

September 9, 2022

The Honorable Dr. William A. La Plante
Under Secretary of Defense for Acquisition and Sustainment
U.S. Department of Defense
3010 Defense Pentagon
Washington, D.C., 20301

Dear Dr. La Plante,

The National Defense Stockpile (the Stockpile) lacks sufficient cobalt reserves, endangering America's critical mineral supply chain. From approximately 13,000 tons during the Cold War,¹ cobalt in the Stockpile is now estimated at 333 tons.² In practical terms, the total cobalt stockpile is only 5 percent of annual U.S. consumption.³ The United States currently has no major cobalt refineries,⁴ which results in a heavy dependence on other countries' refined cobalt—especially China. However, with a new major cobalt refinery soon to commission in the United States,⁵ the Department of Defense (DOD) should increase cobalt reserves in the Stockpile by purchasing domestically refined cobalt.

Specifically, we urge the DOD to direct (1) the Defense Logistics Agency (DLA) Strategic Materials⁶ to prioritize the acquisition of domestically refined cobalt for the Stockpile, and (2) the Defense Production Act (DPA) Title III Program Office⁷ to undertake purchases and purchase commitments of domestically refined cobalt. U.S. government purchases of domestically refined cobalt will support new U.S. cobalt refineries and enable them to scale up production, reducing China's current chokehold on this critical mineral.

On February 24, 2021, President Joseph R. Biden issued Executive Order 14017 “to strengthen the resilience of America's supply chains.”⁸ On March 31, 2022, the president then issued Presidential Determination No. 2022-11,⁹ ordering the Secretary of Defense to better secure the domestic supply of critical minerals necessary for large-capacity batteries—including lithium, nickel, cobalt, graphite, and manganese. The president determined that purchases and purchase commitments pursuant to Section 303 of the DPA of 1950 “are the most cost-effective, expedient, and practical alternative method for meeting the need” of these critical minerals. The DOD must begin carrying out these presidential directives without delay—especially given the importance of cobalt.

Cobalt is a critical input for various technologies. With its heat tolerance, corrosion resistance, and magnetic strength, cobalt enhances technological performance.¹⁰ Today, the main cobalt end uses are EV batteries (34 percent) and other battery applications (31 percent) such as batteries for phones and computers.¹¹ Additional cobalt uses also include superalloys¹² for jet engines since cobalt is heat-resistant, and permanent magnets¹³ 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.”¹⁴

Notably, a new major cobalt refinery will soon commission in the United States. This refinery can provide the United States' 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.¹⁵ 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.¹⁶ 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.¹⁷ 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.”¹⁸ 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,¹⁹ and the International Energy Agency (IEA) forecasts a cobalt supply deficit by 2030.²⁰ Even greater demand growth—particularly for electric vehicles—would further exacerbate this estimate future supply deficit. In fact, the IEA projects cobalt demand in 2040 to range from 6 to 30 times higher than today's levels.²¹

To protect new U.S. cobalt refineries from subsidized foreign competitors and enable them to scale up production, the DOD should make purchases and purchase commitments for domestically refined cobalt, pursuant to Presidential Determination 2022-11. Purchases and purchase commitments will support domestic cobalt refineries by guaranteeing a large-scale cobalt buyer for these refineries.²² Importantly, the DOD has the authority to use the DPA Fund (\$435 million²³) and the National Defense Stockpile Transaction Fund (\$431 million²⁴) at its discretion.²⁵ Given these funds' limited size, purchases and purchase commitments using these funds should mainly support domestic critical mineral projects—especially cobalt refineries. The Biden administration should then direct these cobalt purchases toward strengthening the Stockpile,²⁶ as the DOD has recommended to the president.²⁷

The DOD should also establish strong social and environmental standards for purchasing cobalt from U.S. refineries. To better prevent inadvertent support for slave and forced child labor, the DOD should only purchase cobalt from 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. Also, the DOD should only purchase cobalt from U.S. refineries that adhere to the highest environmental standards. Specifically, the DOD should prioritize purchase cobalt from U.S. refineries that refine cobalt through the environmentally neutral process of chemical vapor metallurgy—not hydrometallurgy or pyrometallurgy.

In conclusion, robust refined cobalt reserves are 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 14017²⁸—employs the appropriated tools of the Defense Logistics Agency and Defense Production Act to secure America’s critical mineral supply chains.

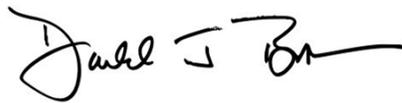
Sincerely,



Byron Donalds
Member of Congress



Eric A. “Rick” Crawford
Member of Congress



Don Bacon
Member of Congress



Kevin Hern
Member of Congress



Markwayne Mullin
Member of Congress

¹ Bryant Harris, “Congress and Pentagon Seek to Shore up Strategic Mineral Stockpile Dominated by China,” *Defense News*, May 23, 2022, <https://www.defensenews.com/congress/2022/05/23/congress-and-pentagon-seek-to-shore-up-strategic-mineral-stockpile-dominated-by-china/>.

