

Biden Administration Secures Supply Chains of Strategic and Critical Minerals for Clean Energy Economy

President Biden, on March 31, 2022, invoked the [Defense Production Act](#) to secure reliable supply chains for minerals essential to a clean energy transition, including lithium, nickel, cobalt, graphite, and manganese. These minerals are required for the production of large-capacity batteries. The memorandum for the secretary of defense found that a consistent and sustainable supply chain for these minerals was "essential" to the national defense and cited the need "to rebuild and maintain American expertise and productive capacity in these critical sectors." President Biden further noted that "action to expand the domestic production capabilities for such strategic and critical materials is necessary to avert an industrial resource or critical technology item shortfall," directing the secretary of defense to "create, maintain, protect, expand, or restore" domestic production.

Recent World Events Exacerbated Supply Chain Disruptions

Since Russia's invasion of Ukraine, the price of metals [has skyrocketed](#) as uncertainty looms over sanctions and impacts to the supply chain. For instance, the price of nickel, which is key for electric vehicle batteries, has risen 9% this year, and the price of palladium, used in catalytic converters and semiconductors, is up 73%. Prices have increased because many of the raw materials used in commerce are produced in Russia, Ukraine, or other areas affected by the conflict. One Russian company alone is responsible for 5% of the world's annual production of nickel, and 40% of the world's annual production of palladium. In response to the invasion, many companies are trying to diversify their sourcing away from Russian producers. But giving up the Russian supply of raw materials requires sufficient production from other sources to replace it. Not coincidentally, the administration has recently stepped up its efforts to secure the supply chain, announcing a plan in February 2022 to "[Revitalize American Manufacturing and Secure Critical Supply Chains in 2022](#)."

The concern over the supply chain is not new. In 2017, the Trump administration expressed concern over the supply chains for critical minerals, and issued [Executive Order 13817](#), requiring that the secretary of the interior identify critical minerals and making it a policy of the federal government to "reduce the Nation's vulnerability to disruptions in the supply of critical minerals." The order also defined "critical minerals" as those minerals the secretary identifies as "(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." In September of 2020, during the height of the COVID-19 pandemic and peak disruptions to global supply chains, the Trump administration issued [Executive Order 13953](#), declaring a national emergency to address inconsistent access to critical minerals and the corollary threats to national security, foreign policy, and the U.S. economy. The order noted that "these minerals are indispensable to our country" yet "we presently lack the capacity to produce them in processed form in the quantities we need ... For 31 of the 35 critical minerals, the United States imports more than half of its annual consumption. The United States has no domestic production for 14 of the critical minerals and is completely dependent on imports to supply its demand."

Recent events underscore the need to shore up supply chains for critical minerals, and the Biden administration has continued the Trump administration's efforts (E.O. 13817 and 13953 were two of the few Biden did not

immediately rescind). The administration has at least claimed a goal to secure, expand, and diversify sustainable critical mineral mining and processing capacity in the United States. Securing these supply chains is essential to the development of the [clean energy economy](#) that the administration has pledged to build.

Tackling the Climate Crisis Requires Access to Strategic and Critical Minerals

Just after taking office, President Biden issued [Executive Order 14008](#), grounding the climate crisis in all U.S. foreign policy and national security concerns. The order sets climate-conscious procurement requirements for the government and a zero-emissions target for all government vehicles. Using one of the most effective tools at the government's disposal—procurement power for its sprawling operations—the order aims to provide "an immediate, clear, and stable source of product demand" that could "help to catalyze private sector investment into, and accelerate the advancement of America's industrial capacity to supply domestic clean energy, buildings, vehicles, and other necessary products and materials.

Advancement of American clean energy, buildings, vehicles, and other technology will not occur without access to stable supply streams of critical minerals. As noted by the [International Energy Agency](#) (IEA) in its recent report on the role of critical minerals in clean energy transitions, clean energy technologies "require more minerals to build than their fossil fuel-based counterparts." As an example of the higher need for these minerals, depending on the path towards decarbonization policymakers choose, cobalt demand could jump from six to 30 times by 2040. Demand for other minerals essential to clean energy development will rise similarly. The IEA found it crucial that countries "explore a range of measures to improve the resilience of supply chains for different minerals, develop response capabilities to potential supply disruptions and enhance market transparency." Unfortunately, the United States has [fallen behind](#) other countries in securing access to these critical minerals.

