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OF THE
UNITED STATES OF AMERICA

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April 14, 2021

Mr. Samuel Gillard
Vehicle Technologies Office
U.S. Department of Energy
Room 5G-030
1000 Independence Ave, SW
Washington, DC 20585

RE: Notice of Request for Information (RFI) on Risks in the High-Capacity Batteries, Including Electric Vehicle Batteries Supply Chain (DE-FOA-0002502; 86 FR 16343)[1]

Dear Mr. Gillard:

The U.S. Chamber of Commerce ("the Chamber") appreciates the opportunity to comment on the Department of Energy's Request for Information (RFI) regarding risks in the high-capacity battery supply chain, including as it relates to batteries for electric vehicles, data centers and telecommunications, and consumer devices.

In response to President Biden's Executive Order on America's Supply Chains that led to this RFI, the Chamber issued the following statement:[2]

> "The U.S. Chamber welcomes the Biden Administration's focus on U.S. supply chain resiliency and we look forward to providing input on the administration's supply chain executive order released today. The American public should never suffer from shortages of essential goods due to supply chain issues. We can mitigate risks to our supply chains by working with key international partners to diversify our supply chains and stockpiling select products – and we trust that the administration will engage closely with the private sector to ensure that any policy recommendations reject punitive approaches, new trade barriers, and one-size-fits-all solutions."

As President Biden stated in his order, "resilient supply chains are secure and diverse—facilitating greater domestic production, a range of supply, built-in redundancies, adequate stockpiles, safe and secure digital networks, and a world-class American manufacturing base and

[1] https://www.federalregister.gov/documents/2021/03/29/2021-06337/notice-of-request-for-information-rfi-on-risks-in-the-high-capacity-batteries-including-electric

[2] U.S. Chamber of Commerce Statement on Supply Chain Executive Order, February 24, 2021. https://www.uschamber.com/press-release/us-chamber-of-commerce-statement-supply-chain-executive-order

workforce." We couldn't agree more, and we commend the administration for its attention to this important and complex issue.

The COVID-19 pandemic has led to disruptions of supply chains for U.S. businesses across a broad range of sectors, products, and services. Some of the most high-profile disruptions have involved overwhelmingly domestic supply chains (e.g., toilet paper, pork, eggs); some other disruptions reflect shifts in demand rather than supply chain problems (e.g., shortages of semiconductors reflect increased demand for technology products). Many supply chains have operated smoothly throughout the pandemic (e.g., pharmaceutical shortages have been almost nonexistent).

While many such disruptions are temporary in nature, the circumstances have appropriately generated efforts to reconsider longstanding approaches to supply chain resiliency and adaptation. As the nation's largest business organization representing companies of all sizes across every sector of the economy, the Chamber is undertaking significant efforts to build industry consensus on potential responses to supply chain concerns and intends to be a resource for policymakers examining the issue. Moreover, because vulnerabilities and corresponding policy responses will in many cases apply to multiple sectors and national objectives, a holistic and coordinated government response is paramount.

Several important industries rely on high-capacity batteries – including electric vehicles, cloud computing and data centers, renewable energy storage system (RESS), telecommunications and aerospace, and consumer devices. Ensuring a secure and resilient supply chain for battery components will be particularly important in the years ahead.

