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A Multilateral Commercial Stockpile for Critical Minerals

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Executive Summary

China distorts global markets for critical minerals through subsidies, export controls, and price manipulation, threatening U.S. and allied industry. Drawing lessons from stockpiles in history, we propose establishing a U.S.-led multilateral critical minerals stockpile (MCS), implemented by regulated private operators. The goals are to stabilize the commercial market during times of geopolitical stress and facilitate the creation and sustainment of liquid spot markets for more of these minerals.

The proposed MCS will:

1. Stockpile at least 12 months of peacetime demand for the critical minerals with industrial uses that are most vulnerable to supply chain disruptions from China.
2. Purchase these minerals under normal market conditions and store them on federal land and/or in allied countries.

3. Disperse minerals into the commercial market when China's actions spike prices or disrupt supply.

The existence of such a mechanism would mitigate the coercive leverage China enjoys over the United States and its allies thanks to its control of mineral supply chains. The paper proposes a detailed schematic concept for broader discussion and possible implementation.

China's Market Manipulation: An Urgent Threat

The strategic threat from China's critical minerals dominance is no longer theoretical. In April 2025, following President Trump's high tariffs on Chinese goods, Beijing retaliated by restricting rare-earth exports, sending shock waves through global supply chains.[1] Globally, factories across multiple industries, including a Ford plant, were forced to close temporarily as they couldn't secure alternative supplies.[2] This episode demonstrated how China can leverage its dominance in critical minerals processing. China controls more than 90% of global processing capacity for some critical minerals. China's stranglehold extends far beyond mining to encompass the refining and processing capabilities that Western nations allowed to atrophy over decades. China exploits this market power for strategic coercion.[3]

Building non-Chinese supply chains in this environment is extremely difficult. The Chinese government has provided hundreds of billions in subsidies for its mining and metallurgy industries, including nearly $60 billion for just the international mining operations of its companies. This number is 15-fold larger than that of the United States.[4] China's critical minerals sector is heavily state-directed, and therefore relatively insensitive to changes in market prices. Private investors overseas face the constant threat that China might deliberately

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[1] Keith Bradsher, "China Halts Critical Rare-Earth Exports as Trade War Intensifies," New York Times, April 13, 2025, https://www.nytimes.com/2025/04/13/business/china-rare-earths-exports.html.

[2] Megan Cerullo, "Ford CEO Says Rare-Earths Shortage Forced It to Shut Factory," *CBS MoneyWatch*, updated June 13, 2025, https://www.cbsnews.com/news/ford-ceo-china-rare-earth-shortage-car-production/#:~:text=Ford%20CEO%20Jim%20Farley%20said,rare%20earths%20to%20the%20U.S.

[3] U.S. House of Representatives, Select Committee on the Strategic Competition between the United States and the Chinese Communist Party, *Creating Resilient Critical Mineral Supply Chains: Final Report of the Critical Minerals Policy Working Group* (Washington, D.C.: U.S. Government, 2024), https://selectcommitteeontheccp.house.gov/sites/evo-subsites/selectcommitteeontheccp.house.gov/files/evo-media-document/Critical%20Minerals%20Report%20Cover%20%281%29-merged.pdf.

[4] AidData at William & Mary, *Power Playbook: Beijing's Bid to Secure Overseas Transition Minerals* (Williamsburg, VA: AidData, January 2025), https://www.aiddata.org/china-transition-minerals.

crash prices at any time, as it has done most recently in July 2025.[5] Beijing has repeatedly demonstrated its willingness to sacrifice short-term profits to maintain long-term strategic control.

The U.S. Response to Date: Necessary but Insufficient

In recent weeks, the U.S. government has taken unprecedented steps to confront this threat. The One Big Beautiful Bill (OBBB), signed July 4, 2025, allocated $9.5 billion toward domestic critical minerals capabilities, including $7.5 billion to the Department of Defense and $2 billion for energy dominance and Defense Production Act purposes.[6] More recently, the Pentagon struck a groundbreaking deal with MP Materials, taking a 15% equity stake and guaranteeing billions in investments and purchases to support rare-earth magnet production.[7] Today, the entire U.S. production of the main type of rare-earth magnet is just 250–750 tons. By 2028, MP alone now plans to increase production to 10,000 tons.[8]

These initiatives are important, but they also illuminate the difficulty of breaking allied vulnerability to China's coercion one deal at a time. The MP Materials deal includes a government-guaranteed price floor specifically to protect against scenarios where China floods the market to render the company's production non-competitive.[9] This protection acknowledges that individual companies cannot create a critical minerals supply chain outside China unless the U.S. or allied governments commit to creating a market and protecting it from manipulation.

A deeper problem is that many critical minerals have no functioning exchange-traded market at all.[10] This means that—unlike oil, gold, or agricultural commodities—they lack transparent price

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[5] Rebecca Feng, "Chinese Rare-Earth Magnet Exports Surge After U.S. Trade Truce," *Wall Street Journal*, July 20, 2025, https://www.wsj.com/world/asia/chinese-rare-earth-magnet-exports-surge-after-u-s-trade-truce-f9f6e059

[6] John Zadeh, "One Big Beautiful Bill: Critical Minerals Funding Unlocked for US Security," *Discovery Alert*, July 17, 2025, https://discoveryalert.com.au/news/one-big-beautiful-bill-2025-critical-minerals-funding/

[7] Jonathan Emont, "Pentagon to Take Stake in Rare-Earth Company, Challenging China's Control," *Wall Street Journal*, July 10, 2025, https://www.wsj.com/business/mp-materials-enters-multibillion-dollar-partnership-with-defense-dept-c8f9f806

[8] Ibid.

