Battery Materials & Technology Coalition
Ben Steinberg
750 9th Street NW, Ste. 650, Washington D.C. 20001
240-899-7447
bsteinberg@vennstrategies.com

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The Honorable Chris Wright
U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
1000 Independence Avenue SW
Washington, DC 20585

Re: Energy Critical Materials Assessment DE-FOA-0003568

Dear Secretary Wright,

The Battery Materials & Technology Coalition (BMTC) applauds the Trump Administration's increased focus on domestic critical materials dominance, and we appreciate the opportunity to help inform the 2026 DOE Critical Materials Assessment. This increased focus could not be timelier as critical minerals and many of their derivatives, including batteries, drones, combat vehicles, and other mission-critical end-use applications, are playing an increasingly important global role in the nexus between economic vitality, national security, military superiority, and energy dominance for the American people.

BMTC submitted some of the information below to the Department of Commerce in May as part of its Section 232 Investigation on Imports of Processed Critical Minerals and Derivative Products. We have adjusted our comments where appropriate and added new language to address the information DOE has requested. We look forward to being a resource to you and your team throughout this process and beyond.

Background on BMTC

BMTC is a coalition of companies across the United States (U.S.) and Canada that produce critical materials that are vital to America's national and economic security. BMTC's members are proud to produce the materials and components essential to powering innovative battery technologies, including those used in defense and space systems, energy storage systems, industrial applications, transportation, and more.

As part of our efforts to spotlight China's dominance over the global battery industry, BMTC commissioned a report, released in October 2024, that outlines China's strategy to dominate the global battery materials market. The report is entitled, *The China Hazard* –

How Beijing Controls the Global Battery Supply Chain. [1] Our comments below will include select statistics from the report along with other resources which convey the severity of the issue at hand.

Aligning the DOE Critical Materials List and the DOI Critical Minerals List

While we understand the different purposes and applications, it would be beneficial for the entire U.S. energy industry if the DOE Critical Materials List and the DOI Critical Minerals List were combined into one list – or at least housed in one repository. If federal regulations and legislation defer to the USGS list, several materials on the DOE list are ineligible to access crucial funding and regulatory support. In the short term, DOE should continue to include the entire USGS list in its version, but the agencies should work together to create one umbrella list that becomes the standard for the U.S. government – perhaps dividing the responsibility of researching certain materials amongst the agencies, similar to how the two lists are formed today.

The National Security Implications Associated with Critical Minerals and Derivative Products

The AI Race and Rising Energy Demand

Since his first Executive Orders on Day 1 of his term, President Trump has showcased his intent to unleash American energy resources and usher in an age of American energy dominance. Boosting American energy production right now is critical as electricity demand continues to skyrocket, driven primarily by the boom in AI data centers across the country. This increased power demand will present new challenges for America's aging electric grid; challenges which battery technology can help alleviate.

Energy storage systems (ESS), which primarily rely on battery technology, provide essential dispatchable power onto the grid to ensure balance and resilience, and can help keep the lights on for critical infrastructure even during grid-stressing events. In addition, this advanced battery technology provides reserve power and dynamic resource allocation for data centers – a necessity if the U.S. intends to be a global leader in AI.

Securing the Electric Grid

Despite the growing need for ESS, its role in electric infrastructure will invoke new and increased cybersecurity threats for the foreseeable future. An overwhelming majority of grid-scale battery technology deployed in the U.S. is manufactured by Chinese entities. In fact, in February 2024, utility giant Duke Energy removed industrial-scale batteries made by Chinese battery maker CATL from Camp Lejeune, a Marine base in North Carolina, after lawmakers raised concerns about the Chinese Communist Party's (CCP) ability to hack into, and ultimately shut down, the U.S. grid.

