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# Restoring America's Critical Mineral Supply Chains

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## TOPLINE POINTS

- A secure and reliable supply of critical minerals is crucial for American renewable and traditional energy industries, as well as defense and IT manufacturing.
- China dominates the global mining and refining industries of critical minerals and has demonstrated its ability to manipulate its dominance to advance its coercive foreign policy.
- In support of domestic critical mineral mining, the Trump Administration took unprecedented steps to streamline the federal government's approach to permitting. The Biden Administration has since reversed this progress.
- The Inflation Reduction Act provides a lucrative loophole for Chinese companies to benefit from the Act's electric vehicle tax credits. It also facilitates the offshoring of critical mineral industries to trade partners that are not close allies of the U.S.
- Closing the tax credit loophole, prioritizing the domestic production of critical minerals, and once again streamlining the application of federal permitting laws would all strengthen the integrity of critical mineral supply chains.

Critical minerals are essential to a variety of modern manufacturing industries. While they are often associated with renewable and low-carbon energy, such as the use of lithium in electric vehicle batteries or tellurium in solar panels, they are also used in a variety of high-tech applications, such as military laser systems or cellphone screens. Although the United States relies upon a consistent and predictable supply of critical minerals for domestic industry, China has developed domination of the mining and refining of some of the scarcest critical minerals. Historically, this domination has not been benign. Rather, the Communist regime in China has weaponized its control of critical mineral supply chains to punish and coerce its international rivals. In light of the risk that Chinese control of critical mineral supply chains poses to the economic and national security of the United States, successive presidential administrations and Congress have sought to support American access and production of these minerals.

This report outlines the successes and failures of these policy efforts at the federal level. U.S. abundance of minerals provides an opportunity to revitalize and expand the American mining industry while diminishing the Nation's reliance upon minerals sourced from hostile countries or from those that are not closely allied with the United States. Streamlining the federal permitting process tangibly removes regulatory barriers and red tape that stand between project proposals and mineral extraction. While a congressional overhaul of federal permitting legislation would be the most enduring method of regulatory reform, the Trump Administration's streamlined interpretation of the National Environmental Policy Act (NEPA) demonstrates that the presidency has a crucial role in improving the Nation's critical mineral security.

Most recently, poorly designed efforts to support the development of the domestic critical mineral industry have created lucrative opportunities for Chinese companies. For example, the Inflation Reduction Act (IRA) expands the scope of long-standing tax credits for electric vehicle (EV) purchases. The IRA also makes the tax credit contingent upon sourcing an increasing proportion of the critical minerals in EV batteries from the United States or a country with which the United States has an FTA. However, the law only belatedly makes minerals mined or processed by Chinese firms ineligible to count towards the required proportion of minerals. In effect, the IRA creates a two-year loophole for Chinese companies to boost their sales of critical minerals by sourcing them from or processing them in a country with which the United States has a free trade agreement (FTA). If electric vehicle sales increase, which is the objective of the expanded tax credit, Chinese companies can similarly process more critical minerals and entrench their dominance of supply chains in the short run. By making batteries with minerals sourced from FTA countries eligible for the credit, the IRA also risks offshoring critical mineral supply chains to countries that are not closely allied with the United States before a domestic industry has been established. While FTAs are indicative of cooperative economic relations, in principle, they do not constitute a guarantee of cooperation during periods of heightened international tensions. Together, the current administration's policy of ignoring the federal red tape that inhibits the domestic mining industry, and offshoring the critical mineral industry, hinders the economic and national security of the United States.

This report begins with an outline of the importance of critical minerals to the United States economy and national security and the corrosive nature of China's dominance of critical mineral supply chains. It further details the Trump Administration's efforts to facilitate the revitalization of the domestic mining industry through regulatory streamlining and the Biden Administration's reversal of that progress. It subsequently outlines how the Inflation Reduction Act imperils the economic and national security of the United States before outlining how the Biden Administration and Congress can rectify their approach to critical mineral security.

***What Are Critical Minerals?***

According to Executive Order (EO) 13817, issued by President Trump in December 2017, critical minerals have three defining characteristics. They are:

"(i) a non-fuel mineral or mineral material essential to the economic and national security of the United States,

(ii) the supply chain of which is vulnerable to disruption, and

(iii) that serves an essential function in the manufacturing of a product, the absence of which would have significant consequences for our economy or our national security."