[9] Ibid.

[10] International Energy Agency, *Global Critical Minerals Outlook 2024* (Paris: IEA, May 21, 2024), 244–47, https://www.iea.org/reports/global-critical-minerals-outlook-2024.

discovery mechanisms and hedging instruments. Instead, the market is composed of thousands of opaque deals, known as offtake agreements. This market failure creates a chicken-and-egg dilemma for any effort to build more production outside China. Buyers, uncertain about future prices, resist long-term purchase commitments that could lock them into high prices. Producers, in turn, won't invest to expand production without confidence that they can sell what they produce.

China exploits these thin, opaque markets to maximum effect. Beijing can manipulate pricing through its licensing regime, extract intellectual property from foreign companies seeking market access, and target potential competitors before they achieve scale. The recent export restrictions demonstrated how quickly market disruptions translate into factory shutdowns when companies lack hedging mechanisms or marketplaces to source alternative supply.

The National Defense Stockpile, newly recapitalized under the OBBB, serves the U.S. military's need for critical mineral inputs—but U.S. commercial demand is many times larger. The Pentagon is neither equipped nor designed to provide the MP Materials treatment for every critical mineral. What is needed is market infrastructure that enables commercial firms to hedge risks independently while providing the stability necessary for private investment in alternative supply chains.

The Allied Opportunity

America's allies face identical vulnerabilities and similar resource constraints. Rather than each nation negotiating separate deals with individual companies, a multilateral approach leverages comparative advantages, shares costs, and achieves the scale necessary to credibly counter Chinese market manipulation. The EU, Japan, South Korea, Canada, and Australia also possess world-class mining capabilities.

While the United States could possibly build out its capacity to mine, refine, and process critical minerals almost completely unilaterally, that approach might not be ideal for several reasons.

First, going it alone would take longer and cost more than leveraging mining capabilities that already exist among like-minded allies. (The US economy currently consumes roughly $5 billion of the highest-priority critical minerals annually).[11] Facilities would need to be built. Workforces would need to be trained. Regulatory environments (particularly at the local level) would need to be changed to permit and encourage what are often environmentally unappealing

[11] This $5 billion figure reflects the annual US consumption for the 20 high priority critical minerals. See Appendix A.

extraction, processing and refining. All of this would take time. The current situation calls for speed.

Second, if the US sought complete autarky in critical minerals, it would require providing long-term, market-distorting subsidies. It is not in the US national interest to establish a chronically lossmaking critical minerals industry that is not globally competitive and can survive only with permanent taxpayer support. Allies and partners would also remain vulnerable to China's coercion.

Third, leveraging resources and capabilities among allies would save US taxpayers' money. It is cheaper (and more cost effective) to buy semi-finished supply from reliable specialists than to build that capability from scratch.

Fourth, multilateral cooperation on this problem could reinforce our strategic partnerships among our strongest alliance partners. Done well, such economic integration can be diplomatically beneficial as mutually advantageous economic links generate aligned preferences that can grow over decades of cooperation.

Fifth, our allies are already acting to secure their own interests. Without coordination, these efforts could end up costing everyone more money. The European Union's stockpiling strategy, released July 9, 2025, explicitly acknowledges that "emergency stockpiles can also be a buffer while disrupted supply chains adapt to a new reality" for materials like rare earths and permanent magnets.[12] Japan has maintained a commercial stockpile for critical minerals since 1983.[13] It has since scaled up and is now operated by the Japan Organisation for Metals and Energy Security (JOGMEC).[14]

JOGMEC's approach demonstrates the viability of government-backed institutions that combine strategic stockpiling with active support for private sector mineral security. It maintains

[12] European Commission, *Proposal for a Regulation of the European Parliament and of the Council Establishing a Framework for Ensuring a Secure and Sustainable Supply of Critical Raw Materials and Amending Regulations (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1724 and (EU) 2019/1020*, COM(2023) 160 final (Brussels, March 16, 2023), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0160.

[13] Hirotoshi Kunitomo, *JOGMEC's Strategical Support Systems for Metal Mining Activities* (Tokyo: Japan Oil, Gas and Metals National Corporation [JOGMEC], ca. 2005), 15–16, https://www.mmta.co.uk/wp-content/uploads/2017/02/Japan-stockpile-JOGMEC.pdf.

[14] International Energy Agency, "International Resource Strategy – National Stockpiling System," *IEA Policies*, April 9, 2025, https://www.iea.org/policies/16639-international-resource-strategy-national-stockpiling-system.

reserves of materials such as rare earths, tungsten, and other critical minerals while providing billions of yen annually in financing and risk guarantees to help Japanese companies secure overseas mineral resources. This model validates the MCS concept of using public backing to enable and incentivize private sector participation in strategic materials markets.

