



FULL COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
Hearing Charter
GOP SUPPLEMENTAL MEMO

“The Role of Federal Research in Establishing a Robust U.S. Supply Chain of Critical Minerals and Materials”

Thursday, November 30, 2023
10:00 a.m.
2318 Rayburn House Office Building

Purpose

This hearing will explore the role that Federal research agencies can play in strengthening U.S. supply chains of the minerals and materials that are essential for U.S. energy independence and international competitiveness. This hearing will specifically examine relevant research, development, demonstration, and commercial application activities carried out by key research agencies like the U.S. Department of Energy and the National Science Foundation, among others. This hearing will provide members an opportunity to review the implementation status of critical minerals R&D provisions recently authorized in the Energy Act of 2020 and the CHIPS and Science Act of 2022.

Witness

- **Mr. Ryan Peay**, Deputy Assistant Secretary for the Office of Resource Sustainability, Office of Fossil Energy and Carbon Management, U.S. Department of Energy
- **Dr. Jef Caers**, Professor of Earth & Planetary Science and Director of Stanford Mineral-X, Stanford University
- **Mr. Drew Horn**, Chief Executive Officer, GreenMet
- **Dr. Dustin Mulvaney**, Professor of Environmental Studies, San Jose State University
- **Mr. Thomas E. Baroody**, President & Chief Executive Officer, K-Technologies, Inc.

Messaging for Republican Science Committee Members

House Science Republicans have consistently advocated for an “all of the above” approach to clean energy research and development, one which makes best use of our domestic resources and fosters an affordable, reliable, and competitive U.S. energy portfolio. Support for a wide variety of advanced energy technologies is central to this approach. Many of these technologies like grid scale energy storage and renewable energy generation will rely on a significantly diversified and expanded supply of critical minerals and materials.

As outlined in the hearing charter, there are several different focus areas of Federal critical minerals R&D activities, including but not limited to: the development of new mineral alternatives through innovation in material sciences, the creation of a circular supply chain through recycling, and the identification of new mineral resources through advanced extraction approaches. We expect that some SST Democrats (and Minority witness, *Dr. Dustin Mulvaney*) may emphasize the need for recycling R&D while deemphasizing the need for extraction R&D activities. But as with an “all of the above” approach to clean energy solutions, a robust critical minerals strategy should take all R&D pathways and domestic resources into consideration. This includes a focus on extraction and mining R&D activities.

Although the Science Committee has no jurisdiction over matters of mining exploration, Federal research agencies under the Committee’s jurisdiction have an important role to play in research and development activities to enhance these efforts. Technology innovation has the potential to streamline relevant regulatory and permitting processes and improve the efficiency of new and existing domestic mining operations.

DOE Mine for the Future

Just as DOE led the way to the shale gas revolution through innovation in advanced drilling technologies, the Department has an important role to play in fundamental and early-stage research relevant to U.S. minerals and mining interests. In this space, DOE’s experience in public-private partnerships with the oil and gas sector is an essential asset. Currently, DOE conducts research in the production of critical minerals from secondary and unconventional sources using separation, extraction, and recovery technologies; this research prioritizes the middle stage of the process, but there are significant gaps in the early stages.

In June 2023, the Honorable Brad Crabtree, the DOE Assistant Secretary for Fossil Energy and Carbon Management (FECM), briefed Republican committee staff regarding a new DOE mining research, development, and demonstration program. Known as Mine for the Future, DOE proposed that the National Energy Technology Laboratory (NETL) expand its critical minerals RD&D activities to include advanced drilling technologies, rock comminution, mineral tracing, and digital subsurface applications. The Biden Administration plans to have a symposium in the spring of 2024 informing stakeholders of their plans.

During this hearing, *Mr. Ryan Peay*, FECM’s Deputy Assistant Secretary for the Office of Resource Sustainability, is expected to speak about this new initiative and the advancement of mining technologies.

Global Environmental and Humanitarian Considerations

A robust domestic supply chain of critical minerals is important not only for U.S. national security and economic growth, but also for global environmental stewardship and humanitarian efforts.

U.S. based mining operations are subject to strict regulations and required to maintain clean environmental practices. Through innovation in advanced critical minerals technologies, we can increase domestic production of critical minerals and materials while minimizing our need to outsource this work to other countries that do not share our environmental standards. House Science Republicans should highlight the potential positive impact of these technologies and note that advances made in domestic mining are more environmentally impactful than continued dependency on operations taking place overseas.

Republican Committee staff are also reviewing the impact that Federal R&D will have on the international critical mineral market. This market, when reviewed at a high level, has multiple significant concerns that could be addressed by reducing global reliance on minerals from adversarial nations. For example, China has a documented record of inserting critical minerals into the supply chain that were sourced from forced labor, namely imprisoned Uyghurs.¹ Mines in the Congo, some also owned by the Chinese Communist Party, are also known to utilize forced or slave labor.²

During the hearing, *Mr. Drew Horn*, the Chief Executive Officer of GreenMet, is expected to speak to some of these concerns. As a former DOE political appointee, he will be able to cover issues relating to federal research, public private partnership, and private sector investment. In addition, *Dr. Jef Caers*, Professor of Earth & Planetary Science and Director of Stanford Mineral-X at Stanford University and *Mr. Thomas Baroody*, President & Chief Executive Officer of K-Technologies, Inc. are expected to speak to their experiences in academia and industry respectively, and how innovation can support future domestic critical minerals capabilities in the United States.

¹ Castillo, Rodrigo; Purdy, Caitlin. "China's Role in Supplying Critical Minerals for the Global Energy Transition." *Brookings Institute*, July 2022, https://www.brookings.edu/wp-content/uploads/2022/08/LTRC_ChinaSupplyChain.pdf

² Theriault-Lachance, Genevieve; Kashal, Josue; "The Road to Ruin: Electric Vehicles and Workers' Rights Abuses at DR Congo's Industrial Cobalt Mines." *RAID & CAJJ*, November 2021, https://raid-uk.org/wp-content/uploads/2023/03/report_road_to_ruin_evs_cobalt_workers_nov_2021.pdf