Batteries notwithstanding, the U.S. is increasingly dependent on foreign technologies across all levels of grid functionality and resilience, many of which are derivative products

[1] Horizon Advisory. How Beijing Controls the Global Battery Supply Chain. November 2024.

of critical minerals.[2] Many of these critical components such as transformers, inverters, and monitoring devices come from Chinese suppliers and function through remote-controlled software – posing their own unique threat to grid security. Furthermore, China has deployed supervisory control and data acquisition systems to help operate grids that are protected under the jurisdiction of PRC intelligence laws. Taken together, this amounts to a Chinese effort to create backdoors into energy systems, which has left U.S. and allied infrastructure vulnerable to cyberattacks and other forms of compromise. [3] Given these security threats, it is imperative that the U.S. prioritize battery development and other grid infrastructure manufacturing here in the U.S. in order to bolster our own capabilities and shift this dependency away from our major foreign adversary.

Maintaining Military Superiority

Critical minerals also play a crucial role in military preparedness as essential building blocks to our weapon systems and defense industrial base technologies. Without securing critical mineral supply chains, current and planned battery manufacturing investments in the U.S. could be choked off during a time of conflict, as we've seen with China's various export controls as of late.

Take graphite as an example of a mission-critical mineral. Graphite is lightweight, resistant to heat and corrosion, and electrically and thermally conductive, making it a preferred component for military equipment and industrial applications. It is a main ingredient in steel production and in refractory and foundry materials, as well as in energy applications such as battery anodes, nuclear reactors, and semiconductors. Its military applications include body armor, rocket nozzles, and ablative shields.

Subsequently, the production of drones, combat vehicles, critical communication systems, tanks, submarines, warfighter weapons, and other mission-critical systems could be threatened by overseas dependence. Given DoD plans to install battery-enabled microgrids at 130 bases globally to serve as reliable sources of power supply, this poses a significant power and security concern. In total, the DoD faces a 12-fold increase in battery demand by 2050, making the development of mineral-to-technology value chains for mission-critical battery systems of the utmost importance.

<u>The China Threat to Critical Mineral Supply Chains</u>

In our role as a leading voice for the domestic battery supply chain, BMTC understands these sectors firsthand and recognizes the urgent need to take steps to counter one of our primary foreign adversaries with outsized control over these global markets – China.

It is well known that China engages in hostile market practices by manipulating the price of products throughout the global supply chain. In utilizing both government and industry levers, China employs a variety of demand and supply side policies, subsidies, and other

[2] Patrick Miller. U.S.-China Economic and Security Review Commission Hearing. April 2025.
[3] Patrick Miller. U.S.-China Economic and Security Review Commission Hearing. April 2025.

military and economic actions in a concerted effort to deter the maturation of foreign competitors including the U.S. China's industrial tactics at home and abroad are directly undermining the growth of a domestic battery and critical minerals supply chain – and are a direct threat to America's national security interests.

China Controls Market Dynamics

Many of the critical minerals crucial to energy dominance, military preparedness, and various other industrial, transportation, and telecommunications applications are vulnerable to price volatility due to non-market-driven actions. China dominates the global supply chain for many critical minerals – including those for batteries such as graphite, lithium, manganese, nickel, and cobalt – and abuses its production capability by creating more supply than demand. China's control also goes beyond our USGS critical mineral definition, including silicon and recycled battery materials as well, both of which are essential to the security of the battery supply chain.

This oversupply allows China to directly influence global markets by exporting highly subsidized minerals and derivatives, driving down prices in a concerted effort to hamper the development of domestic industries. Fueled by state-driven industrial policies, minimal wage protections, the use of forced labor, a lack of environmental stewardship, and overall subsidized production, recent data shows China's overcapacity in the battery industry has roiled markets and significantly impacted prices.

In addition, these projects are not limited to those operated on Chinese soil, as China's calculated tactic to control critical minerals markets often brings other countries into the fold. China deploys a "Go Out" strategy, where it secures critical mineral mines abroad through ownership and offtakes, and subsequently brings materials back to China for processing, resulting in the ever-increasing control over global battery and critical mineral markets by one anti-market actor.[4] As U.S. market restrictions target China inside China, the government and its industry are also setting up processing capabilities in other countries.

