Is There a Rare Earth Permanent Magnet Gold Mine?

written by Jack Lifton | August 5, 2025

The global rare earth elements (REE) market today is defined by two divergent forces. On one side is China, where overproduction and cutthroat competition have led to chaotic price swings – a situation the central government has tried to rein in as "involution," meaning unproductive internal competition driving prices down. On the other side is the United States Department of Defense (DoD), which has taken a very different approach: instead of letting market forces work, it is propping up a single domestic supplier with guaranteed high prices and exclusive contracts, in an effort to insulate defense supply chains from China's volatility. These opposite strategies raise a fundamental question: **Is the U.S. creating a sustainable rare earth magnet industry, or merely a taxpayer-funded mirage?**

China's Chaos vs. America's Price Floor Strategy

China dominates the rare earth supply chain at both mining and refining stages, and its internal market has been volatile in recent years. Periodic price wars among Chinese producers – essentially oversupply and competition that drive prices to unprofitable levels – have deterred investment elsewhere. Beijing has occasionally intervened with export quotas or crackdowns on illegal mining to stabilize prices, and in April 2025, it even imposed export controls on certain rare earths amid a trade spat. Notably, these Chinese export restrictions did **not** include neodymium and praseodymium (NdPr) – the key elements for high-performance magnets – perhaps because China

was wary of losing market share in those. In short, the **Chinese market has been unreliable**, with boom-bust cycles and policy shocks that make rare earth sourcing a geopolitical gamble.

From a national security perspective, the DoD's all-in bet on MP Materials is understandable – it wants a **secure, end-to-end rare earth magnet supply chain** on U.S. soil, free from Chinese control. Indeed, MP Materials currently operates America's only active rare earth mine (Mountain Pass, California) and is building up processing and magnet manufacturing capabilities. The new **"10X" magnet plant** planned by MP will add 10,000 metric tons per year of NdFeB magnet capacity by 2028, enough to not only meet projected U.S. defense needs but also supply commercial markets. The partnership is unprecedented in scale and marks a bold exercise in U.S. industrial policy. *However, this approach – effectively picking a winner and setting price guarantees – carries significant risks and unintended consequences for the rare earth industry as a whole.*

MP Materials: Overvalued Without Subsidy?

MP Materials (NYSE: MP) has been hailed as a linchpin of America's rare earth revival, but a hard look at its financials and business model suggests the company's valuation hinges on government largesse. **At present market prices, MP Materials is not profitable.** In the first quarter of 2025, the company actually reported a net loss of $22.6 million, despite achieving record production of separated NdPr oxide. This loss occurred with NdPr prices around $60/kg – a level at which MP's revenues ($60.8 million in Q1 2025) were insufficient to cover its costs. The company's own strategy presentation underscored "fluctuating NDPR prices" and tariffs as challenges, even as it pivots from selling unprocessed concentrate to making higher-value products.

Given this reality, it is **fair to say MP Materials can only achieve positive cash flow with heavy support**. The DoD's price-floor contract is essentially designed to ensure MP's profitability by compensating for low market prices. If NdPr oxide stays at, say, $60/kg, the Pentagon would pay MP roughly $50 for every kilogram sold (or even stockpiled) just to top it up to $110. Analysts calculate this could cost U.S. taxpayers on the order of $300 million per year at current prices. In effect, MP can produce and sell as much as it wants without worrying about market price collapse – the government will make up the difference, even for material used internally for magnet production or held in inventory.

MP Materials' **entire business model now revolves around these subsidies**. The company plans to invest $600 million of its own funds into expansions, but that is paltry compared to the scale of government support: aside from the price floor, MP is receiving a $150 million DoD loan for refining heavies and has lined up a $1 billion bank loan (underpinned by the guaranteed offtake) from JPMorgan and Goldman Sachs. It even secured Apple Inc. as a strategic customer – in July 2025, Apple announced a **$500 million commitment to buy U.S.-made rare earth magnets** from MP's forthcoming Texas factory. Apple and MP will also partner on a recycling facility at Mountain Pass. This first-of-its-kind deal was trumpeted as Apple supporting domestic supply chains, and indeed Apple's CEO Tim Cook said it will *"strengthen the supply of these vital materials here in the United States"*.

