Securing Critical Minerals:
Unlocking America's Offshore Potential

The Challenge: U.S. Dependence on Foreign Supply Chains

America's economic strength, energy security, and national defense rely on a steady supply of critical minerals like cobalt, nickel, manganese, and rare earth elements.[1] These resources power everything from EV batteries and renewable energy systems to advanced defense technologies and medical devices. Yet today, the United States is overwhelmingly dependent on foreign-controlled supply chains, particularly China, which dominates production, processing and refining. This dependency threatens U.S. competitiveness and leaves our nation vulnerable in an era of rising geopolitical tension.

The Opportunity: America's Offshore Frontier

According to the Bureau of Ocean Energy Management (BOEM), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Geological Survey (USGS), many of these minerals occur on the U.S. Outer Continental Shelf (OCS), within the U.S. Exclusive Economic Zone, and in areas beyond national jurisdictions. Though commercial deep-sea mining has yet to launch at full scale, U.S. offshore energy and infrastructure companies are uniquely positioned to lead.

These companies—already proven leaders in safely operating in deepwater, complex marine environments—bring:

- **Advanced geophysical mapping & seafloor imaging** to identify resources
- **Subsea robotics & remote operations** to explore at depth safely
- **AI-driven analytics & digital twin technologies** to improve efficiency, transparency and safety
- **Proven offshore engineering & marine logistics** from oil and gas development
- **Modern, multi-purpose vessel fleet** with trained and credentialed mariners

The Payoff: National Security and Economic Growth

According to the Bureau of Ocean Energy Management (BOEM), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Geological Survey (USGS),[2] many of these minerals occur on the U.S. Outer Continental Shelf (OCS), within the U.S. Exclusive Economic Zone, and in areas beyond national jurisdictions. Though commercial deep-sea mining has yet to launch at full scale, U.S. offshore energy and infrastructure companies are uniquely positioned to lead.

These companies—already proven leaders in safely operating in deepwater, complex marine environments—bring:

- **Strengthen U.S. and allied supply chains**, reducing reliance on adversaries
- **Support high-skill, high-wage jobs** across engineering, maritime, and technology sectors
- **Fuel domestic innovation,** ensuring access to materials essential for EVs, power generation and transmission, advanced manufacturing, and defense system
- **Global competitiveness**—ensuring America leads in off and onshore technology enterprise, defense, and advanced manufacturing.

Responsible Development: America's Advantage

The U.S. offshore industry is one of the most regulated, technologically advanced, and environmentally responsible sectors in the world. American companies engaged in the development of the deep-sea mining industry are defined by a culture of safety, innovation, and stewardship to ensure responsible, sustainable ocean mineral development.

1 https://www.iea.org/data-and-statistics/data-tools/critical-minerals-data-explorer

2 https://pubs.usgs.gov/fs/2025/3017/fs20253017.pdf; https://repository.library.noaa.gov/view/noaa/69973

Pioneering Environmental Research

Investment in exploration and in-field test mining trials by U.S. institutions and companies have resulted in a wealth of environmental data that directly challenge speculation as to the impacts of extracting the deep-sea resource of greatest commercial interest: polymetallic nodules. Test mining conducted by The Metals Company in 2022 under the assessment of DHI, as well as seafloor collection testing conducted by Global Sea Mineral Resources under the assessment of MIT identified that over 90% of the sediment mobilized by collector robots settles rapidly within a few kilometers, findings echoed by decades of earlier research by NOAA, previous MIT studies, among others, which report minimal and manageable impacts from sediment plumes. U.S. technological leadership in this space has also enabled multiple state-led marine research organizations to undertake further research, with over $2 billion invested across more than 300 research expeditions since the 1960s. Open source data sharing of this critical research has substantially expanded the world's understanding of deepsea ecosystems.[3] Virtually all major concerns around deep-sea nodule mining in abyssal plains have been assessed and quantified.[4] Moreover, multiple lifecycle assessments comparing the relative impacts of sourcing critical minerals from polymetallic nodules versus other ore types have been published, including third party verified, ISO-compliant reports and peer-reviewed publications.[5]

China's Grip Is Tightening

China is investing heavily in the technologies required for deep sea mining and sponsors the most International Seabed Authority (ISA) exploration contracts of any country, positioning the country to access critical minerals like cobalt, nickel and manganese.[6] While other nations and contractors have more advanced offshore technologies, China's state support, influence on the development of international regulations, integrative approach to scientific and commercial activities, and strong metal processing and refining capabilities position it to monopolize the future of deep sea mining unless American and U.S. allies can leverage current offshore advantages in reaching commercial production prior.[7]

The stakes are clear: without secure domestic and allied mineral supply chains, the U.S. risks ceding economic stability, technological leadership, and national security to adversaries.[8]

U.S. Policy Momentum: Expanding Critical Mineral Supply Chains

We must now act with urgency with continued enabling policy:

- **Executive Order 13817 *A Federal Strategy To Ensure Secure and Reliable Supplies of Critical Minerals* (2017):** Launched a national strategy to reduce dependence on foreign critical minerals.
- **Executive Order 14154 *Unleashing American Energy Order* (2025):** Positioned the U.S. as a global leader in non-fuel mineral production.
- **Executive Order 14156 *Declaring a National Energy Emergency* (2025):** Declared a national emergency to expand domestic mining, countering China's dominance.
- **2025 National Defense Authorization Act:** Directed the Defense Industrial Base to study U.S. refining of deep-sea nodule-derived intermediates.
- **Executive Order 14285 *Unleashing America's Offshore Critical Minerals and Resources* (2025):** Launched a national strategy to develop a robust domestic supply for critical minerals derived from seabed resources.
- **Champions** like Secretary of State Marco Rubio[9] and Secretary of Commerce Howard Lutnick[10] have called for deep-sea mining to counter China's resource monopoly.

3 https://obis.org; https://marinespecies.org/deepsea/; https://www.ncei.noaa.gov/products/marine-geology-geophysics; https://www.marine-geo.org
4 https://vimeo.com/938825657/17800ab926?share=copy
5 https://doi.org/10.1016/j.jclepro.2021.129884; https://doi.org/10.1016/j.jclepro.2020.123822; https://metals.co/wp-content/uploads/2025/04/Final_NORI_D_PFS_LCA_Report_Nov2024.pdf; https://metals.co/wp-content/uploads/2023/03/TMC_NORI-D_LCA_Final_Report_March2023.pdf
6 https://www.stimson.org/2024/race-to-the-deep/
7 https://phys.org/news/2025-06-china-deep-sea-strategy.html
8 https://www.foreignaffairs.com/united-states/troubled-energy-transition-yergin-orszag-arya
9 https://x.com/SecRubio/status/1915521386732261812
10 https://www.youtube.com/live/woZ2aCvjmvo?t=8335s
11 https://www.iea.org/topics/critical-minerals

Why Act Now

Global demand for critical minerals is projected to quadruple by 2040.[11] If America fails to act, adversaries like China will cement their dominance over supply chains vital to our economy, security, and allies. With its unmatched offshore expertise, America is positioned to lead and protect our national interests while building the next frontier of American energy and industrial strength.