Rather than a fixed category of elements and ores, critical minerals are defined by their necessity and their supply chain's susceptibility to disruption. By assessing a range of factors, such as the United States' relative reliance on imports and price volatility, the Department of the Interior collated the first definitive list of 35 critical minerals in 2018 (Fortier et al., 2018, p. 9). This list was further expanded and altered in 2022 to encompass 50 different minerals. Per section 7002 of the Energy Act of 2020, the Secretary of the Interior is tasked with maintaining and updating this list at least every three years. These lists have included well-known chemical elements, such as aluminum, as well as those that are rarely found in high concentrations, which are known as "rare earth elements" or REEs.

These uncommon but crucial minerals often play an extensive role in renewable energy technology. As Nakano (2021, 1) notes, dysprosium is widely used in wind turbine machinery, gallium is an input in solar photovoltaic panels, and cobalt and lithium underpin most electric vehicle batteries. Although critical minerals are often associated with the renewable energy industry, they are also used in a variety of different contexts. Coal power plants typically use nickel to burn at higher temperatures, while catalytic converters use either platinum or palladium to reduce pollutants (International Energy Agency, 2021, p. 21). Some petroleum refiners also use minerals such as lanthanum (U.S. Department of Energy, 2010, p. 25), while oil and gas drilling fluids can employ barite. Critical minerals also play crucial roles in non-energy industries, such as the use of rhenium in jet engines or rubidium in night-vision goggles (Fortier et al., 2018, p. 3).

Nonetheless, the intense use of critical minerals in renewable energy projects means that a comprehensive energy policy requires due consideration of the source and stability of critical mineral supply chains. Indeed, according to a report by the International Energy Agency (IEA), manufacturing an electric vehicle typically requires six times the mineral resources of a traditional vehicle (International Energy Agency, 2021, p. 5).

### *China's Market Dominance*

In recent years, the mining and refining of critical minerals have been dominated by companies based in the People's Republic of China (PRC). This dominance has occurred by Chinese design, as well as the American industrial decline at the hands of onerous regulations. Where minerals are found in Chinese territory, the Communist regime has historically used tax benefits and trade quotas to support domestic extraction and refining (Kalantzakos, 2017; Hui, 2022). Meanwhile, higher operating costs and the heavy regulation of the American mining industry have allowed Chinese mining companies to out-compete their American competitors (Congressional Research Service 2013, i). This onerous regulation has been cited as one of the factors that led to the demise of the Mountain Pass mine in California, which was "once the world's foremost supplier of valuable rare earth minerals" (Green, 2019).

The PRC has similarly sought to develop its mining and refining dominance through the aggressive procurement of mineral resources in other countries. For example, easy access to state-backed credit has been used to support the exploitation of minerals in Africa by Chinese companies (FP Analytics, 2019). Through concerted domestic and international policies, coupled with the regulatory hobbling of American mining projects, the PRC is now home to 60% of rare earth mining, as well as 90% of rare earth refining (International Energy Agency, 2021, p. 12).

The cobalt industry provides an indicative example of America's reliance upon Chinese-dominated mineral supply chains. For example, the batteries that are in electric vehicles require a significant amount of cobalt, and policies at both the federal and state level are poised to shift the domestic vehicle market in the direction of using such batteries, thereby making cobalt more essential to the American economy. At the federal level, section 70002 of the IRA of 2022 provides $3 billion to electrify the US Postal Service's fleet of vehicles. Similarly, the state of California has sought to ban the sale of gasoline-only vehicles by 2035. Currently, 70% of the global supply of cobalt is sourced from the Democratic Republic of the Congo (DRC), where Chinese firms dominate the loosely regulated local mining industry (Tiffert & McPherson-Smith, 2022). Human rights advocates have accused Chinese nationals of overseeing child labor in Congolese cobalt mining (Kyungu, 2022). While Chinese firms exert significant control over Congolese mining operations, 72% of global cobalt refining capacity is located within China (Nakano, 2021, p. 4). Recycling and increased efficiency can alleviate some of the reliance upon the Chinese-controlled cobalt supply chain (International Energy Agency, 2021, p. 18); however, much like the case of plastics or aluminum, recycling cannot meet demand. For example, in 2021, scrap supplies of cobalt in the United States could only cover 24% of domestic demand (U.S. Geological Survey 2022, 52).