Yet one must ask: **At what price are these magnets being sold?** Apple's pledge, while patriotic, implies Apple is willing to pay a premium to source magnets domestically (or at least, to commit capital up-front). In free-market terms, many basic neodymium magnets used in consumer electronics (like smartphone speakers, earbuds, etc.) are available at very low cost – often just a few tens of dollars per kilogram in bulk from Asian suppliers. For

instance, the raw neodymium oxide today is about $60-70/kg, and finished commodity-grade NdFeB magnets can sell for on the order of **$40–50/kg in China** for standard grades. Meanwhile, the U.S. government is effectively ensuring MP gets $110/kg for the NdPr in its magnets. Even with tariffs factored in, **MP's magnets may not be cost-competitive for commercial buyers like Apple** when compared to the global market. This raises the question of how long private companies will willingly pay above-market prices for "political" reasons. Apple's directors have fiduciary duties to shareholders; unless the premium yields supply security or PR benefits that justify it, one would expect Apple (and automakers who need magnets for EVs) to eventually seek the lowest-cost supplier. As one industry observer dryly asked, *what is Apple's duty to shareholders regarding paying above market strictly for political reasons?*

To be clear, **I fully support rebuilding America's manufacturing base** – including rare earth mining, refining, and magnet-making. The vulnerability of relying on China for critical minerals is real. But the key should be **restoring our productivity and innovation lead**, not creating a perpetual subsidy-dependent sector. A business that can only survive on continuous government aid is not truly competitive. The DoD's intervention may be a necessary jump-start, but if after some years MP Materials still cannot produce magnets at market-competitive prices without subsidies, then the effort will have failed to achieve its ultimate goal (a self-sustaining domestic industry).

Are All Our Eggs in One Basket?

The U.S. government's deal with MP Materials has essentially **put all our rare earth eggs in one basket**. By anointing MP as the chosen one, the DoD has **excluded other potential suppliers** from similar support, at least for now. This strategy has many in the

industry concerned, because competition and redundancy are vital in any supply chain – especially one as strategically important as rare earth magnets. Even analysts favorable to the MP deal acknowledge the risk: *"Will this partnership simply entrench a domestic monopoly on NdPr production?"* one expert wrote, noting that there was no competitive bidding for this funding and it's unclear if DoD will help other projects in the future. The argument for picking MP is that it's the only current U.S. producer, so it was the least risky bet. But **monopoly protection** can breed complacency. **Market competition is key** to driving innovation and efficiency, which in turn brings down costs over time. By sidelining all other entrants, the government might inadvertently be stifling the very innovation it seeks to spur.

Let's unpack the **specific ways** the MP-DoD deal could disadvantage other players:

- **Subsidized Undercutting:** MP Materials can now offer NdPr oxide or magnets to any customer at near-China prices (or even slightly below) and still get paid the difference up to $110/kg by the U.S. government. For example, if Chinese-sourced NdPr oxide costs ~$53/kg (the recent market level), MP could sell at say $54/kg to win the business and receive a $56/kg subsidy from DoD. No other non-Chinese producer can match such a subsidized price.
- **Price Ceiling for Competitors:** This effectively **sets a price ceiling** around ~$55/kg for NdPr outside China. Analysts worry that this level is simply too low for other rare earth companies – such as Australia's Lynas Rare Earths Ltd. (ASX: LYC) or various U.S. and European magnet startups – to survive economically. Their cost structures would require higher selling prices, which MP's presence will prevent. In short, the agreement **picks MP as the winner and potentially condemns everyone else as losers**,

unless they too receive government support.

- **Lack of Safeguards:** The DoD-MP contract (as described in MP's SEC 8-K filing) apparently imposes **no specific controls on MP's market behavior** to prevent predatory practices. MP is incentivized to grab as much market share as possible using the subsidy. Taxpayer money could end up fueling anti-competitive conduct – an irony, given that the policy intent is to *increase* supply, not drive other suppliers out.
- **Heavy Rare Earth Gap:** MP's Mountain Pass mine is rich in "light" rare earths (like Nd and Pr) but contains negligible quantities of "heavy" rare earths such as dysprosium (Dy) and terbium (Tb). Those heavy elements are critical additives for high-coercivity magnets that perform at high temperatures (needed for things like jet engines and guided missiles). MP **does not have a domestic source of Dy/Tb**, no matter what optimism its representatives may project. The company will likely need to **import or acquire heavy rare earth feedstock** to produce the full range of defense-grade magnets – perhaps by buying from overseas mines in places like Brazil or Southeast Asia. This means even as MP becomes the dominant U.S. magnet supplier, it could remain dependent on foreign raw materials for heavies, unless another project comes online domestically or via ally nations.

It's telling that when the DoD-MP deal was announced, **rare earth stock prices globally jumped**, with many investors speculating that other companies might become takeover targets or benefit from a sector-wide boost. MP Materials' own share price surged 50% on the news. But this exuberance might be misplaced. The reality is that **MP's advantage may come at the direct expense of other Western rare earth ventures.** Unless parallel support is extended to others, we could see consolidation under MP or even

the failure of competing projects that can't match MP's subsidized pricing. In effect, **the U.S. government has bet on a single horse**, and is racing to scale it up fast enough to discourage any others from entering the track.

Industrial Policy or Political Patronage?

