium from consideration as a critical mineral, would the known vulnerabilities in the uranium supply chain have otherwise qualified it for inclusion in the updated 2022 Critical Minerals List?

Response: The Energy Act of 2020 specifically excludes fuel minerals and therefore, the commodity was not considered for the 2022 list. As a science agency, we would not speculate on theoretical inclusion of uranium in the list absent the required analysis.

Questions for the Record
House Natural Resources
Energy and Mineral Resources Subcommittee
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September 13, 2023

Questions from Rep. Robert J. Wittman for Dr. Nedal Nassar

Question 1: How frequently is the Critical Mineral List updated, and what factors trigger updates or revisions to the list? Are there any plans to make this process more regular or responsive to changing market conditions?

Response: The List of Critical Minerals is slated for updates every three years, per the Energy Act of 2020. Many interventions and investments to strengthen supply chains also take multiple years to produce clear reductions in supply risk, so a three-year cycle is an appropriate time period to evaluate the efficacy of many decisions and investments. However, the USGS routinely provides more rapid data and analysis on the impacts of current or abrupt events to inform decision making. Examples include our 2022 analysis on the impacts of the Russian invasion of Ukraine on mineral commodity supply chains and our 2023 analysis of the impacts of the People's Republic of China's export restriction of gallium and germanium products. These analyses provided time-sensitive insights necessary for such situations.

Question 2: Are there fixed or universally defined thresholds of criteria to determine if a mineral is classified as critical? If not, why not?

Response: There are no universally defined threshold criteria to determine if a mineral commodity should be classified as critical. Various methodologies developed by governments and other organizations utilize thresholds that were deemed appropriate for their specific analysis and needs. In our analysis, we selected objective criteria for each indicator based on our best understanding of what it would take to have elevated supply risk. However, in our reports we provided a prioritized ranking of all minerals and noted that supply risk should ideally be viewed on a spectrum rather than a binary categorization of critical versus not critical. In future iterations, we could move away from using a single fixed threshold but provide the prioritized list and sufficient information for the user to apply a custom threshold. That approach would still enable the USGS and other agencies to use the analysis and the list to prioritize their work.

Question 3: How transparent is the decision-making process for what minerals are classified as critical?

Response: All of the analysis and supporting information are presented in well-documented reports. Additionally, as part of our Fundamental Science Practices, USGS analyses and reports go through multiple levels of review and approval including peer-review. In addition to this internal peer-review process, our supply risk methodology was externally peer-reviewed and published in a top-tiered international science journal. Furthermore, the process underwent interagency review through the National Science Technology Council's Critical Minerals Subcommittee.