While this supply chain dominance may appear benign, China's control of critical mineral production is not solely a theoretical threat to American national security and economic well-being. Rather, the PRC has demonstrated both its willingness to weaponize its control of mineral production as well as its intention to do so in the future. In late 2010, the PRC halted exports of rare earth elements to Japan following a dispute over fishing in contested territorial waters (Bradsher, 2010). The embargo was subsequently lifted after Japanese authorities released Chinese fishermen who had been accused of trespassing into waters claimed by Japan. The culmination of this episode did not mark the end of Beijing's supply chain weaponization but, rather, early recognition of its potential future use. In May 2019, Chinese state media raised the prospect of halting mineral exports to harm the U.S. economy (Rogers, Stringer, and Ritchie 2019). Later, in April 2020, Chinese dictator Xi Jinping reportedly called for greater Chinese dominance of supply chains to "develop powerful retaliation and deterrence capabilities against supply cut-offs by foreign parties" (Bonelli, 2021).

Even when critical mineral supply chains are not intentionally weaponized, reliance upon a limited number of countries or jurisdictions unnecessarily exposes American industry and consumers to the caprices of foreign governments or the risks of weather events abroad. While the bulk of global cobalt is mined in the DRC, South Africa is a major transportation and logistics hub on the

continent. However, due to the outbreak of COVID-19, the decision by South African authorities to temporarily halt all non-essential shipping in March 2020 slowed the export of cobalt from the country's ports (Goh et al., 2020). Similarly, in April 2022, Glencore, the world's largest mining company, was unable to meet its contracts for cobalt delivery due to floods in the South African city of Durban (Greenfield, 2022). Meanwhile, the world's second-largest cobalt mine, located in the DRC, was embroiled for months in a conflict between local authorities and the Chinese mining giant CMOC over the mine's management and royalties (Ross, 2022). These events, which each uniquely threaten access to a critical mineral, are inimical to the national and economic security of the United States.

***Protecting America's Interests***

Considering China's corrosive dominance of mineral supply chains, both Congress and various presidential administrations have sought to safeguard American access to critical minerals. For example, the National Defense Authorization Act for FY 2014 provided funds for the Department of Defense to include select REEs in the national defense stockpile.[1] While underscoring the Nation's need for critical minerals (U.S. Department of Energy, 2010), the Obama Administration similarly recognized a need for a cohesive federal strategy on critical minerals (Wadia, 2014).

Through EO 13817 in December 2017, President Trump built upon these efforts to focus the federal government's efforts. EO 13817 provided a succinct definition of critical minerals, compelled the Secretary of the Interior to identify a definitive list of minerals that meet this definition and required various federal agencies and departments to produce a collaborative strategy for ensuring America's access to critical minerals. Among its 24 goals and 61 recommendations, the ensuing report advocated for the streamlining of federal permitting rules to facilitate greater domestic critical mineral mining (U.S. Department of Commerce 2019, 37-43). Later, by issuing EO 13953 in September 2020, President Trump declared a national emergency and, among other actions, directed federal agencies to allocate their resources such that "the United States establishes, expands, and strengthens commercially viable critical minerals mining and minerals processing capabilities."

One prominent effort to streamline federal permitting rules under the Trump Administration was the revitalized interpretation and application of NEPA. The environmental review requirements of NEPA have become readily available tools to delay and impede large-scale project development by activist groups, often through litigation. The projects targeted through this 'delay to deny' strategy include traditional industry, such as mining pits, as well as renewable energy installations, such as solar power plants and offshore wind farms. To limit the impact of the onerously-long NEPA process, in January 2017, President Trump issued EO 13766 to expedite the assessment of federal permitting for high-priority infrastructure projects. Later, in August 2017, President Trump issued EO 13807, which established a 2-year average limit on processing and authorizing environmental reviews and a 'one federal decision' mechanism to streamline and facilitate federal inter-agency cooperation. In July 2020, the Trump

[1] National Defense Authorization Act for FY2014, section 1412

Administration's Council on Environmental Quality (CEQ) issued new federal regulations to streamline and ameliorate the NEPA process. This was the first comprehensive update to NEPA regulations in over four decades.