Biden's Continued Efforts to Support Supply Chain Resilience

Recognizing the importance of resilient supply chains, President Biden issued [Executive Order 14017](#) in February of 2021, noting the myriad threats, from pandemics to geopolitical competition, on secure supply chains. The order observed a link between more resilient supply chains and greater domestic production, and announced an official policy of the Biden administration to "strengthen the resilience of America's supply chains." The executive order built upon Trump's E.O. 13953, asking each agency to deliver reports identifying risks in the supply chain critical to its mission, and recommending steps to strengthen supply chain resilience. The secretary of energy, in coordination with other agencies, was asked to identify risks in the supply chain for high-capacity batteries, including electric vehicle batteries, and policy recommendations to address those risks.

In June of 2021, the Biden administration [announced](#) a Supply Chain Disruptions Task Force to address short-term supply chain discontinuities. As part of the task force, the U.S. Department of Energy (DOE) was tasked with releasing a National Blueprint for Lithium Batteries, codifying "the findings of the battery supply chain review in a 10-year, whole-of-government plan to urgently develop a domestic lithium battery supply chain that combats the climate crisis by creating good-paying clean energy jobs across America." DOE's Loan Programs Office (LPO) was instructed to "immediately" leverage the approximately \$17 billion in loan authority in the Advanced Technology Vehicles Manufacturing Loan Program to support the domestic battery supply chain, including making loans to manufacturers of advanced technology vehicle battery cells and packs for reequipping, expanding, or establishing such manufacturing facilities in the United States. This authority augments the [\\$40 billion available](#) for the LPO to fund innovative energy infrastructure projects, and \$3 billion in loan guarantees available to support efficient end-use energy technologies, such as mining, extraction, processing, recovery, or recycling technologies, of critical materials projects that satisfy Title 17 requirements.

As part of the task force, the U.S. Department of the Interior (DOI), in cooperation with other agencies and relevant stakeholders, was asked to identify sites where critical minerals could be produced, processed, and see expanded production in the United States while adhering to environmental, labor, and sustainability standards.

In October of 2021, President Biden streamlined the National Defense Stockpile by signing [Executive Order 14051](#) to authorize release of strategic and critical materials to the under secretary of defense for acquisition and sustainment. The federal list of critical minerals was also updated to list additional minerals essential to economic or national security and vulnerable to disruption. Agencies were directed to prioritize the production and processing of minerals necessary to produce "key products like batteries." The DOE, the U.S. Department of Defense (DOD), and the U.S. Department of State (DOS) also recently signed a memorandum of agreement to better coordinate stockpiling activities to support the nation's transition to clean energy and national security needs.

On February 24, 2022, the administration redoubled its efforts, [announcing a plan](#) to "Revitalize American Manufacturing and Secure Critical Supply Chains in 2022." The plan noted that "The United States must ensure we are not dependent on foreign or single sources for critical minerals." Included in these strategies, the administration announced plans to expand domestic rare earth processing, strengthen the National Defense Stockpile, update mining regulations to ensure sustainable and responsible practices, and issue recommendations for the comprehensive reform of outdated mining laws. As part of these efforts, DOE [released a \\$44 million funding](#) opportunity to "provide commercial-ready technologies that give the United States a net-zero or net negative emissions pathway toward increased domestic supplies of copper, nickel, lithium, cobalt, rare earth elements, and other critical elements required for a clean energy transition."

Implications

Securing American supply chains for the development of strategic and critical minerals is essential to the development of the clean energy revolution. In addition, and as both this administration and its predecessor recognized, securing these materials is also imperative to maintaining American supply chains for other critical needs and to avoid hardships to consumers caused by unexpected geopolitical events. President Biden's invocation of the Defense Production Act to support supply chains for minerals essential to clean energy development is an important step. It is important to recognize that early action and planning are necessary to insulate the United States and its allies from the effects of global supply chain disruption. Equally significant is recognizing the relationship of a reliable supply chain to [permitting](#), as the permitting process for mines and other infrastructure can [last decades](#). Project proponents that encounter resistance in the permitting processes at any agency should attempt to use these policy documents to the fullest extent.

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