China Weaponizes Export Controls

On the other hand, China has also enacted protective export controls; since 2022, China has implemented export controls on 16 distinct sets of critical minerals, each effort demonstrating China's control of these markets and ability to severely impact global supply.[5] The minerals affected by these controls include tungsten, bismuth, gallium, germanium, antimony, and graphite – all of which are vital to U.S. economic, energy, or national security. These export controls should be recognized as a strategic advantage capable of exerting control over global supply, with the goal of wielding geopolitical influence in a global critical materials market with Beijing's policy levers core to its function.

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[4] Horizon Advisory. How Beijing Controls the Global Battery Supply Chain. November 2024.
[5] Cory Combs. U.S.-China Economic and Security Review Commission Hearing. April 2025.

China also recently eased a strict export ban on black mass, which is the primary material recovered from recycled lithium-ion batteries[6]. Originally imposed in 2018, the export ban allowed China to keep all black mass within its borders, and all critical minerals extracted from the material were subsequently introduced back into China's own battery supply chain, only reinforcing China's grip on the global battery and critical minerals industry further.

In addition, in July 2025, China implemented new export controls on EV battery technologies. The CCP will now require licenses for the foreign use of eight battery technologies, furthering China's goal to cement its dominance of the global EV battery industry and protect its overwhelming IP advantage in the sector.

China Establishes Footholds in Other Countries To 'Smuggle' Products into U.S. Markets

As part of its effort to establish global dependence, China has established creative footholds across the globe that grant it an immense influence and control over these global markets, often as a means to circumvent U.S. protections against China or to even access U.S. public incentives. Chinese entities like CATL have already adjusted their ownership structures to circumvent the foreign entity of concern (FEOC) restriction as imposed by the Inflation Reduction Act (IRA).[7] These same entities and their commercial partners have also sought waivers for procurement programs in the U.S., like Build America Buy America, skirting federal policies that are intended to help buoy U.S. domestic industry and diversify dependence on China. For example, Chinese company BYD has established an integrated battery pack and vehicle facility in Lancaster, California, where it claims Buy America compliance for its electric transit buses.

The Offtake and Investment Problem

The domestic battery industry is facing extreme difficulty in securing private investment from downstream customers and the financial sector. Further commitment from both the private sector and government is needed to catalyze the exponential growth necessary to create and sustain a robust critical materials and battery supply chain.

The chief problem facing domestic projects is a "chicken-and-egg" circumstance in which companies are expected to secure long-term bankable (i.e., financeable) offtake agreements as well as significant private investments, both of which often require the other to move forward. China's ability to flood global markets with cheap, highly subsidized critical minerals and materials makes it difficult for any project to secure fully financeable offtake agreements with original equipment manufacturers (OEMs), which include both auto and battery manufacturers. Therefore, without the ability to demonstrate greater certainty around future revenue, critical mineral and material companies are at a

[6] Fastmarkets. China's First National Standard for Black Mass Could Open Import Market. January 2025.
[7] Accelera. Amplify Cell Technologies Press Release. July 2024.

disadvantage when attempting to secure investments. This lack of investment deprives the projects of the adequate financing needed to bolster domestic production capacity to the scale needed to become cost competitive with China and create an independent critical materials supply chain.

The process to negotiate offtake agreements is often lengthy, largely due to the intense technology qualification process required by OEMs. Many domestic producers find it economically challenging to remain viable during that timeline due to the cash burn suffered throughout. A variety of other discouraging factors also compound during that timeline, including OEMs' inclination to continue to work with existing supply chain partners. These factors cloud both the customer's confidence that new supply chain entrants can succeed in scaling up and, equally critically, potential investors' confidence that the business model is viable and can provide an appropriate risk-adjusted return on their investment. In addition, there is the conundrum of how to compete with China as markets continue to shift year by year.

In addition, battery supply chain companies must successfully weather the "dead period" between starting a project and becoming fully operational, which, depending on the sector, can take anywhere from 2-3 years (processing) to 6 years-plus (mining). This period includes permitting, construction, commissioning, upstream supply chains, product qualification, and product delivery. In addition to the timeline to construct a facility, certain long-lead manufacturing equipment can often take 2 years to receive and prepare for use, which significantly extends the amount of time before a company can commence operations, lengthening the window of opportunity for outside variables to impact the negotiations surrounding an offtake agreement.

