

Critical Minerals: Domestic Mining, Supply Chains and U.S. Policy Summary of Comments - April 2023

On April 12, 2023, OurEnergyPolicy hosted a discussion on the challenges posed by the energy transition's powerful need for raw materials.

Find the recording [here](#).

SPEAKERS



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Summary of Key Points

- Designing the domestic critical minerals supply chain with the realistic goal of recycling all materials will avoid continuous or excessive mining and limit environmental impacts.
- Permitting processes pose the greatest barrier to accessing domestic critical mineral supplies in a timely manner, and require reform to meet clean energy goals.
- Enabling transparency throughout the international supply chain will aid in developing smart, effective policies.
- Examining the environmental and labor practices of international supply chains is necessary.
- Investing in beneficial trade relationships with friendly foreign partners will play a key role in reducing U.S. dependence on Chinese imports.

The U.S. Critical Minerals Supply Chain

- The U.S. is heavily (50-100%) [dependent on foreign imports](#) for most of its mineral requirements including zinc, manganese, cobalt, nickel, lithium, and rare earth elements, which are all vital to clean energy technologies. Mineral imports will continue to be vital throughout the U.S. clean energy transition.
- The U.S. can produce [some minerals](#) domestically, but resources are limited. Investing in research for recycling and reuse processes is vital to make this a long-term sustainable supply.

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Clean Energy Depends on Critical Minerals

- Manufacturing electric vehicles, wind turbines, solar panels, batteries, power transmission infrastructure, and other clean energy technologies require critical minerals.
 - One key indicator of energy security is the lifespan of these technologies, but current estimates vary widely. Investing in research to determine more accurate measurements will enable better planning for the mineral needs of clean energy at scale.
- The U.S. will continue to depend on international imports for much of its critical mineral needs, but the status quo of international supply chains calls for scrutiny.
 - As the U.S. seeks to reduce its reliance on China, there is an opportunity to scale up relationships with free trade partners as well as develop bilateral relationships with countries from which the U.S. currently does not receive mineral imports.
 - In working toward a more sustainable and ethical international critical minerals supply chain, developing new multilateral mining standards may not be the most effective approach. Analyzing and comparing the efficacy of existing initiatives may better help determine the best path forward.
 - Recycling and reuse will play a key role in reducing U.S. dependence on foreign imports and mining in the next few decades and in the long-term future.
- Transparency in planning is key to scaling up a sustainable domestic critical minerals mining industry.
 - [Estimates](#) project the need for hundreds of mines globally, not thousands, and analysts have [mapped](#) available domestic reserves allowing practitioners to plan accordingly. Planning for mine closures from the outset will enable a smoother transition to a closed-loop critical mineral economy in a few decades.
 - The greatest hurdle to accessing domestic supplies is the [permitting process](#). Making these reserves operational within the next 7-10 years is key to accelerating the energy transition and achieving clean energy targets as set by the Inflation Reduction Act.
 - Most domestic reserves are within 15 miles of Tribal land, so involving Native Tribes from the outset of project planning is crucial to both address ethical concerns and to bring reserves online in a timely manner.

Considerations for the Future

- Domestic production and international imports will both play key roles in fulfilling the needs of clean energy technologies but within a few decades the U.S. must aim to make this a closed-loop system dependent on material recycling and reuse.
- Material needs are a crucial barrier to the energy transition, but it is important to consider the entire energy value chain to address other roadblocks, such as financing for technological innovation and the workforce gap.
- Community involvement from the outset of domestic critical mineral mine planning is crucial to promote a sustainable and ethical domestic supply chain.