September 9, 2022

The Honorable Jigar Shah
Director of Loan Programs Office
U.S. Department of Energy
1000 Independence Ave. SW
Washington, D.C., 20585

Dear Mr. Shah,

In January 2021, the Department of Energy (DOE) issued a new rule (86 FR 3747).[1] This rule amended policies and procedures for the DOE's Loan Programs Office (LPO), allowing critical mineral projects to receive loan guarantees from the Innovative Technologies (Title XVII) Program[2] and loans from the Advanced Technology Vehicles Manufacturing (ATVM) Program.[3] Cobalt refineries are one such critical mineral project. The United States currently has no major cobalt refineries,[4] which subsequently results in our nation's heavy dependance on cobalt refined in foreign countries—especially China. However, a new major cobalt refinery will soon commission in the United States.[5] To protect new U.S. cobalt refineries from subsidized foreign competitors and enable them to scale up production, we urge the LPO[6] to carry out 86 FR 3747 and prioritize loan guarantees and loans for U.S. cobalt refineries.

Cobalt is a critical input for various technologies. With its heat tolerance, corrosion resistance, and magnetic strength, cobalt enhances technological performance.[7] Today, the main cobalt end uses are EV batteries (34 percent) and other battery applications (31 percent) such as batteries for phones and computers.[8] Additional cobalt uses also include superalloys[9] for jet engines since cobalt is heat-resistant, and permanent magnets[10] since cobalt is extremely magnetic. While cobalt's overall composition in a product may be small, cobalt's performance-enhancing characteristics make it indispensable. As National Economic Council Director Brian Deese said, "lithium, nickel, and cobalt are building blocks in everything from computers to appliances to electric vehicles and other clean-energy technologies."[11]

Notably, a new major cobalt refinery will soon commission in the United States. This refinery can provide the U.S. defense industrial base with the necessary quantity and quality of cobalt for America's advanced military. The refinery will refine cobalt through the process of chemical vapor metallurgy, which chemically vaporizes cobalt ore concentrates and produces cobalt nanopowder and sub-nanopowder with 99.9999 percent purity: an unparalleled purity level yielding the world's highest quality cobalt available.[12] Moreover, compared to other refining processes like hydrometallurgy and pyrometallurgy that are environmentally harmful, chemical vapor metallurgy is environmentally neutral with zero impact on the air, water, and soil. In short, the United States government must support domestic large-scale cobalt refineries that use chemical vapor metallurgy and decrease regulatory barriers to enable these refineries to scale up production.

Currently, the United States is nearly 100 percent dependent on foreign imports and secondary scrap materials for its cobalt consumption.[13] This foreign dependence exposes the United States to geopolitical risks. In fact, the People's Republic of China is the global cobalt leader—producing 72 percent of the world's refined cobalt.[14] The White House notes, "China is the primary global supplier of cobalt for batteries, despite having very limited reserves, through its aggressive investment in

processing capacity coupled with foreign direct investment for ores and concentrates."[15] As the dominant market player in refined cobalt, China can dictate market dynamics by decreasing supply, which would increase prices and harm downstream consumers such as the U.S. defense industrial base.

The lack of domestic capacity for refining cobalt exposes the United States to market risks. In recent years, the cobalt market has experienced "unprecedented" demand growth,[16]and the International Energy Agency (IEA) forecasts a cobalt supply deficit by 2030.[17] Even greater demand growth—particularly for electric vehicles—would further exacerbate this estimated future supply deficit. In fact, the IEA projects cobalt demand in 2040 to range from 6 to 30 times higher than today's levels.[18]

To protect new U.S. cobalt refineries from subsidized foreign competitors and enable them to scale up production, the LPO[19] should prioritize loan guarantees and loans for U.S. cobalt refineries. Loan guarantees and loans will support domestic cobalt refineries by providing sizable financing for large-scale projects. Currently, the Title XVII program has $4.5 billion available,[20] while the ATVM Program has $17.7 billion available.[21] Specifically, the LPO should direct these funds toward planned, large-scale cobalt refineries in the United States, helping them to quickly begin and scale up production. As the Biden administration notes, the LPO should use the ATVM "to expeditiously review applications from critical material and mineral refining and processing facilities."[22]

The LPO should also establish strong social and environmental standards for providing loans and loan guarantees to U.S. cobalt refineries. To better prevent inadvertent support for slave and forced child labor, the LPO should only provide loans and loan guarantees to U.S. refineries that source cobalt ore from mines free of slave and forced child labor, and require refineries to present a transparent mine-to-refinery chain of custody. Additionally, the LPO should only provide loans and loan guarantees to refineries that adhere to the highest environmental standards. Specifically, the LPO should prioritize providing loans and loan guarantees to companies that refine cobalt through the environmentally neutral process of chemical vapor metallurgy—not hydrometallurgy or pyrometallurgy.

In conclusion, robust cobalt refining capacity is necessary to maintain and enhance America's national security. Unless the U.S. government increases the domestic capacity for cobalt refining, the United States will remain vulnerable to foreign countries—particularly China. Today, the U.S. government should prioritize not only market efficiency but also supply resiliency. And the U.S. government should seek to become domestically self-sufficient in refining. In other words, America should have the necessary domestic refining capability to satisfy all U.S. consumption needs relating to refined cobalt.

We look forward to your progress on this matter and seek updates on your support for critical mineral projects—especially domestic cobalt refineries. Now is the time that the Executive Branch—in line with Executive Order 14017[23]—employs the appropriated tools of the LPO to secure America's critical mineral supply chains.

Sincerely,

Byron Donalds
Member of Congress

Eric A. "Rick" Crawford
Member of Congress

Mike Bost
Member of Congress

Kevin Hern
Member of Congress

Markwayne Mullin
Member of Congress

[1] "Policies and Procedures for Loan Guarantees for Projects That Employ Innovative Technologies and for Direct Loans Under the Advanced Technology Vehicles Manufacturing Program," rule, US Department of Energy, January 15, 2021, https://www.federalregister.gov/documents/2021/01/15/2020-29278/policies-and-procedures-for-loan-guarantees-for-projects-that-employ-innovative-technologies-and-for.

[2] 42 U.S.C. Chapter 149, Subchapter XV: Incentives for Innovative Technologies, accessed June 25, 2022, https://uscode.house.gov/view.xhtml?path=/prelim@title42/chapter149/subchapter15&edition=prelim.

[3] 42 U.S.C. § 17013, Advanced Technology Manufacturing Incentive Program, accessed June 25, 2022, https://www.law.cornell.edu/uscode/text/42/17013.

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[5] Westwin Elements, Inc., an American company, is poised to construct and operate the first-ever major cobalt refinery in the United States. Westwin aims to break ground in September 2022, becoming operational within 12 to 18 months. The short operational timeline is possible due to the refining experience of Westwin's partner, CVMR. Displaying the viability of the short operational timeline, CVMR broke ground on a nickel refining facility in Amarillo, Texas, in June 2022, after the city of Amarillo and Potter County passed economic incentives in May 2022. See David Gay, "CVMR to Break Ground in Amarillo after Deal with City, Potter County," *Myhighplains.com*, June 17, 2022, https://www.myhighplains.com/news/local-news/cvmr-to-break-ground-in-amarillo-after-deal-with-city-potter-county/; and Vanessa Garcia, "Historic Groundbreaking Ceremony Held Today in Downtown Amarillo," *News Channel 10*, June 27, 2022, https://www.newschannel10.com/2022/06/27/historic-groundbreaking-ceremony-held-today-downtown-amarillo/.
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