Specific Countries and Control of Materials

Below, we provide examples of how the supply chains of six materials on the 2023 DOE Critical Materials list – graphite, lithium, manganese, silicon, cobalt, and nickel – are controlled by China, which manipulates these markets from within its own borders and from other nations. This is not a comprehensive list of China's influence in the global critical materials supply chain.

We also acknowledge the importance of recycled battery material (black mass), which is playing an increasingly significant role in establishing a circular critical materials supply chain. China has taken steps in recent years to grow its recycled material industry, which is helping it further solidify its grip on global supply chains. In the future, the DOE Critical Materials Assessment should consider the inclusion of recycled material.

China

Graphite: Between 2021 and 2023, China's supply of **graphite**-based anode material surpassed global demand, causing global graphite prices to decrease sharply. In 2023, a year after reaching its peak in 2022, the price of anode material produced from natural graphite fell 18% and is projected to fall a total of 27% by 2026. The price of anode material

produced from synthetic graphite decreased even more – by 24% in 2023, with a projected total decrease of 38% by 2026.[8] China's ability to manipulate the price of graphite is made possible by its overwhelming share of global production: in 2023, it produced 92% of the world's anode material - 79% of global natural graphite production and 97% of synthetic graphite production.

Lithium: Two years ago, China publicly stated that **lithium** prices should be lowered, and throughout 2023, lithium prices plummeted by 81%[9], forcing companies around the world to layoff workforce, shed assets, and reconsider future output. This was achieved in part by overmining lepidolite, which is a low-grade lithium ore that the mining industry generally does not extract due to cheaper alternatives. It costs $25 per kilogram to mine and process lepidolite into lithium carbonate (the main component in iron-based battery cathodes), while other abundant rocks such as spodumene can be converted to lithium carbonate for as cheap as $5 per kilogram.[10] It is estimated that China ended 2023 with a massive surplus of 2.5 million iron-based cathodes – the portion of an EV battery which is comprised of lithium – further lowering lithium demand.

Manganese: China also produces over 90% of the world's **manganese**-based products, including stainless steel additives and battery-grade materials. Three years ago, in a move to consolidate its global processing capability, dozens of Chinese manganese processors joined a state-backed "manganese innovation alliance" to exert control over supply and coordinate prices and stockpiling. The alliance has abused its overwhelming market share by manipulating supply and prices of manganese sulfate, a critical component of battery cathodes, as well as electrolytic manganese, which is a steel-strengthening additive. [11]

Silicon: China also leads global production of **silicon,** which is becoming increasingly important in the battery industry due to its ability to boost the performance of a battery when combined with graphite in the anode manufacturing process. Silicon is also used in steel refining processes, solar panel components, and most notably, semiconductor electronics. [12] U.S. silicon manufacturers are wary of China's unethical market practices, as the U.S. solar industry serves as a cautionary tale for the battery industry when China's predatory market practices go unchallenged. Notably, despite that the U.S. has several protections focused on polysilicon for the solar industry, the same concern is not applied to silicon anode materials - despite a shared upstream supply chain controlled by China.

Recycled Material/Black Mass: China's whole-of-value chain approach to the battery industry is not limited to refining and producing critical materials, nor to legacy technologies. Beijing is currently working to further fortify its value chain control via **battery recycling**, which is a value chain node positioned to dramatically increase in importance

[8] Oxford Economics. Enabling North American Graphite Growth. February 2024.
[9] Reuters. Piedmont Lithium lays off 27% of workforce amid weak prices. February 2024.
[10] The Electric. Amid a Lithium Industry Bloodbath, Albemarle Lays off 300 Employees. January 2024.
[11] The Wall Street Journal. China Hones Control Over Manganese, A Rising Star in Battery Metals. May 2021.
[12] Statista. Leading Silicon Producing Countries Worldwide in 2023. August 2024.

and economic value as battery production and use grows. Chinese battery and battery material producers BYD, CATL, Tianqi, and Ganfeng have already established formidable recycling subsidiaries.