Despite the Trump Administration's efforts to facilitate a more efficient environmental permitting process, the Biden Administration has reversed this progress (America First Policy Institute 2021). Less than a week after taking office, through EO 13990, President Biden repealed the two Trump-era EOs that provided an expedited pathway for high-priority infrastructure projects and that established deadline targets for permitting decision-making. Moreover, by later revising the 2020 NEPA regulations, the Biden Administration has both empowered federal bureaucrats and reduced the clarity of key environmental provisions (Council on Environmental Quality 2022). Together, these efforts constitute the renewed imposition of arbitrary and opaque red tape that hinders the development of the domestic critical minerals supply chain.

### *The Inflation Reduction Act: Another PRC Paycheck*

Although the Biden Administration has reversed the progress of the Trump Administration's approach to NEPA, it has at least sought to support the integrity of critical mineral supply chains in collaboration with its congressional allies. Unfortunately, these provisions create lucrative opportunities for Chinese companies to further entrench their dominance in the short run.

These misguided efforts are found within the Inflation Reduction Act (IRA) of 2022, which forms the latest chapter in Congress' long-pursued goal of dictating the technology that underpins the American transportation sector. The Energy Policy Act of 2005, for example, offered a variety of tax credits for consumer purchases of non-fossil fuel alternative vehicles.[2] Since the passage of the Energy Improvement and Extension Act of 2008, the federal government has offered a tax credit of up to $7,500 for new electric vehicle purchases.[3] The total number of vehicles eligible for the credit was further expanded by the American Recovery and Reinvestment Act of 2009.[4] Most recently, the IRA has removed the cap on the number of eligible vehicles[5] and recognizing the fragility of critical mineral supply chains, has made this tax credit conditional on where the minerals within electric vehicle batteries are sourced, where the battery components are sourced, and where the final assembly of the vehicle takes place.[6] Over time, the law also progressively increases the necessary proportion of battery minerals or components that are sourced from select jurisdictions to be eligible for the credit.[7]

However, the conditions around the eligibility for this tax credit expand the opportunity for Chinese exploitation in the short run. Among the IRA's many shortcomings (Rollins, 2022), the law only belatedly makes critical minerals that are mined or refined in China or by Chinese companies ineligible for the tax credit. The Secretary of the Treasury is compelled to issue guidance on the tax credit scheme

[2] The Energy Policy Act of 2005, section 1341
[3] Energy Improvement and Extension Act of 2008, section 205
[4] American Recovery and Reinvestment Act of 2009, section 1141
[5] Inflation Reduction Act 0f 2022, Section 13401 (d)
[6] Inflation Reduction Act 0f 2022, Section 13401
[7] 26 U.S.C. § 30D(e)

before December 31, 2022.[8] Any vehicle placed into service between then and January 1, 2024, is eligible for the tax credit on the condition that 40% of the value of the critical minerals in its battery must be extracted or processed in the United States, in a country with which the United States has an FTA, or be recycled in North America.[9] That required percentage increases to 50% for the calendar year 2024.[10] Only after December 31, 2024, does an additional restriction come into effect, which prohibits the eligible percentage of critical minerals from being "extracted, processed, or recycled by a foreign entity of concern."[11] This includes companies subject to the control or jurisdiction of the governments of Russia, Iran, North Korea, and China.[12]

By misaligning the start of the new tax credit and the ineligibility of Chinese-sourced critical minerals, the IRA creates at least a two-year window for Chinese firms to profit from electric vehicle sales in the United States. Furthermore, the IRA removes a previous limit of 200,000 credits per manufacturer.[13] Together, relative to the previous EV credit scheme, the IRA provides Chinese companies an even greater opportunity to profit from EV sales during this period. A tax credit seeks to lower the effective cost of electric vehicles and thus raise demand. Higher demand for electric vehicles results in higher demand for critical minerals and, thus, greater sales by companies that can meet the terms established by the IRA. In a best-case scenario, these provisions allow Chinese companies to retain control of the critical mineral mining industry around the world for an additional two years, including through the lucrative and dominant rare earths mining industry within China but require them to process their minerals in the United States. This two-year window is a strategic misstep as the IRA's provisions do not ban the use of Chinese-sourced minerals. Removing this window would allow supply chains to continue to function but would also immediately incentivize a shift away from Chinese mineral miners and refiners.