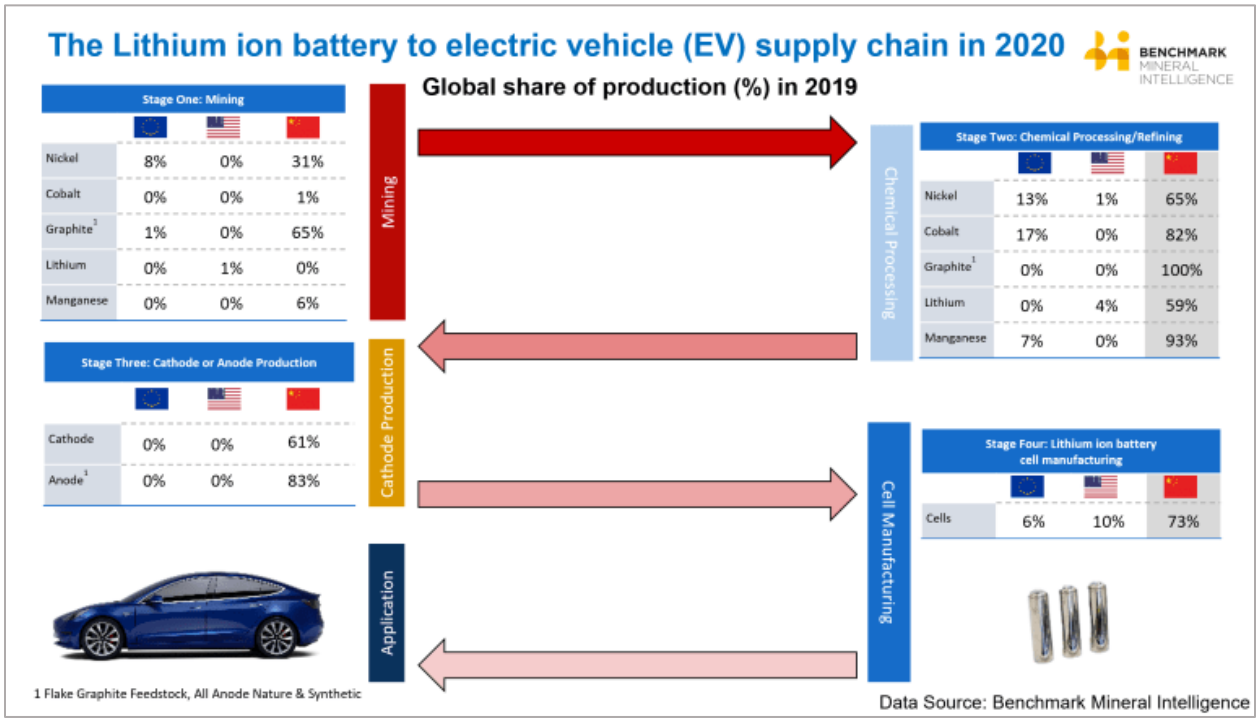
Lithium ion batteries are deployed in both the stationary storage and transportation market, and are the major source of power in consumer electronics and telecom applications.[3] For example, because batteries are metal-rich products that comprise approximately 30% or more of the cost of an electric vehicle, the cost and availability of those metal inputs are key to accelerating the manufacture and sale of EVs in the years ahead. High-capacity batteries are also used in a variety of aerospace applications in order to ensure safety, reliability and performance.

Data centers are also essential to the function of communication, business, academic, and governmental systems, and dependent on batteries to ensure reliability of service.[4] As noted in a 2020 Department of Energy report, battery-based uninterruptible power supply (UPS) systems are prevalent in telecommunications and data centers to maintain reliable, high-quality, power.[5] Today, cloud service providers include lithium-ion batteries in their data center racks -- those in-rack battery backup units (BBUs) are replacing the large-scale UPS systems that have