Allies are hungry for U.S. leadership. The EU strategy calls for enhanced cooperation with "like-minded partner countries" on strategic stockpiling and includes establishing a Critical Raw Materials Centre in 2026 to "jointly purchase raw materials on behalf of interested companies."[15] These existing allied frameworks create natural coordination points for MCS integration rather than requiring entirely new institutional architectures.[16]

Finally, allied participation creates a larger, more resilient market for critical minerals while spreading the cost burden of maintaining a strategic reserve. This coordination is essential for developing the deep, liquid markets that can eventually support futures and derivatives trading, enabling commercial firms to hedge price and supply risks with minimal government intervention.

Strategic Objectives

A properly designed MCS would serve three complementary functions that individual deals such as the MP Materials deal cannot achieve at scale.

First, in peacetime, it provides a buffer that reduces China's ability to manipulate prices and restrict supply across all high-priority critical minerals.

Second, during crises involving export restrictions, it serves as a bridge enabling broader decoupling from Chinese supply chains while alternative sources scale up.

Third, it underpins the liquidity necessary for functioning exchange-traded markets. The analogy to petroleum markets is instructive. Strategic petroleum reserves have repeatedly

[15] European Commission, "Clean Industrial Deal," *EU Competitiveness*, European Commission, April 2025, https://commission.europa.eu/topics/eu-competitiveness/clean-industrial-deal_en.

[16] "Statement by President von der Leyen at Session II – Working Lunch on Joint G7 Action on Critical Raw Materials," *Press Corner*, European Commission, June 21, 2025, https://ec.europa.eu/commission/presscorner/detail/it/statement_25_1522.

stabilized global oil markets during supply disruptions, while robust futures markets enable commercial hedging and efficient resource allocation.[17]

The goal is not just emergency reserves but the creation of sustainable, competitive markets that reduce long-term dependence on Chinese manipulation.

The Solution: Systematic Market Infrastructure

We propose creating a multilateral, sovereign-backed public-private corporation designed to procure and manage a commercial critical minerals stockpile.

The proposed MCS will:

1. Stockpile critical minerals most vulnerable to supply chain disruptions that adversely impact the commercial industrial base.
2. Purchase and store key critical minerals during normal conditions—and particularly when prices are low. This will blunt adversarial manipulation designed to drive alternative producers out of the market even as it fills the stockpile at adversary-subsidized prices.
3. Disperse minerals into the commercial market when prices spike or supply disruptions occur, including those arising from geopolitical coercion or export controls.

Historical Lessons

History provides warnings about the types of challenges likely to face a U.S. stockpile for critical materials for non-defense requirements. The U.S. National Stockpile, created during World War II and maintained in a dual civilian-military role until its 1979 realignment as the defense-focused National Defense Stockpile, offers the closest historical antecedent.

This section draws on the 1946–1979 experience with the National Stockpile, augmented with other domestic and international efforts with similar objectives. The list is not exhaustive. Our goal is simply to anticipate and deal with obvious design challenges.

[17] For some materials, the volumes are too small to sustain a supply and demand market. For those minerals, the stockpile will ensure reliable access at predictable prices. See Appendix A.

U.S. National Stockpile (1946–1979)

In June 1939, with war in Europe seemingly imminent, Congress authorized the Strategic and Critical Materials Stock Piling Act in order to "encourage the development of mines and deposits of "strategic and critical materials within the United States, and thereby decrease and prevent … costly dependence of the United States upon foreign nations for supplies of these materials in times of national emergency."[18] This bill, which is an oddly prescient antecedent for the current moment, tasked the Secretary of War, Secretary of the Navy, and the Secretary of the Interior to "determine which materials are strategic and critical … and to determine the quality and quantities of such materials which shall be purchased."[19]

This national stockpile was institutionalized in 1946 by Congress with a target of $2.1 billion ($35 billion in 2025 dollars) in strategic and critical materials.[20] In 1979, this stockpile was restricted to defensive use only – creating the National Defense Stockpile – and it became prohibited to use "stockpile sales as a means of controlling or influencing commodity prices."[21]

The national stockpile during the 1946-1979 timeframe faced a variety of challenges that can be instructive for current efforts. The first were concerns raised by President Truman about creating such a stockpile without collaboration with U.S. allies and partners. The statement accompanying his signature highlighted the risk that "Buy American" rules might be used for "generally subsidizing those domestic producers who otherwise could not compete successfully with other domestic or foreign producers."[22] Truman concluded that buying solely American-produced minerals would "not only materially increase the cost of the proposed stockpiles but would tend to defeat the conservation and strategic objectives of the bill by further depleting our already inadequate underground reserves."[23]

A second challenge – which was raised in 1946 when the stockpile was institutionalized by the Congress as a capability for peacetime – is that such a stockpile could impede effective market