Despite the Biden Administration's public recognition of the need to regain American control of critical mineral supply chains, the provisions of the IRA do not prioritize the development of a domestic critical minerals industry. This is evident in the extension of the tax credit to critical minerals that are extracted or refined in countries with FTAs with the United States. In a worst-case scenario, in the short run, Chinese firms could mine minerals in one of 20 FTA countries, such as Chile, process the minerals in China, and then benefit from a potential increase in demand for electric vehicle batteries due to the tax credit through 2024.

This loophole is not hypothetical. Chile is among the world's largest suppliers of lithium, which is a crucial component of electric vehicle batteries. Chinese companies have long made significant investments in the Chilean natural resource industries (Jin, 2004; Adler & Ryan, 2022; Fernández, 2022). While Chile has an FTA with the United States, it was also the first country to sign a bilateral FTA with China in November of 2005. Over a 10-year period, this agreement gradually reduced Chinese import tariffs on Chilean lithium, giving Chinese refiners and manufacturers easier access to

[8] 26 U.S.C. § 30D(e)(3)(B)
[9] 26 U.S.C. § 30D(e)(1)(B)(i)
[10] 26 U.S.C. § 30D(e)(1)(B)(ii)
[11] 26 U.S.C. § 30D(d)(7)
[12] 26 U.S.C. § 30D(d)(7)(a), 42 U.S.C. § 18741(a)(5)(c), and 10 U.S.C. § 4872(d)(2)
[13] Inflation Reduction Act 0f 2022, Section 13401 (d)

Chilean resources. This trade route provides a convenient and well-established loophole through the IRA's misaligned provisions.

Even once Chinese-extracted or -produced minerals are eventually excluded from the tax credit scheme, the IRA continues to place the development of critical mineral industries in the United States and FTA countries on par. This defies the interests of U.S. national security. The United States should seek to develop supply chains that rely on American workers and allies (America First Policy Institute 2022, 4). However, an FTA does not constitute a treaty alliance with the United States, nor does it confer 'Major Non-NATO Ally' status.[14] The provisions of the IRA thus categorically provide preferential benefits to FTA countries such as Nicaragua, where select government officials and agencies are currently under U.S. sanctions but not treaty allies, such as the United Kingdom or Japan (U.S. Department of Treasury, 2022). In his inaugural address, president Biden declared that he would "repair our alliances" and, shortly thereafter, asserted that the integrity of critical mineral supply chains is a national security issue (Biden, 2021a; Biden, 2021b). In practice, however, the IRA antagonizes the United States' longest-standing allies while entrenching critical mineral supply chains within non-allied countries.

***Correcting the Course***

To safeguard the national and economic security of the United States, the federal government's current approach to critical minerals requires rectification on multiple fronts. At a very minimum, Congress and the Biden Administration should undo the damage that the IRA inflicts upon America's interests. Delaying the ineligibility of Chinese-sourced minerals for the EV tax credit and removing the cap on the number of eligible vehicles, expands a lucrative opportunity for Chinese companies in the short run. Companies associated with, or potentially influenced by, the Communist regime in Beijing should not profit from American tax credits. Expanding access to these tax credits, as the IRA does in the short run, is profoundly misguided.

Similarly, critical minerals used in batteries that are sourced or processed in FTA countries should not enjoy categorical eligibility for the electric vehicle tax credit. Given that the integrity of critical mineral supply chains is a national and economic security issue, the development of a domestic industry should be the federal government's priority. Additionally, the United States should work to develop secure supply chains with allied nations. FTA countries do not intrinsically enjoy close political or security alliances with the United States, while many of the closest allies of the U.S. are not FTA countries. The federal government should thus pursue efforts to strengthen critical mineral supply chains through deliberate international partnerships that reflect U.S. interests rather than blindly extending benefits to FTA countries.

Rather than shifting U.S. reliance from one foreign country to another, the federal government should address the onerous regulations that inhibit the American mining industry. There is no monopoly on the mismanagement of federal environmental permitting—both the Biden Administration and Congress should address the outdated NEPA of 1970 and its implementation. The Biden Administration's evident unwillingness to improve NEPA's

[14] 10 U.S.C. §2350a

implementation underscores the need for Congress to overhaul NEPA. The Infrastructure, Investment, and Jobs Act of 2021 codified some of the Trump-era streamlining of federal environmental permitting, such as the two-year limit on federal decision-making, as well as a 200-page limit for environmental impact statements—but only for major transportation projects.[15] These reforms constitute a step in the right direction and should apply not only to transportation projects. Using the Trump-era interpretation and application of NEPA as a guide, Congress should codify clear and firm regulatory approval deadlines for all projects. This would facilitate a greater domestic supply of critical minerals, as well as the renewable energy projects that use them.

