



November 8, 2024

Kaitlyn Peterson  
Legislative Clerk  
Committee on Energy and Commerce  
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Dear Ms. Peterson,

Thank you for the opportunity to respond to the questions from Members of the Subcommittee on Environment, Manufacturing, and Critical Materials following the June 13, 2024, hearing titled "Securing America's Critical Materials Supply Chains and Economic Leadership."

Please find below the responses to the questions from The Honorable Frank Pallone, Jr., and The Honorable Nanette Barrigan:

**The Honorable Frank Pallone, Jr.**

**1. At the hearing, we heard significant concerns from members on both sides of the aisle about China's dominance over critical minerals supply chains - myself included. Are there other reasons for the Committee to strengthen our critical mineral supply chains and promote circularity, beyond countering China's dominance? Please elaborate.**

**Response:**

Beyond addressing China's dominance, which does create an overall macro-economic challenge for U.S. Companies, strengthening the U.S. critical mineral supply chain and promoting circularity is essential for managing the anticipated supply-demand imbalance in critical minerals over the coming decades. As demand for batteries and other clean energy technologies continues to surge, projected mineral shortages are becoming an increasing concern. By 2030, the International Energy Agency estimates that demand for lithium, cobalt, and nickel could grow by 400% to 600%. Domestic recycling can help bridge this gap by recovering materials already in use and within our country's borders, allowing the U.S. to supplement virgin sources with recycled content, which reduces our dependency on foreign sources and makes supply chains more resilient.

Domestic economic resilience is another key reason to strengthen key supply chains to the U.S. Developing domestic sources mitigates risks associated with global market disruptions, a point underscored by the vulnerabilities exposed during the COVID-19 pandemic for example. Ensuring access to critical materials domestically reduces the U.S. economy's exposure to external shocks, keeping our industries and manufacturing sectors stable. Additionally, by developing this closed-loop supply chain that includes the recovery of these critical minerals, we can ultimately drive down the cost of producing batteries for crucial applications including in the EV and Energy Storage industries.

Strengthening our critical mineral supply chains also will support the U.S. decarbonization strategy. By minimizing the need for new mining operations, circular supply chains reduce greenhouse gas emissions associated with extraction and processing. For instance, recycling processes at Cirba Solutions facilities are designed to cut carbon emissions by up to 30% compared to traditional mining. This environmental benefit aligns with U.S. goals to reduce overall carbon footprints while ensuring access to essential critical materials.

Finally, building domestic recycling capacity contributes to job creation and economic growth. Cirba Solutions' expansions in Ohio and South Carolina, funded in part by federal grants, are projected to create over 400 well-paying generational jobs in local communities, providing new economic opportunities and

supporting local development. These facilities help establish a foundation for U.S. supply chain resilience and bring employment and investment to regions in need of economic revitalization.

### **The Honorable Nanette Barragán**

#### **1. We have ground to make up with China to establish a resilient supply chain for critical minerals. How important were the Infrastructure Law and Inflation Reduction Act to move us forward in this effort to secure our supply of critical minerals?**

##### **Response:**

The Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) have been pivotal in enhancing the security of United States critical mineral supply chains. The IIJA allocated substantial funding for battery materials processing and manufacturing, including a \$6 billion pool that provides grants and loans for infrastructure development. This investment has allowed companies like Cirba Solutions to scale operations in the U.S., strengthening domestic critical material refinement and processing capabilities to meet growing demands for battery materials. For example, Cirba Solutions received over \$82 million grant under the IIJA to enhance its lithium-ion processing facility in Lancaster, Ohio, contributing to the U.S. goal of establishing a more resilient and localized supply chain. This funding is a catalyst to the growth of recovering the critical minerals needed for our countries energy transition.

These acts play a crucial role in protecting and expanding both established and emerging sectors. While critical mineral processing is an emerging growth area, battery recycling is an established sector poised for expansion. As federal incentives stimulate growth, the IRA provides tax incentives for domestic production of critical minerals, encouraging public-private partnerships and long-term investment in U.S.-based processing facilities. The planned Cirba Solutions' facility in Columbia, South Carolina, conditionally supported by an up to \$200 million grant from the Department of Energy, will be capable of processing over 60,000 tons of batteries annually, generating enough battery-grade materials to power approximately 500,000 electric vehicles each year. This facility strengthens U.S. self-sufficiency in critical minerals, supports local economic growth, and creates job opportunities in critical minerals.