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[18] U.S. Congress, *Strategic and Critical Materials Stock Piling Act*, Public Law 76-117, June 7, 1939, in *Statutes at Large* 53 (1939): 811–12, https://govtrackus.s3.amazonaws.com/legislink/pdf/stat/53/STATUTE-53-Pg811.pdf.
[19] Ibid.
[20] U.S. Congress, *Strategic and Critical Materials Stock Piling Act Amendments*, Public Law 79–520, July 23, 1946, in *U.S. Statutes at Large* 60 (1946): 586–96, https://tile.loc.gov/storage-services/service/ll/llsl/llsl-c79s2/llsl-c79s2.pdf; Alfred R. Greenwood, *The Pros and Cons of the Transfer of the National Defense Stockpile to the Department* (dissertation, U.S. Army War College, December 20, 1984), 3.
[21] Greenwood, *Pros and Cons*, 3.
[22] Harry S. Truman, "Statement by the President Upon Signing the Strategic and Critical Materials Stockpiling Act," *The American Presidency Project*, July 23, 1946, https://www.presidency.ucsb.edu/node/231893.
[23] Ibid.

functioning.[24] In particular, using the stockpile to regulate prices on an ongoing basis would "impede the reconversion of industry to peacetime conditions."[25]

The third challenge is that stockpiles can create wasteful surpluses if quantities of materiel are not frequently updated based on national need. For this national stockpile, the quantities set based on assumptions about a World War II-scale effort were not revised when circumstances changed.[26]

A fourth challenge is the risk of distortion in the markets for affected commodities. In its civilian phase, the national stockpile was criticized by the private sector as a "disruptive influence on commodity markets." Analysts argued that politically driven "fluctuations in stockpile objectives … affected domestic mineral prices and expectations about future prices," introducing harmful uncertainty into the industry.[27] Industry officials cited "threatened disposals, actual liquidations, and the continuing existence of excess stockpile mineral inventories" as factors in inhibiting domestic investment in new capacity.[28]

Lessons: Ensure that the stockpile is not used to subsidize inefficient domestic producers when domestic allies would be able to provide at a cheaper price. Set dynamic targets and sunset triggers or the stockpile will outlive its strategic rationale and could distort markets for decades to come. Finally, establish structures to prevent politically driven decision-making.

International Commodity Agreements (1950s–1990s)

After 1945, many newly decolonized nations sought buffer-stock pacts to stabilize prices of commodities on which their budgets depended.[29] These included the International Tin Council

[24] "Memorandum by the Acting Executive Secretary of the Executive Committee on Economic Foreign Policy (Dennison) to the Members of the Committee," *Foreign Relations of the United States, 1946, General; The United Nations*, vol. 1, November 6, 1946, https://history.state.gov/historicaldocuments/frus1946v01/d597.
[25] Ibid.
[26] On the setting of the fixed, unrealistic targets, see Defense National Stockpile Center, *An Organizational History* (Fort Belvoir, VA: DLA Strategic Materials, 2012), 24–26, https://www.dla.mil/Portals/104/Documents/Strategic%20Materials/DNSC%20History.pdf.
[27] U.S. General Accounting Office, *The U.S. Mining and Mineral Processing Industry: An Analysis of Trends and Implications*, report to Congress (Washington, DC: GAO, October 31, 1979), https://www.gao.gov/assets/id-80-04.pdf.
[28] Ibid.
[29] John Baffes, "Set Up to Fail? How Commodity Agreements Collapse," *World Bank Blogs*, October 29, 2019, https://blogs.worldbank.org/voices/set-fail-how-commodity-agreements-collapse.

(1956–1985) and International Natural Rubber Organisation (1979–1999). Both failed spectacularly, harming private producers in the process.[30]

The causes of failure were similar. Politically determined pegs became unsustainable once technology and demand patterns shifted. When non-member producers ramped output, cartel market share fell below the threshold needed to move the price**.** Finally, these schemes were too highly leveraged. Tin's buffer stock was highly levered to bank credit. When prices crashed, margin calls broke the scheme.

Lessons: Avoid rigid price bands. Capitalize for a full boom-bust cycle. Pair physical stocks with *call-option style* paid access to curb free-riding.

Helium (1960–2023)

The Federal Helium Reserve offers a cautionary tale about the risks of unwinding a stockpile once established.[31] During the Cold War, the federal government overbought helium, accumulating 170 million kilograms of it—and $1.4 billion in debt. In 1995, Congress voted to sell off the reserve. The result was a helium glut and crashing prices that devastated private producers.[32] Then, as industrial demand rose again, a crippling helium shortage followed.[33]

Lessons: Stockpiles need built-in sunset clauses or predetermined rules to taper purchasing once alternative supply or market liquidity crosses a threshold.

[30] "Snapped," *The Economist*, December 16, 1999, https://www.economist.com/business/1999/12/16/snapped.

[31] Ellen Airhart, "Amarillo's Federal Helium Reserve Auction Doesn't Signify the Fall of the Helium Empire," *Texas Monthly*, May 2025, https://www.texasmonthly.com/news-politics/amarillo-federal-helium-reserve-auction/.

[32] Eric Morath, "House Moves to Avert Possible Helium Shortage," *Wall Street Journal*, April 26, 2013, https://www.wsj.com/articles/SB10001424127887324474004578446942597630314.

[33] Ana Campoy, "As Demand Balloons, Helium Is in Short Supply," *Wall Street Journal*, December 5, 2007, https://www.wsj.com/articles/SB119682793344314212.