## BIOGRAPHIES

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[15] Infrastructure Investment and Jobs Act, Section 11301

## WORKS CITED

Adler, A. & Haley, R. 2022. "An Opportunity to Address China's Growing Influence over Latin America's Mineral Resources." Lawfare. June 8, 2022. https://www.lawfareblog.com/opportunity-address-chinas-growing-influence-over-latin-americas-mineral-resources.

America First Policy Institute. 2021. "Blog: National Environmental Protection Act Reform Comments." America First Policy Institute. August 3, 2021. https://americafirstpolicy.com/latest/blog-national-environmental-protection-act-reform-comments.

America First Policy Institute. 2022. "America First Agenda: America's Future is America First" America First Policy Institute. https://agenda.americafirstpolicy.com/assets/uploads/agenda.pdf

Biden, J. 2021a. "Inaugural Address by President Joseph R. Biden, Jr." The White House. January 20, 2021. https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/01/20/inaugural-address-by-president-joseph-r-biden-jr/.

———. 2021b. "Executive Order on America's Supply Chains." The White House. February 24, 2021. https://www.whitehouse.gov/briefing-room/presidential-actions/2021/02/24/executive-order-on-americas-supply-chains/.

Bonelli, A. 2021. "China's Rare-Earth Dominance Is a Security Risk for NATO and Western Supply-Chain Resilience." International Centre for Defence and Security. September 22, 2021. https://icds.ee/en/chinas-rare-earth-dominance-is-a-security-risk-for-nato-and-western-supply-chain-resilience/.

Bradsher, K. 2010. "Amid Tension, China Blocks Vital Exports to Japan." The New York Times. September 22, 2010. https://www.nytimes.com/2010/09/23/business/global/23rare.html.

Council on Environmental Quality. 2022. "National Environmental Policy Act Implementing Regulations Revisions." Federal Register. April 20, 2022. https://www.federalregister.gov/documents/2022/04/20/2022-08288/national-environmental-policy-act-implementing-regulations-revisions.

U.S. Department of Commerce. 2019. "A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals." Washington, D.C.: Department of Commerce. June 4, 2019. https://www.commerce.gov/data-and-reports/reports/2019/06/federal-strategy-ensure-secure-and-reliable-supplies-critical-minerals

U.S. Department of Energy. 2010. "Critical Minerals Strategy." Washington, D.C.: US Department of Energy. https://www.energy.gov/sites/default/files/piprod/documents/cms_dec_17_full_web.pdf.

U.S. Department of Treasury. 2022. "Treasury Sanctions Nicaragua Directorate of Mines and Government Official Responsible for Decades of Violence." Washington, D.C.: U.S. Department of Treasury. October 24, 2022. https://home.treasury.gov/news/press-releases/jy1046

Fernández, P. 2022. "Chile's Once-Pioneering Relationship with China Is Turning into Dependency." Mercator Institute for China Studies. August 18, 2022. https://merics.org/en/chiles-once-pioneering-relationship-china-turning-dependency.

Fortier, S.; Nassar, N.; Lederer, G.; Brainard, J.; Gambogi, J. & McCullough, E. 2018. "Draft Critical Mineral List—Summary of Methodology and Background Information—U.S. Geological Survey Technical Input Document in Response to Secretarial Order No. 3359: U.S. Geological Survey Open-File Report 2018–1021." Open-File Report. Reston, Virginia: U.S. Department of the Interior.

FP Analytics. 2019. "Mining the Future: How China Is Set to Dominate the next Industrial Revolution." The Slate Group. https://www.congress.gov/116/meeting/house/109423/documents/HMTG-116-II06-20190509-SD002.pdf

Goh, M.; Holman, J.; Xinyue, Z.; Chen, R.; Mok, Y. & Jumaat, N. 2020. "South Africa's Lockdown to Hit Cobalt Exports: Sources." S&P Global Commodity Insights. March 27, 2020. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/032720-south-africas-lockdown-to-hit-cobalt-exports-sources.

