

United States Senate

WASHINGTON, DC 20510

November 1, 2023

The Honorable Jennifer Granholm
Secretary
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Secretary Granholm:

We write to emphasize the national security imperative in outcompeting our adversaries in the next generation of battery technologies. Experts assess the United States to be ten to twenty years behind Asia in commercialization of battery technology, with the People's Republic of China (PRC) accounting for over three quarters of battery cell production, maintaining a near monopoly on the mining and refining of critical mineral inputs for most batteries.ⁱ We provide specific recommendations below to ensure U.S. leadership in this space.

Last year, demand for lithium-ion batteries exceeded 700 GWh globally, and demand is expected to grow over seven times by 2035. These batteries are critical inputs for our electric vehicles, our power grid storage, and our military equipment. As Deputy Secretary of Defense Kathleen Hicks cautioned in 2021, batteries are “essential to thousands of military systems from handheld radios, to unmanned submersibles and to future capabilities like lasers, directed energy weapons and hybrid electric tactical vehicles.” And that “when it comes to batteries, America needs to lead the world.”ⁱⁱⁱ

Yet, the U.S. produced less than 10 percent of these batteries last year. By contrast, the PRC accounted for 70 percent of the global production of lithium-ion batteries. Of the five critical minerals required for most lithium-ion batteries, the PRC controls between 60-100 percent of the mining or refining for these minerals.

The PRC near-monopoly over battery production, and the upstream materials they require, poses substantial defense and economic security vulnerabilities. In October 2023, China restricted exports of graphite, critical to manufacturing battery anodes. This follows China's proposed export controls on gallium and germanium in July 2023.

We commend the Department of Energy for continuing to be at the forefront of innovation, but the U.S. must become a leader in *manufacturing* batteries and battery components, while securing our supply chains for the materials that make up those components. In addition, it is critical that the U.S. lead in next-generation battery technology and *alternative* chemistries, including by supporting domestic companies developing and producing solid-state electrolytes, sodium-ion, lithium-sulfur, and iron-oxide among others.

In order to ensure that the U.S. reduces its dependence on adversary-dominated supply chains and capitalizes on innovative domestic battery development, we ask that the Department:

- **Ensure consideration of innovative technologies beyond conventional lithium-ion batteries in the next round of the Bipartisan Infrastructure Law (BIL) Battery Materials Processing and Battery Manufacturing & Recycling Funding Opportunity Announcement (FOA).**

Alternative technologies developed and manufactured in the U.S. can help to ensure a more resilient domestic battery market and foster alternatives to supply chains China currently dominates.

- **Consider support for public-private pilot-line manufacturing facilities, focusing on innovative technologies.** Such facilities could play a key role in allowing our domestic companies to scale up and compete internationally. Currently, **no** such shared pilot-scale battery and battery component manufacturing facilities exist in the U.S. forcing many of our innovative companies to seek out such facilities abroad exposing firms to IP theft.
- **Coordinate with the Department of Defense and other national security agencies to support procurement of innovative, U.S.-developed energy storage technologies.** The U.S. government must lead in procuring new technologies, which can enhance mission capability while sending an important signal to domestic industry that the government will reward innovative technology *produced domestically*.
- **Coordinate with federal, state, and tribal permitting agencies to accelerate reviews for domestic mining and processing facilities to secure our supply chains for next-generation battery manufacturing.** For example, several years have passed since the last approval of a major new critical minerals mine on federal lands while at the same time smelters and processing facilities have been closing across the country. This is occurring despite the strong bipartisan consensus that additional mining and processing in the United States is necessary to secure the supply chain for batteries and compete with our adversaries. The Department must ensure that federal, state, and tribal permitting agencies are aware of the urgent nature of this issue.

We ask that your Department within 30 days of receiving this letter brief the Senate Intelligence and Energy and Natural Resources Committees on the initiatives outlined above, and on ongoing research and development of next-generation battery technologies. We also welcome your consideration of how the Intelligence Community can best contribute to, collaborate on, and support these efforts.

With the right support, we are confident that our domestic industry can lead the next generation of battery technology, as it has done in so many of the world's greatest innovative technologies. We stand ready to assist in that effort.

Sincerely,



Mark R. Warner
United States Senator



Joe Manchin III
United States Senator

ⁱ <https://www.anl.gov/article/libridge-outlines-steps-for-us-to-double-annual-lithium-battery-revenues-to-33-billion-and-provide>

ⁱⁱ <https://www.defense.gov/News/Transcripts/Transcript/Article/2838082/deputy-secretary-of-defense-dr-kathleen-hicks-remarks-at-wayne-state-university/>