Why This Time Can Be Different

Critics will say that the large-scale intervention in the private sector necessary for a commercial stockpile is too distortionary and too complex for the government to manage effectively. But four structural shifts tip the odds in favor of an MCS succeeding where earlier schemes faltered:

1. **Cartel opponent, not price-cycling nature.** The MCS is countering Beijing's *intentional* predatory monopoly behavior. Stabilizing the market against a political actor is easier because the shocks are episodic and have visible triggers. It also serves a fundamentally different strategic purpose.

2. **Clarity and flexibility in decisions over quantities of materials.** Technologies allow for clear determination of quantities to stockpile and how they should be adapted, allowing for flexible approaches that gradually reduce or increase over time to meet requirements and thus minimizing impacts on the economy.

3. **Digital price discovery.** Modern commodities exchanges and financial technology allow real-time auditing and adaptive trigger setting. These tools allow for more flexible operational designs than past stockpiles.

4. **Allied strategic convergence.** Unlike the North–South wrangling over coffee, the U.S. and allies that compose over half of global GDP share a common threat picture. This fact will ease burden-sharing and compliance.

Institutional Design

The rest of this working paper sketches out an institutional design that draws from these historical lessons. The details deserve further discussion.

The framework of the MCS is distinct from the existing National Defense Stockpile, which is managed by the Defense Logistics Agency (DLA). This body has some storage and procurement capabilities, as well as expertise in working with the U.S. government. These capabilities could be helpful in quickly constituting the MCS. However, a commercial stockpile will have to move more nimbly.

We propose a layered governance architecture with both sovereign and commercial oversight, and most operations performed by private stockpile operators using public capital assistance.

Board Governance Structure

The MCS is governed by a two-tiered board structure: a **Sovereign Board of Directors** that reflects the multilateral nature of the MCS leadership and a **Commercial Operations Board.** The latter includes both private sector and USG decision makers that manage day-to-day operations.

- The **Sovereign Board of Directors** consists of one political appointee from each participating country, nominated through their national governments. This Board is responsible for:
    - Approving strategic direction and overall governance frameworks
    - Setting or revising mineral priority criteria and stockpile thresholds
    - Determining sovereign contribution shares (capital or in-kind)
    - Admitting new sovereign members into the MCS framework
    - Voting on long-term multilateral investment strategies and scaling decisions
    - Providing final oversight and resolution authority on intergovernmental disputes or exceptional release cases
- The **Commercial Operations Board** is composed of senior representatives from the selected private operators and appointed officers from relevant national agencies (e.g., DoD, Commerce, USGS, or equivalent in allied nations). This Board is charged with:
    - Day-to-day execution and operational decision-making for procurement, warehousing, and logistics
    - Ensuring compliance with release criteria and price volatility thresholds
    - Overseeing vendor conduct and adjudicating malfeasance or anti-competitive behavior
    - Ensuring the accuracy and purity of the stockpiled minerals
    - Coordinating with the Office of Strategic Capital on structuring and managing loans or financial instruments to the private stockpile performers
    - Reporting quarterly on performance metrics, mineral positions, and market conditions to the Sovereign Board

Roles and Responsibilities of Private Stockpile Operators (PSOs)

PSOs are selected to perform under the MCS through a competitive Other Transaction Authority (OTA) process. They are responsible for the direct management and execution of stockpile functions under oversight from the Commercial Operations Board. Their responsibilities include:

- **Procurement Execution:** Purchasing high-priority critical minerals in alignment with MCS acquisition guidance and criteria, which are designed to support the development and sustainment of deep and liquid spot markets. The specific dynamics of such market mechanisms are likely to vary by critical mineral. The general principle should be that markets provide the most efficient allocation mechanism over the long run.
- **Inventory Management:** Securely storing the acquired stockpiled materials, maintaining transparent and auditable inventory records.
- **Premium Collection:** Managing the subscription and insurance-style premium collection system from participating commercial entities. Incentives, participation, and sustainment models need to be structured in a way that aligns commercial behavior (including possible free-riding and moral hazard challenges) with the national interest.
- **Logistics and Storage Operations:** Establishing and operating warehousing infrastructure (initially possibly through DLA or public land resources), with the capacity to transition to independent or privately maintained facilities. The MCS should be designed with an eye toward minimizing public expenditure of resources, even as the MCS addresses deficiencies and distortions (both naturally occurring and deliberately manipulated) that have prevented smoothly functioning markets from efficiently allocating these critical inputs.
- **Compliance and Reporting:** Submitting detailed operational reports to the Commercial Operations Board on procurement, pricing trends, inventory positions, and forecasted demand.
- **Release Implementation:** Executing material releases under authorization from the governing boards based on pre-established criteria. These releases would come in the form of stockpile sales to subscribing members at price levels that reflect the stabilizing purpose of the MCS.

- **Risk and Conduct Management:** Complying with performance standards, anti-collusion safeguards, and conflict of interest protocols; subject to investigation and possible sanction by the Operations Board in cases of misconduct.

The Boards' mandates are to support market stabilization goals and ensure equitable access for paying commercial participants while preserving the security and sustainability of the MCS.

The US Government will provide low or no-cost storage facility options to private stockpile operators. For example, it will make public land and real property available for secure storage of stockpiled assets. Other participating countries can store their materials in US facilities or host their pro-rated portion of stockpiled materials domestically.