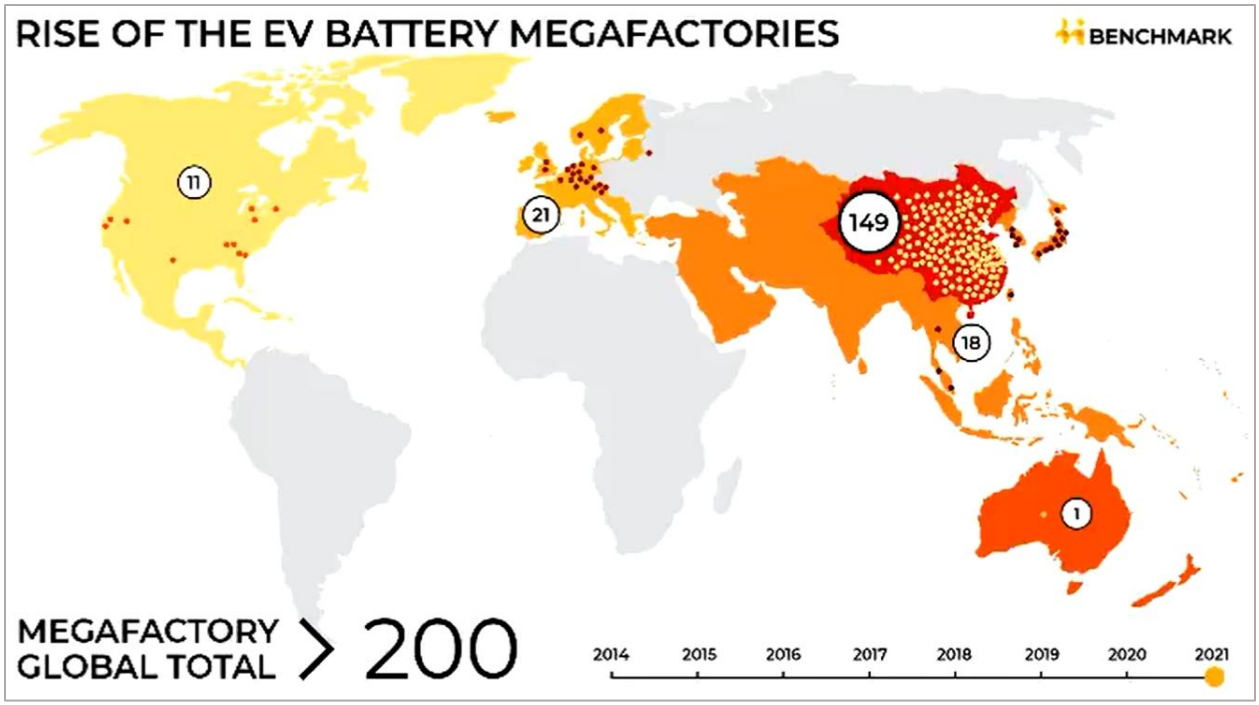
[3] "Energy Storage Grand Challenge: Energy Storage Market Report", U.S. Department of Energy, December 2020. https://www.energy.gov/sites/prod/files/2020/12/f81/Energy%20Storage%20Market%20Report%202020_0.pdf
[4] "United States Data Center Energy Usage Report ", Ernest Orlando Lawrence Berkeley National Laboratory, 2016. https://www.osti.gov/servlets/purl/1372902
[5] "Potential Benefits of High-Power, High-Capacity Batteries", U.S. Department of Energy, January 2020. https://www.energy.gov/sites/prod/files/2020/02/f71/Potential_Benefits_of_High_Powered_Batteries_Report.pdf

historically been powered by valve-regulated lead-acid (VRLA) batteries. Depending on the rack type, there can be 6-12 BBUs on each individual rack in a data center. These batteries, while not as high-capacity as a car battery, are nonetheless industrial size (~40 lbs) and cloud service providers are deploying these all over the world, and replacing VRLA batteries.

As it stands today, however, the U.S. is highly dependent on China and other foreign countries for manufacture and delivery of key high-capacity battery components. As outlined in China's 13th Five-Year Plan, China has pursued aggressive investments in high-capacity battery development, temperature adaptability, recovery and disposal.[6] According to a recent DOE report, China currently has nearly 80 percent of the world's lithium ion battery manufacturing capacity,[7] and as shown in the graphics below from Benchmark Mineral Intelligence, this manufacturing dominance is accompanied by similar dominance in mining, processing, and refining of key inputs such as lithium, cobalt, nickel, and graphite. Moreover, BMI recently reported that of the more than 200 lithium ion "megafactories" planned between now and 2030, 149 will be in China, while only 11 are planned for North America.[8]



[6] https://en.ndrc.gov.cn/newsrelease_8232/201612/P020191101481868235378.pdf
[7] Energy Storage Grand Challenge: Energy Storage Market Report, December 2020. https://www.energy.gov/sites/prod/files/2020/12/f81/Energy%20Storage%20Market%20Report%202020_0.pdf
[8] https://www.mining.com/chart-chinas-stranglehold-on-electric-car-battery-supply-chain/ https://www.benchmarkminerals.com/megafactories/