Grasso, V. 2013. "Rare Earth Elements in National Defense: Background, Oversight Issues, and Options for Congress." Congressional Research Service. Washington, D.C.: Congressional Research Service. December 13, 2013. https://sgp.fas.org/crs/natsec/R41744.pdf

Green, J. 2019. "The collapse of American rare earth mining — and lessons learned." DefenseNews. November 12, 2019. https://www.defensenews.com/opinion/commentary/2019/11/12/the-collapse-of-american-rare-earth-mining-and-lessons-learned/

Greenfield, M. 2022. "Glencore Issues Force Majeure on Cobalt Supply after South Africa Flooding." S&P Global Commodity Insights. April 19, 2022. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/041922-glencore-issues-force-majeure-on-cobalt-supply-after-south-africa-flooding#:~:text=Glencore%20issues%20force%20majeure%20on%20cobalt%20supply%20after%20South%20Africa%20flooding,-Author%20Michael%20Greenfield&text=The%20world's%20largest%20cobalt%20producer,warehoused%20goods%20and%20impacted%20logistics.

Hui, M. 2022. "How China Uses Tax Policies to Defend Its Rare Earths Monopoly." Quartz. February 22, 2022. https://qz.com/2129104/how-china-uses-tax-policies-to-defend-its-rare-earths-monopoly

International Energy Agency. 2021. "The Role of Critical Minerals in Clean Energy Transitions." Paris, France: International Energy Agency. https://iea.blob.core.windows.net/assets/ffd2a83b-8c30-4e9d-980a-52b6d9a86fdc/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf.

Jin, Z. 2004. "Chile Rolls out Red Carpet for Chinese Mining Firms." China Daily. May 28, 2004. https://www.chinadaily.com.cn/english/doc/2004-05/28/content_334589.htm.

Kalantzakos, S. 2017. *How China Came to Dominate the Rare Earth Industry*. Vol. 1. Oxford University Press. https://doi.org/10.1093/oso/9780190670931.003.0005.

Kyungu, H. 2022. "Statement of Herve Diakiese Kyungu, Esq before the Tom Lantos Human Rights Commission Hearing On Child Labor and Human Rights Violations in the Mining Industry Of the Democratic Republic of Congo." Tom Lantos Human Rights Commission. https://humanrightscommission.house.gov/sites/humanrightscommission.house.gov/files/documents/Herve%20Diakiese%20Kyungu%20Witness%20Testimony.pdf.

Nakano, J. 2021. "The Geopolitics of Critical Minerals Supply Chains." Washington, D.C.: Center for Strategic & International Studies. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210311_Nakano_Critical_Minerals.pdf?DR03x5jIrwLnNjmPDD3SZjEkGEZFEcgt.

Rogers, J.; Stringer, D. & Ritchie, M. 2019. "China Gears Up to Weaponize Rare Earths Dominance in Trade War." Bloomberg. May 28, 2019. https://www.bloomberg.com/news/articles/2019-05-29/china-gears-up-to-weaponize-rare-earths-dominance-in-trade-war.

Rollins, B. 2022. "Statement: Passage of Big Government Socialist Bill." America First Policy Institute. August 12, 2022. https://americafirstpolicy.com/latest/statement-passage-of-big-government-socialist-bill.

Ross, A. 2022. "Congo Administrator Orders China's CMOC to Stop Exports from Tenke Cobalt Mine." Reuters. July 5, 2022. https://www.reuters.com/markets/commodities/congo-administrator-orders-chinas-cmoc-stop-exports-tenke-cobalt-mine-2022-07-05/.

Tiffert, G. & McPherson-Smith, O. 2022. "China's Sharp Power in Africa: A Handbook for Building National Resilience." Stanford, CA: The Hoover Institution. https://www.hoover.org/research/chinas-sharp-power-africa-handbook-building-national-resilience

U.S. Geological Survey. 2022. "Mineral Commodity Summaries 2022." Reston, VA: U.S. Geological Survey. https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf

Wadia, C. 2014. "New Request for Information to Inform Strategy on Critical Materials." The White House President Barack Obama. August 8, 2014. https://obamawhitehouse.archives.gov/blog/2014/08/08/new-request-information-inform-strategy-critical-materials.