Sovereign Partners

Key allied and partner governments invited to participate formally may initially include:

- Japan
- South Korea
- United Kingdom
- European Union
- Canada
- Australia
- Mexico

If nations choose to participate, they contribute to governance, seed funding, and shared response planning through representation on the Sovereign Board and operational coordination.

The United States can unilaterally activate the MCS using domestic authorities and funding—even if no other sovereign governments initially choose to participate. The ability to move unilaterally ensures strategic flexibility. The U.S. government should commit to moving forward to stabilize critical mineral markets with partners and allies while also leaving the door open to other partners that express interest in cooperating in the future. The governing rules therefore require procedures for admitting new member states.

Mineral Selection Criteria and Priority Tiering

The commercial stockpile should hold one year's worth of participating countries' annual peacetime consumption of each high-priority critical mineral. For minerals where mining and

refining capacity is severely bottlenecked, the Sovereign Board of Directors may decide to stockpile more than 12 months of current demand.

We propose bucketing critical minerals into "priority tiers" using the following five criteria:

1. **Active Supply Disruption** – e.g., export bans, quotas, or embargoes are already in effect.
2. **Domestic Capability Gaps** – key stages of the supply chain lack U.S.-based production capacity and multilateral partnering is insufficient to reliably address supply challenges.
3. **Market Concentration** – over 60% of global supply is controlled by a strategic competitor.
4. **Strategic Significance** – a larger proportion of end-use lies in defense applications relative to civilian ones.
5. **Commercial Relevance** – the mineral has broad commercial or industrial uses.

We propose beginning with a relatively small pilot effort focused on the highest-priority minerals. Of the fifty-four critical minerals, we have categorized twenty as being "high priority"—that is, meeting at least three of the above criteria.[34]

Membership

- Commercial firms from the US and member countries are eligible to participate upon payment of a subscription fee or premium. Baseline membership fees should be adjusted annually to fully fund the operations of the stockpile.
- Participating firms may then buy options to lift a certain percentage of last-year usage at a strike price if the Sovereign Board determines that conditions are met.
- Firms based in countries that are not formal sovereign members of the MCS may still apply to participate, subject to review and approval by the Commercial Operations Board.
- Participating firms must comply with eligibility, reporting, and ethical standards set by the MCS governance boards.

Stylized Historical Lessons for MSC Operations

1. **Float, don't peg.** Price bands can crack when technology or geopolitics shift. It is better to let prices fluctuate as much as reasonably possible, intervening only when China is

[34] See Appendix A for more information.

deliberately distorting the market. For example, tie buy/sell triggers to moving averages or cost quartiles updated annually. Appoint an independent technical panel to assess China's market manipulation.

2. **Capitalize for tail risk.** Pre-fund a buffer at least equal to the largest peak-to-trough drop of the past 30 years. Augment with contingent credit lines so the MCS can meet margin calls during a crash.
3. **Dynamic sunset.** Establish procedures for the MCS to automatically begin a five-year wind-down for minerals that meet certain criteria. For example, when (a) transparent futures trading exceeds a certain of physical volume, or (b) when China's share of refining falls below a certain level. Conduct the review regularly.
4. **Split transparency.** Combine transparent inventory data with a pre-announced refill rule to prevent speculative front-running. Partial secrecy on timing of buying and selling can prevent speculators "pre-buying the release." For example, publish total inventory quarterly to reassure markets, but keep mineral-level weekly data confidential to avoid speculative attacks. A tier of nondisclosed tactical stocks may be warranted for minerals with very thin markets.
5. **Hybrid governance.** Blend sovereign oversight with a Commercial Operations Board empowered to act on daily volatility, avoiding consensus paralysis.

Implementation and Operations

Capitalization of the MCS

We estimate a total asset valuation of the MCS at approximately $4.9 billion at current market prices for the high-priority minerals alone (Appendix A). To capitalize the stockpile, initial U.S. Defense Production Act Fund (DPAF) funding is required at 10% of total stockpile value, or $500 million. Funds will be disbursed to PSOs for execution.

After this initial capitalization, subscription-based revenues contributed by the commercial beneficiaries of the MCS will provide stable cash flows to fund the ongoing operation, storage, and distribution costs associated with the MCS. The Office of Strategic Capital (OSC) will issue a loan to stabilized PSOs. The debt that is raised against projected income and mineral asset values enables upfront investment. These loans will be underwritten by each PSO's pro rata share of the stockpile's inventory and/or the commercial premium payments. The PSOs will receive portions of the commercial subscriptions/premiums as a bankable revenue stream.

Repayment of government capital will occur as PSOs return at least half of the DPA seed funding to the DPAF manager over the next 5 years. This financing architecture is designed to minimize costs for the US Government and commercial participants while ensuring long-term sustainability and aligning costs with beneficiaries of the MCS.

Procurement and Storage

Initial procurement of critical minerals should take place primarily via open-market exchanges such as the Chicago Mercantile Exchange or the London Metals Exchange. In addition, offtake arrangements can occasionally be used to incentivize new sources of supply to come into the market. The MCS will thus effectively generate a price floor to help stabilize certain minerals demand volatility.

Initial storage can potentially be comingled with National Defense Stockpile facilities to save costs and achieve scale. Unlike the strategic petroleum reserve, the storage requirements for housing the MCS are quite modest.[35] Within 36 months, private vendors will build or lease independent infrastructure if unable to use public land and infrastructure.