² Maya Clark, “Revitalizing the National Defense Stockpile for an Era of Great-Power Competition,” backgrounder no. 3680, Heritage Foundation, January 4, 2022, <https://www.heritage.org/defense/report/revitalizing-the-national-defense-stockpile-era-great-power-competition>.

³ “Cobalt,” US Geological Survey, Mineral Commodity Summaries, January 2022, <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-cobalt.pdf>.

⁴ M. Garside, “Leading Countries Based on Annual Cobalt Refinery Capacity as of 2019,” Statista, June 1, 2022, <https://www.statista.com/statistics/339798/annual-cobalt-refinery-capacity-by-country/>; “Cobalt Market Report

2021,” Cobalt Institute, May 2022, 30, https://www.cobaltinstitute.org/wp-content/uploads/2022/05/FINAL_Cobalt-Market-Report-2021_Cobalt-Institute-3.pdf; “Top 10 Cobalt Operations outside of China and the DRC,” *Mining.com*, October 21, 2021, <https://www.mining.com/top-ten-cobalt-operations-outside-of-china-and-the-drc-report/>; “Cobalt Supply Chain Analysis Links Electric Vehicle Manufacturing and Deployment,” Joint Institute for Strategic Energy Analysis, May 18, 2021, <https://www.jisea.org/20210518.html>; Susan van den Brink, René Kleijn, Benjamin Sprecher, and Arnold Tukker “Identifying Supply Risks by Mapping the Cobalt Supply Chain,” *Resources, Conservation and Recycling*, vol. 156 (May 2020): 7, <https://reader.elsevier.com/reader/sd/pii/S0921344920300653?token=FC5FE70746D5BB5A85C05E69268CDD6D1C24B47F2BEA9F6C0E356FE1D3DB262D5562E7324A6B645A3133BF584A37294C&originRegion=us-east-1&originCreation=20220619023547>; Samantha DeCarlo and Daniel Matthews, “More than a Pretty Color: The Renaissance of the Cobalt Industry,” *Journal of International Commerce and Economics* (February 2019): 13–14, https://www.usitc.gov/publications/332/journals/jice_more_than_a_pretty_color_the_renaissance_cobalt_industry.pdf.

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/>.

⁶ “Strategic Materials,” Defense Logistics Agency, US Department of Defense, accessed June 25, 2022, <https://www.dla.mil/Strategic-Materials/a>.

⁷ “Assessments and Investments: Defense Production Act (DPA) Title III,” Defense Production Act Title III Program Office, US Department of Defense, accessed June 25, 2022, <https://www.businessdefense.gov/ai/dpat3/index.html>.

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⁹ Joseph R. Biden, Jr., “Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as Amended,” Presidential Determination No. 2022-11, March 31, 2022, <https://www.federalregister.gov/documents/2022/04/06/2022-07421/presidential-determination-pursuant-to-section-303-of-the-defense-production-act-of-1950-as-amended>.

¹⁰ Nedat T. Nassar, Elisa Alonso, and Jamie L. Brainard, “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,” Mineral Resources Program, US Geological Survey, 29, <https://pubs.usgs.gov/of/2020/1127/ofr20201127.pdf>.

¹¹ “Cobalt Market Report 2021,” infographic, Cobalt Institute, May 2022, https://www.cobaltinstitute.org/wp-content/uploads/2022/05/Infographic_Cobalt-Market-Report-2021_170522.pdf

¹² D. Coutsouradis, A. Davin, M. Lamberigts, “Cobalt-Based Superalloys for Applications in Gas Turbines,” *Materials Science and Engineering*, vol. 88 (April 1987): 11–19, [https://doi.org/10.1016/0025-5416\(87\)90061-9](https://doi.org/10.1016/0025-5416(87)90061-9).

¹³ Jeotikanta Mohapatra, Meiyong Xing, Jacob Elkins, and J. Ping Liu, “Hard and Semi-hard Magnetic Materials Based on Cobalt and Cobalt Alloys,” *Journal of Alloys and Compounds*, vol. 824 (May 2020): <https://doi.org/10.1016/j.jallcom.2020.153874>.

¹⁴ Brian Deese, “Remarks on a Modern American Industrial Strategy by NEC Director Brian Deese” (speech, New York, New York, April 20, 2022), The White House, <https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/04/20/remarks-on-a-modern-american-industrial-strategy-by-nec-director-brian-deese/>.

¹⁵ “An Environmentally Neutral Critical Minerals Refinery Network U.S.,” CVMR Alaska, 11, <https://dggs.alaska.gov/energy/download/core-cm/07-hoke-cvmr.pdf>.

¹⁶ “Cobalt,” US Geological Survey, Mineral Commodity Summaries, January 2022, <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-cobalt.pdf>; “Mineral Commodity Summaries 2022,” US Geological Survey, US Department of the Interior, 7, <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf>.

¹⁷ “Cobalt Market Report 2021,” report, Cobalt Institute, May 2022, 29, https://www.cobaltinstitute.org/wp-content/uploads/2022/05/FINAL_Cobalt-Market-Report-2021_Cobalt-Institute-3.pdf.

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