Furthermore, there are significant pressures on the market, as foreign powers maintain control over many critical mineral supply chains, leading to price volatility in markets like black mass. These dynamics heighten the need for federal support mechanisms to protect fair pricing during this pivotal growth stage, ensuring stability in U.S. critical mineral markets. China began in their efforts to become a major industry powerhouse in batteries and electric vehicles nearly 15 years ago, and their government has been actively funding and subsidizing the build out of their supply chain for more than a decade. The United States will need to continue to support the expansion of our domestic capabilities in order for us to compete globally.

Lastly, these legislative measures fund research into advanced recycling technologies, which are essential for improving the safety, efficiency, and yield of material recovery in recycling processes. This ongoing support enables partnerships across the recycling industry, academic institutions, and federal agencies to develop cutting-edge methods that contribute to a more sustainable and effective critical minerals supply chain.

#### **2. Recycling the batteries we use can be an important source of critical minerals for clean energy technologies. Batteries are found in thousands of different products, and manufactured around the world. Are there design standards the federal government can set for batteries to make them easier to recover and recycle?**

##### **Response:**

There are many key areas where design standards could benefit the recovery and recyclability of batteries, and to highlight two would be safety and design:

Safety should be the foremost priority in setting design standards for batteries, as well as recyclability. Clear labeling of battery chemistries and materials is essential for identifying and safely processing battery types

in recycling facilities. This practice improves safety for workers and increases accuracy when sorting batteries, ensuring efficient recovery of valuable materials.

Implementing modular design standards would further enhance both safety and recyclability. Batteries with modular components allow for safer disassembly and more efficient material recovery. For EV's, it would be beneficial to encourage the Auto OEM's to adopt a common battery pack format that takes into account the "easier to recycle at end-of-life" concept, even if each OEM has a different design. Some OEM's are adopting this standard battery pack format for the EV platform and then utilizing a different body structure for the different vehicle types. In Europe, modular designs have led to higher recovery rates, an approach that could be emulated in the U.S. for improved sustainability. Cirba Solutions and other industry players are actively developing practices and technologies that could help establish such standards, particularly in EV and consumer electronics recycling.

**3. The White House has a goal to electrify 100% of the federal fleet by 2035, which includes over 650,000 vehicles. Are there steps the federal government should be taking now to plan for the responsible recycling and reuse of the EV batteries the federal fleet will use?**

**Response:**

To responsibly manage the end-of-life (EOL) batteries from the federal fleet, the government should begin by establishing partnerships with certified and trusted battery recycling companies (recycler of record) that have the expertise to handle large volumes of EV batteries. Long-term partnerships with recyclers would ensure that EOL batteries are properly managed, contributing to a closed-loop system where materials can be recovered and reused efficiently.

Creating a robust packaging, collection, and transportation network for EOL batteries is essential. By setting up collection points in compliance with safe battery transport, the federal government can help optimize the flow of used batteries to recycling facilities nationwide. This is something Cirba Solutions has the experience and expertise to organize today and ensure a responsible, reliable, and organized plan exists to capture these critical minerals to be re-used on the Federal Governments battery supply chain.

**4. The clean energy transition will require additional mining and the processing of critical minerals, but workforce shortages are a challenge we need to overcome. What can the federal government do to provide additional support for workforce development in the mining and critical minerals industry?**

**Response:**

Recycling is a vital complement to mining in meeting projected demand for critical minerals. Both sources are essential to supply enough materials for the clean energy transition. Federal funding directed toward workforce training programs can help equip workers with the skills needed for jobs in both recycling and mineral processing. Programs in collaboration with technical colleges and workforce development organizations have been particularly effective. Cirba Solutions works with a wide range of partners in our operational states to train new workers, preparing them for specialized roles in battery recycling and materials processing. These types of initiatives are essential for building a capable workforce that can meet the demands of this evolving industry.

Federal support for apprenticeships and on-the-job training can further attract new talent to the industry. We have the opportunity to introduce and educate the youth about electric vehicles, batteries, and manufacturing as early as grade school which may spur long term interest in jobs that are critical to the industry. By fostering interest in STEM fields from an early age, these initiatives can inspire future generations to pursue careers in critical minerals. Programs between industry leaders and educational institutions also help reduce training gaps and prepare new hires for these roles. By expanding these partnerships, the federal government can support a sustainable labor pipeline that strengthens U.S. critical mineral and recycling industries over the long term.