Release Criteria and Market Intervention

The MCS will need to establish clear release criteria for stockpiled materials. These should include some combination of the following:

- Evidence of coercive supply disruption (e.g., China's use of export controls)
- Defined price thresholds or volatility triggers on a per mineral basis
- Commercial hardship or the inability to meet US industrial demand
- Explicit formal request made to the stockpile by commercial participants

Release decisions should be made by the sovereign board with private sector consultation. It will be important to ensure that governance policies include safeguards to prevent manipulation or anti-competitive behavior among subscribers or vendors.

Policy Authorities and Enabling Legislation

- Defense Production Act (DPA) Title III, Section 303, Subparagraph D (Authority to Store) for initial Federal charter. This authority is used to establish the MCS.

[35] Total amount of standard storage warehouses to accommodate high priority minerals is modest, though some materials have special storage requirements.

- Use of DPA authorities unlocks DPA Title III, Section 304, Defense Production Act Fund (DPAF) to assist with initial stockpile capitalization.
- Office of Strategic Capital will provide a credit facility or credit structuring to private side participants who will be managing the MCS and to those who will be participating in the commercial stockpile (subscribers to the stockpile).
- Sovereign material contributions to the commercial stockpile could also be made "in kind" to include the raw materials themselves in lieu of a monetary contribution to the commercial multilateral stockpile.
- Commercial subscription or premium payments into the stockpile could be made "in kind" to include raw materials themselves in lieu of monetary contributions at an acceptable quantity and exchange rate set by the board.
- Possible legislative supplements could be pursued for:
    - Enhanced International coordination authorities
    - Trade policy carveouts
    - Liability protections

Next Steps

1. Draft and circulate a concept memo to interagency and allied partners.
2. Secure initial approval by the White House for the conceptual model and release an Executive Order to establish the MCS (Appendix C).
3. Direct the establishment of a Sovereign Board composed of key US departments and agencies.
4. Direct the Department of State to begin diplomatic outreach to invite multilateral partners.
5. Direct the Department of Defense to solicit proposals for the MCS into the Defense Industrial Base Consortium (DIBC) OTA.
6. Direct the Department of Defense, as the DPA Fund manager, to allocate DPAF resources to initially stand up the MCS.
7. Direct the Department of Commerce and the Department of Defense to engage key industry partners in the defense and commercial industrial base to join the MCS.
8. Direct the Office of Management and Budget to estimate MCS capitalization, DPAF seed funding, and to score OSC permanent debt solution.

Appendix A: US Critical Minerals Market Overview & Priority Scoring

Critical Mineral	U.S. Total Consumption (MT/year)	Competitor Role in Processing (%)	Market Value ($M/year)	Priority
Antimony	24,000	71	372	High
Bismuth	760	82	6	High
Dysprosium	14	>90	5	High
Erbium	7	>90	0	High
Europium	6	>90	0	High
Gadolinium	49	>90	2	High
Gallium	64	99	22	High
Germanium	30	89	34	High
Graphite	52,000	80	34	High
Hafnium	45	~100	185	High
Magnesium	50,000	91	590	High
Neodymium	100	68	9	High
Niobium	8,400	0	378	High
Praseodymium	70	68	6	High
Samarium	185	>90	0	High
Terbium	2	>90	3	High
Titanium	40,000	75	364	High
Tungsten	4,680	87	141	High
Yttrium	500	>90	4	High
Zirconium	100,000	~100	2,760	High

Aluminum	4,300,000	65	10,535	Medium
Arsenic	9,100	39	36	Medium
Beryllium	170	23	202	Medium
Cerium	3,800	68	5	Medium
Cobalt	8,500	68	349	Medium
Fluorspar	430,000	63	180	Medium
Holmium	1	>90	0	Medium
Indium	250	68	63	Medium
Lanthanum	5,500	68	6	Medium
Lithium	3,000	18	93	Medium
Lutetium	26	>90	21	Medium
Nickel	180,000	9	3,870	Medium
Palladium	83	42	3,937	Medium
Platinum	71	12	2,194	Medium
Rubidium	1	>90	22	Medium
Scandium	8.63	>90	1,312	Medium
Tantalum	700	5	170	Medium
Thulium	1	>90	Unknown	Medium
Ytterbium	2	>90	0.03	Medium
Barite	2,300,000	28	451	Low
Cesium	40	high	108	Low
Chromium	440,000	0	4,532	Low
Copper	1,800,000	48	16,200	Low

Gold	200	21	1,197	Low
Iridium	1.4	~0	209	Low
Manganese	680,000	4	1,700	Low
Potash	6,400,000	32	7,680	Low
Rhodium	14	~0	4,001	Low
Ruthenium	10	~0	137	Low
Tellurium	35	85	3	Low
Tin	37,000	24	1,076	Low
Uranium	23,466	9	2,581	Low
Vanadium	14,000	90	228	Low
Zinc	820,000	36	2,435	Low

For the following high priority critical minerals, it may not be feasible to establish a liquid, functioning market because the annual volumes and/or values may be too low to establish enough demand and supply.

