

## Questions for the Record

### Hearing on “Part of Your World: U.S.-China Competition Under the Sea”

Response from Seaver Wang  
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#### Question:

*In your oral testimony, you said that equity is a valuable tool but that until industry demonstrates end-to-end production, it may be too volatile and high-risk for taxpayer exposure. Could you explain further how and when you think equity stakes should be deployed?*

#### Response:

Conceptually, seafloor mineral collection is the kind of nascent technology area where government equity investments can be positively impactful. Aspiring operators have no ongoing revenue with which to service debt, making public support via debt financing a relatively incompatible avenue for public-private seafloor mineral partnerships. Equity structures would also allow the public sector to benefit from future upside potential to compensate for the risk exposure associated with providing backing to a yet-unproven industry. However, under current circumstances, several important considerations unique to this sector may give policymakers pause if contemplating equity instruments as a tool to advance the commercial development of seafloor nodules.

First, due to gaps in processing capabilities and unclear downstream demand signals from the battery sector and other domestic industries for processed seafloor metals, it is not yet sufficiently clear that seafloor nodule collection specifically benefits the United States to the needed degree to justify support via equity investments. Even assuming that nodule operations perform domestic processing as currently required by the Deep Seabed Hard Mineral Resources Act, policymakers should consider whether a significant share of processed materials would likely—or would have to be—exported overseas for further transformation into finished goods and products.

Public sector support should serve a clear purpose. In the case of seafloor minerals, the long-term strategic purpose of federal policy should be to pursue this emerging sector as a potential alternative option for supplying and supporting a domestic manufacturing ecosystem for battery

active materials, steel alloys, and superalloys. At the same time, policymakers should strive to develop a U.S. competitive edge in seafloor mineral collection and processing technologies, including undersea platforms and capabilities with dual-use potential. Considering these goals, however, financially backing one or several companies does not solve key obstacles like regulatory barriers, techno-economic challenges to developing viable processing capacity, or a stagnating recent trend of investment in downstream domestic battery manufacturing. Other policy interventions like regulatory development and modernization currently command precedence and may be more impactful in the near term.

Second, a major concern is that equity investments in seafloor minerals may create a conflict of interest for the federal government, which is also responsible for developing the governance framework for administering this emerging industry. Taking equity stakes in seafloor mineral companies would risk pitting the federal government's interest in maximizing upside for the taxpayer against its duty to hold operators accountable to high standards of environmental, labor, and operational conduct. At this time, a prominent equity investment in seafloor minerals may even backfire by provoking strong negative reactions from policy stakeholders and the general public, damaging not only the industry's ability to advance but also the taxpayer's ensuing financial stake.

Third, the federal government should consider that absent policy intervention, seafloor minerals projects would compete in the same global commodity markets as mine production from promising U.S. terrestrial copper-nickel-cobalt prospects. Signaling a preference for seafloor mineral production through targeted investments could complicate broader opportunities for the U.S. to simultaneously pursue terrestrial and seafloor resources and thereby secure a more advantageous and diversified position in these commodity chains.

Fourth and relatedly, this raises the broader consideration that the federal government's ability to provide equity capital in support of greater critical minerals security objectives is ultimately finite. As such, policymakers should consider the opportunity cost of funding seafloor nodule operators and whether investing the same equity capital in a different sector or sectors might more impactfully alleviate U.S. critical mineral supply vulnerabilities.

Finally, until seafloor mineral companies demonstrate a more sustained capability to recover nodules during prolonged commercial-scale operations—a milestone that operators should conceivably be able to challenge within years if not today—taxpayers may still be exposed to too much downside risk to warrant equity stakes at this time. Even assuming reliable collector system operation, seafloor nodule recovery will still be inherently susceptible to risk from production stoppages just as conventional terrestrial mines are. Despite the potentially favorable position of seafloor mineral operations on the global nickel cost curve, mining projects remain inherently volatile investments. Seafloor mineral operations may additionally face some unique risks including vessel accidents and interference with operations at sea by state, non-state, and grey-zone actors.

A well-structured public-private partnership that employs equity capital must also include a predetermined, automated exit strategy tied to a clear commercialization milestone, such as harvesting of a given tonnage of nodules or delivery of a given quantity of processed materials.

Such an exit mechanism ensures that the government ceases to intervene in the target market once the investment has accomplished its strategic objective, avoiding politically-complicated prolonged management of individual companies that may be subject to conflicting incentives.

On this topic of equity stakes in general, I would refer the Commission to an excellent commentary by Arnab Datta exploring best practices and guiding principles for equity investments by the federal government as a strategic industrial policy tool.<sup>1</sup>

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<sup>1</sup> Datta, Arnab. “A User’s Guide to Government Equity Investing.” Factory Settings. February 6, 2026.  
<https://www.factorysettings.org/p/a-users-guide-to-government-equity>