What are Critical Minerals?
- Executive Order (E.O.) 13817 defines a "critical mineral" as a mineral identified by the Secretary of the Interior to be a non-fuel mineral or mineral material essential to the economic or national security of the U.S. and which has a supply chain vulnerable to disruption.
- Critical minerals are also characterized as serving an essential function in the manufacturing of a product, e.g., lasers, magnets, semiconductors, batteries, the absence of which would have significant consequences for the economy or national security.

National Security Nexus
- The US is heavily reliant on imports of several critical minerals for manufacturing advanced technologies. The global supply chains for many of these minerals are vulnerable to adverse foreign government actions, which introduces a counterintelligence risk to US national security goals.
- A counterintelligence strategic objective is to protect critical technologies, which must include protecting critical mineral supply chains.
- Protecting critical technologies maintains the US's technological advantage and advances our commitment to combat global climate change.
- Achieving 100% clean electricity by 2035 and a net-zero emissions economy by 2050 will involve a massive domestic build-out of clean energy technologies requiring a scale-up in critical mineral supply chains, both domestically and globally.

Clean Energy Critical Minerals
Clean energy technology crucial to our transition away from fossil-fuels includes solar photovoltaic (PV) plants, wind farms, and electric vehicles (EV), which require significantly more minerals than their fossil fuel-based counterparts.
- The types of mineral resources used vary by technology.
  - Lithium, nickel, cobalt, manganese and graphite are crucial to batteries.
  - Rare earth elements (REEs) are essential for permanent magnets that are vital for wind turbines and EV motors.
  - Electricity networks need a huge amount of copper and aluminum, with copper being a cornerstone for all electricity-related technologies.

Sourcing and processing of many energy transition minerals is concentrated geographically.
- The Democratic Republic of the Congo (DRC) and People's Republic of China (China) were responsible for some 70% and 60% of global extraction of cobalt and REEs respectively in 2019.
- The level of concentration is even higher for processing operations, where China has a strong presence across the board. China's share of refining is significantly more minerals than their fossil fuel counterparts.
- Achieving 100% clean electricity by 2035 and a net-zero emissions economy by 2050 will involve a massive domestic build-out of clean energy technologies requiring a scale-up in critical mineral supply chains, both domestically and globally.

References
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