Securing stable supplies of cobalt and nickel are top concerns for high-capacity battery development, and are also relevant for smaller lithium ion batteries used in a range of consumer devices. According to one report, the Clean Energy Ministerial target of 30 million global EV sales by 2030 would require 314 kilotons of cobalt per year—more than three times the current global cobalt demand for *all uses*.[9] Similarly, nickel mining capacity coming online through 2025 is insufficient to meet battery production needs, leading to further constraints in the nickel supply chain.[7] Copper is another resource of concern when it comes to the future of electric vehicles, data centers, and consumer devices. Because an electric vehicle requires approximately four times as much copper as a conventional vehicle, total copper demand for the EV sector is expected to increase more than six-fold by 2030 as the pace of deployment accelerates.[10] Copper is also a critical input for printed circuit boards (PCBs). With copper prices more than doubling over the last year and now nearing all-time highs, establishing expanded domestic mining and processing capacity is clearly of importance. Batteries used in data centers and for consumer electronics devices have similar dependencies on cobalt, copper, and other critical components.

The significance of securing supplies of these high-capacity battery inputs is not just limited to transportation-related clean energy goals. Many of the same materials are critical inputs necessary for expanded deployment of wind, nuclear, solar, and carbon capture technologies. As such, any effective policy response to address supply chain concerns related to high capacity batteries is likely to be of similar import to economy-wide climate objectives.

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[9] https://www.carbonbrief.org/explainer-these-six-metals-are-key-to-a-low-carbon-future

[10] https://www.realclearenergy.org/articles/2021/04/01/to_support_americas_electrification_well_need_more_copper_than_ever_before_770754.html

It is upon this foundation that the Chamber offers recommendations in the following four areas:

1. **Deconflict and harmonize supply chain objectives with competing goals such as climate**.

The Chamber urges the administration to approach the use of "Buy American" rules in the battery sector with great care. "Buy American" rules have been a feature of U.S. government procurement law for decades, and they are extensive. Notably, the Buy American Act of 1933 requires the federal government to prefer U.S.-made products in its purchases. A very large majority of the federal government's procurements by value go to U.S. firms (97% by some measures).

However, extending the reach of "Buy American" rules to attempt to bring about onshoring is likely to backfire in areas where U.S. government procurement represents a small fraction of the U.S. market. This is true in the auto sector, where sales of new autos and light trucks surpassed 17 million in 2019 while U.S. government purchases accounted for approximately 50,000 unit sales (or three-tenths of one percent).

Not only are "Buy American" incentives unlikely to motivate shifts in supply chains, extending the reach of "Buy American" rules to the battery sector could actually restrict EV federal procurement options to a narrow range of qualifying vehicles. Perversely, such a move could leave the government with very limited options and thus depress federal purchases of such vehicles aimed at reducing greenhouse gas emissions.

Industry is committed to building out its EV supply chains and doing so with very substantial domestic investments. The Alliance for Automotive Innovation notes that automakers and suppliers will invest $250 billion by 2023 to expedite the transition to EVs. While the domestic battery supply chain is receiving massive new investments, it will remain dependent for a period on foreign inputs. Recognizing this reality and ensuring alignment of these trade and procurement rules is indispensable to ensuring the successful transition of industry.

2. **Add copper and nickel to the Department of Interior's critical minerals list**.

Per Executive Order 13817, in 2018 the Department of Interior established a list of 35 mineral commodities deemed critical due to import reliance and other economic and security factors.[11] This designation triggers a Department of Commerce-led effort to develop a strategy for reducing reliance on such minerals while enhancing domestic development and access through investment and trade with allies and partner nations.

At the time of the original Interior designation, the economic significance of copper and nickel were acknowledged, but they were not deemed critical due to a "combination of domestic reserves and reliable foreign sources adequate to meet foreseeable domestic consumption

[11] https://www.federalregister.gov/documents/2018/05/18/2018-10667/final-list-of-critical-minerals-2018

requirements." However, the benefit of hindsight associated with supply chain vulnerabilities exposed by the COVID-19 pandemic—paired with the growing demand forecasts for copper and nickel associated with electric vehicle and other clean energy goals—illustrates that a critical minerals designation and subsequent strategic plan to ensure secure and reliable supplies is warranted.