For these minerals, the MCS can arrange for subscribers to pay their subscriptions on the basis of 12-month forward contracting that can be used to procure the supplies, which can then be sold to subscribers. In these areas, the MCS would serve as an aggregator of demand and secure forward-looking supply on a rolling 12-month basis. These are the 10 minerals that should be evaluated for this sort of MCS operation.

Critical mineral	**Total annual estimated US consumption value (millions)**
Bismuth	$5.99
Dysprosium	$4.52
Erbium	$0.30
Europium	$0.17
Gadolinium	$2.45

Neodymium	$8.91
Praseodymium	$6.06
Samarium	$0.46
Terbium	$2.76
Yttrium	$4.38

To ensure adequate supply of these minerals, the MCS would likely need to spend $36 million to purchase a 12-month supply outright. Since the value and volumes for these minerals are so small, creating and sustaining a dynamic market is not feasible. Instead, subscribers can access appropriately priced stocks of these minerals on a rolling 12-month basis.

Ideally, the default allocation mechanism for critical minerals should be liquid spot markets with public, non-discriminatory, global market clearing prices that provide important and valuable signals to producers and consumers. For these minerals, the MCS would serve to smooth out volatility in both price and supply risk by serving as a buyer (when prices are being pushed low to drive alternative producers out of the market) and seller (when supply is artificially being constrained to exert coercion against the U.S.). This role of a buyer and seller of last resort is a key catalyst for establishing and sustaining efficient markets in these commodities.

The MCS should aim to support spot markets for the following 10 high-priority minerals (with estimated annual total US Consumption value in $ millions):

Antimony	$372.00
Gallium	$22.40
Germanium	$34.28
Graphite	$34.37
Hafnium	$184.50
Magnesium	$590.00
Niobium	$378.34
Titanium	$363.60
Tungsten	$140.73
Zirconium	$2,760.00

Zirconium stands out for its $2.76 billion market that is almost exclusively supplied by supply chains that depend on processing and refining firms from strategic competitor nations.

Appendix B: Draft Executive Order

American Commercial Mineral Independence

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the Defense Production Act of 1950, as amended (50 U.S.C. 4501 et seq.), it is hereby ordered:

Section 1. Policy.

The United States relies on global supply chains for the sourcing, processing, and availability of critical minerals essential to defense, energy, electronics, and infrastructure. Coercive foreign market behavior, including export controls and price manipulation, threatens the stability of these supply chains critical to the economic and commercial strength of the United States. It is my policy to ensure resilient and diversified access to critical minerals through the creation of a public-private, multilateral commercial stockpile (MCS).

Sec. 2. Establishment.

(a) The Secretary of Defense, in coordination with the Secretary of Commerce, the Secretary of State, and the Director of the Office of Management and Budget, shall establish the Multilateral Commercial Stockpile (MCS) as a separate and distinct enterprise from the National Defense Stockpile.

(b) The MCS shall: (i) Procure and store commercially relevant volumes of high-priority critical minerals; (ii) Establish a subscription-based model of membership association for industry participation; (iii) Implement a governance model including a Sovereign Board of Directors and a Commercial Operations Board; and (iv) Include, as appropriate, allied and partner governments in governance, material, and capital contributions.

Sec. 3. Agency Responsibilities.

(a) The Secretary of Defense shall:

- Serve as the lead executive agent for standing up the MCS;
- Establish the Commercial Operations Board;
- Utilize Defense Production Act authorities, including Title III and relevant appropriations, for initial capitalization;
- Issue an Other Transaction Authority (OTA) to solicit and select no fewer than three private vendors to execute stockpile operations;

- Ensure clerical distinction between MCS and National Defense Stockpile logistics and financial systems.

(b) The Secretary of Commerce shall:

- Provide market data, critical mineral assessments, and regulatory support;
- Engage with domestic and foreign industry to encourage commercial participation in the MCS.

(c) The Secretary of State shall:

- Lead diplomatic engagement to invite allied and partner nations to formally join the MCS;
- Establish the Sovereign Oversight Board;
- Coordinate sovereign participation and contributions in collaboration with the Sovereign Board.

(d) The Director of the Office of Management and Budget, in consultation with the Secretary of the Treasury, shall:

- Score, plan, and track DPA Title III expenditures and debt facility structures to support the MCS;
- Estimate potential returns to the Treasury via the Office of Strategic Capital.

Sec. 4. Funding and Capitalization.

(a) The Department of Defense shall provide up to $500 million from the Defense Production Act Fund (DPAF) for MCS stand-up and initial procurement to be disbursed to Private Stockpile Operators via the DIBC OTA. (b) The Office of Strategic Capital shall develop a long-term debt facility using the most generous terms and conditions, secured by commercial premium revenues and stockpiled assets, to reduce taxpayer outlays and facilitate repayment of DPAF seed funding.

Sec. 5. Implementation.

Within 90 days of the issuance of this order:

- The Secretary of Defense shall issue the first OTA call for private vendors;
- The Secretary of State shall commence outreach to prospective sovereign partners;
- The Department of Commerce shall publish the initial list of high-priority minerals consistent with national supply chain risk assessments.

Sec. 6. General Provisions.

Nothing in this order shall be construed to impair or otherwise affect: (a) the authority granted by law to an executive department or agency; (b) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

This order shall be implemented consistent with applicable law and subject to the availability of appropriations. This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.