Today, China controls 79% of global black mass production and 94% of the refinement of that black mass. The refinement of this material is used for the creation of secondary precursor cathode active material (also known as recycled pCAM), a required component of a lithium-ion battery. It is expected that China will develop a fully closed-loop system of battery production, battery recycling, and re-production. China's market capacity will ensure that it globally dominates the recycling node of that loop, as it already does with battery production – further reinforcing its grip on the entire global battery supply chain. [13] To counter China's ability to establish a fully closed-loop system, a priority on expanding domestic refinement of used and scrap batteries will enhance supply chain security, provide regional critical minerals, and reduce reliance on PFEs. [14]

Democratic Republic of Congo (DRC)

China does not have domestic **cobalt** resources and has thus actively worked to capture overseas resources to secure market control. Cobalt in the Democratic Republic of Congo offers a particularly clear example of China's "Go Out" strategy and its implications for downstream sectors as the DRC is the largest global producer of cobalt, accounting for approximately 60% of world totals. To ensure access, China has leveraged direct investments and loans within the nation, as well as government and private sector relationships and dependencies. In 2022, China accounted for approximately 80% of the DRC's cobalt ore and concentrate exports by value. The same year, China accounted for 62% of global cobalt refining and processing, including 92% of battery-grade tricobalt tetroxide, 85% of battery-grade cobalt sulfate, and 91% of nickel-cobalt-manganese **cathode precursor materials**. [15]

Indonesia

Indonesian **nickel** producers, most of which are owned or controlled by China as part of its "Go Out" strategy, continue to export into the U.S. market even as prices plunged 45% in the last year. In 2023, global nickel surplus reached 220,000 tons, almost entirely due to Indonesia's oversupply. Indonesia now produces more than half of the world's nickel and has become so confident in its ability to control the global market that last year its government stated prices will not rise beyond $18,000 per ton on the London Metal Exchange (LME).[16] This intentional domination of the market has forced other producers to shutter operations, most notably in Australia. The burgeoning U.S. industry is similarly constrained by these actions.

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[13] Horizon Advisory. How Beijing Controls the Global Battery Supply Chain. November 2024.
[14] Benchmark Mineral Intelligence. Q1 2025 Battery Recycling Forecast. December 2024.
[15] Horizon Advisory. How Beijing Controls the Global Battery Supply Chain. November 2024.
[16] Bloomberg. Indonesia Says Its Nickel Supply Will Keep Global Prices Low. February 2024.

Morocco
In August 2024, Chinese company BTR announced plans to build a $366 million facility in Morocco to produce graphite anode active material (AAM). The project is estimated to be completed in just two years and will produce 60,000 tons of AAM per year. [17] The previous March, BTR announced it is constructing a $300 million facility in Morocco to build cathode materials. [18] With a total investment of nearly $700 million, it is evident that China has identified Morocco as fertile ground in its mission to circumvent sourcing requirements and regulations in the U.S.

Conclusion
BMTC would like to thank you for your efforts to create the 2026 DOE Critical Materials Assessment and for fostering an important dialogue throughout the process. Given that critical materials are increasingly important to our energy, defense, and security needs, this is an important and timely effort. We applaud the Trump administration for orchestrating a government-wide approach to the domestic production of these materials, which is crucial to compete with China and protect ourselves from geopolitical threats related to unreliable supply chains. BMTC stands ready to work alongside DOE to advance the domestic critical materials industry and bolster the U.S. economy through energy dominance.

Sincerely,

Ben Steinberg
Spokesperson
Battery Materials & Technology Coalition

[17] Morocco World News. China's BTR Group Announces Lithium-ion Battery Plant in Morocco. August 2024.
[18] Reuters. China EV Battery Maker BTR To Build Cathode Plant in Morocco. March 2024.