3. **Pursue permitting reforms to attract increased domestic mining investment and production.**

It is well understood that the environmental review and permitting process has become hampered by unreasonable costs and delays that stifle investment and economic activity across a broad range of sectors. Though clean energy related projects often enjoy popular support, they too have fallen victim to bureaucratic roadblocks and political opposition that hinder investment and development. As the Bipartisan Policy Center has emphasized, even the most well-intended efforts to decarbonize the economy will simply not succeed without permitting reforms, beginning with the National Environmental Policy Act.

Mining that is necessary to support materials essential to the manufacture of high capacity batteries and other clean energy resources is no exception. According to the National Mining Association, mine permitting in the U.S. takes on average seven to 10 years, and often longer. In other countries with similarly strong environmental standards, such as Canada and Australia, permitting is typically achieved in just two to three years.

To cite just one recent example, earlier this year, the Department of Agriculture rescinded an environmental impact statement that would have allowed development of a large copper mine in Arizona, despite nearly a decade of planning and negotiation to secure all necessary permits. This mine could supply up to 25% of America's copper demand, employing 3,700 workers and generating more than $1 billion in annual economic benefit while also providing a secure and affordable source of domestic copper.[12] While the Chamber is hopeful that the USDA decision is reversed in short order, the potential loss of a key input to high-capacity batteries and motors illustrates the need to address permitting obstacles that undermine battery supply chains.

The Chamber therefore recommends that the Administration take steps to ensure timely review and fair consideration of battery-related mining development under NEPA, including by supporting and utilizing the recently finalized rule making non-energy mining sector projects eligible for assistance and expedited review under Fixing America's Surface Transportation Act (FAST-41) processes. Supporting implementation of this rule would help project sponsors to better navigate the federal permitting process for mining consistent with the policy goals of multiple Administrations representing both political parties that have issued executive orders and presidential memoranda directing the government to increase the efficiency of federal permitting for critical infrastructure. More broadly, we also recommend that any updates to the permitting

[12] https://chamberbusinessnews.com/2021/03/15/resolutioncopper/

process reforms take steps to explicitly consider and account for potential impacts to critical minerals supply chains during the review process.

4. **Increase research and development.**

Finally, over the long-term it is imperative that the federal government expand efforts to reduce supply chain vulnerabilities through innovation. The development of processes that reduce demand for critical materials through efficiency improvements, recycling, or identification of substitutes holds great promise to contribute to supply chain security.

This effort should begin by fully funding activities related to critical minerals and battery recycling research and development under the Energy Act of 2020. Specifically, section 7001 of the FY2021 Omnibus Appropriations Act (which included the Energy Act) authorizes $23 million for DOE research on recovery of rare earth elements and critical materials from coal and coal byproducts, while section 7002 calls for $125 million for research on critical materials recycling, innovation, efficiency, and alternatives, including establishment of an innovation hub to coordinate and integrate crosscutting activities. Additionally, the Better Energy Storage Technology (BEST) Act—included in the same legislation— authorizes $50 million for the Department's Advanced Manufacturing Office and Vehicle Technologies Office to address critical supply chain matters, including enhancement of recycling and reuse capabilities.

Note that these recommendations are not exhaustive, and with additional time we would like to continue to engage with the Department and the broader Executive Branch as it develops and implements recommendations in response to the EO. In particular, the Chamber recognizes that mechanisms such as tax credits, loan guarantees and other financial incentives warrant consideration as a promising means to attract U.S. companies to undertake the large capital commitments necessary to facilitate growth in domestic production and manufacturing related to high capacity batteries and associated supply chain components.

Thank you for consideration of these views. We look forward to working with the Administration to ensure these supply chain vulnerabilities are addressed in a timely and effective manner.

Sincerely,

Neil L. Bradley