One cannot analyze this situation without asking *"Cui bono?"* – **Who benefits?** Ostensibly, the rare earth magnet price floor and investments benefit U.S. national security by ensuring a domestic supply of critical materials. But skeptics point out that **individuals and financiers stand to gain immensely as well.** MP Materials' CEO James Litinsky and its early investors have seen the company's market capitalization swell (the stock hit its highest levels since 2022 after the deal). The DoD's backing effectively de-risks MP for private lenders and shareholders – **Wall Street wins when Washington subsidizes**. Indeed, **JPMorgan and Goldman Sachs quickly offered $1 billion in debt financing** once the government stepped in as a guaranteed customer. It's a classic case of privatizing gains while socializing risk: taxpayers ensure MP's revenue, while equity holders and banks reap the upside.

This dynamic is sadly familiar. As former U.S. Senator Fritz Hollings once quipped, "We have the best government money can buy." America's approach to critical minerals seems to reflect the influence of lobbyists and well-connected investors shaping policy to their advantage. The transaction was approved at senior levels within the DoD, reportedly with minimal input from career staff.

More broadly, the **lack of a coherent long-term industrial policy** in the U.S. has repeatedly led to ad-hoc solutions like this.

Critical minerals policy has been *"amorphous, shaped not by long-term needs or goals but by politics and manipulation by financiers,"* as one commentator put it. The MP Materials deal was driven by a convergence of political urgency (responding to China's moves) and the opportunity for certain investors to capitalize on government support. It was executed quickly – possibly to meet fiscal year budget deadlines for defense spending or to show action against China – rather than through a deliberate, consultative process. The result can be **bad decisions propelled by short-term politics, corruption, and arbitrary timelines** instead of sound economics.

History provides a cautionary parallel. In agriculture, the U.S. introduced "floor price" subsidies during the Great Depression to support farmers. These **price supports**, as British economist John Maynard Keynes observed in a 1933 open letter to President Roosevelt, are an inferior solution compared to policies that increase overall economic demand. *"Rising prices caused by deliberately increasing prime costs or by restricting output have a vastly inferior value to rising prices which are the natural result of an increase in the nation's purchasing power,"* Keynes wrote. In other words, propping up prices through subsidies or production cuts (i.e. artificially inflating the producer's income) is ultimately less beneficial than boosting the economy so that demand rises organically.

The farm price floors instituted in the 1930s persist to this day, and as critics note, they **mostly benefit the largest agribusiness corporations**, not small family farms. This is the nature of subsidies: once in place, they tend to become entrenched, and savvy big players capture most of the gains.

The rare earth magnet subsidies in 2025 risk **repeating this pattern in the tech sector**. By guaranteeing high prices and shielding one company from competition, the policy could **freeze**

in place a specific technology and supplier. MP Materials will have little incentive to innovate beyond what is needed to meet DoD's contract terms. Meanwhile, emerging technologies or alternative materials (for example, new types of permanent magnets with reduced or no rare earth content, or improved motor designs) might struggle to get support, since the government has tied its fortunes to the incumbent approach. **Tariffs and floor prices**, while intended to incubate domestic industry, can backfire if they **discourage the natural evolution of technology**. At worst, they can **extend the life of legacy technologies** and delay the adoption of superior ones. This is not to say rare earth magnets are obsolete – far from it – but one must ensure that supporting them does not crowd out research into next-generation solutions (like ferrite or alnico magnet improvements, or entirely new magnet chemistries, or non-magnet motor designs for certain applications).

To be fair, the **Pentagon appears aware** that this rare earth support model is something of a **pilot program**. The FAS (Federation of American Scientists) analysis of the deal notes that it *"stands out for its ambitious scale and innovative use of policy tools,"* and raises the question of whether this should be a model for other critical minerals. The analysis asks: after this partnership, *"how can the federal government continue to foster growth and competition in the NdPr market?"* If the answer isn't found, the U.S. may end up with a monopoly that requires permanent subsidy – an outcome that benefits a few investors but not the nation as a whole.

Myths, Realities, and Missed Perspectives

Amid the heated discussion, some **myths about rare earths need debunking**. The narrative around rare earths has at times been so

hyperbolic that it distracts from practical solutions. Let's address a few key points:

- **Rare Earths and National Security:** It's true that certain defense systems require rare earth magnets. But the idea that the U.S. military "cannot make effective weaponry" without Chinese rare earths is *overstated*. Often cited is the claim that each F-35 fighter jet contains **417 kg of rare earth materials**, implying that without rare earths, the jet couldn't be built. This figure comes from a misinterpreted report; it likely counted all components containing trace rare earths or the weight of ore needed, not actual magnet weight. In reality, the *actual amount of rare earth magnets in an F-35 is only a few kilograms* (in sensors, actuators, etc.), and the total rare earth content (including alloying elements in high-performance metals) is a small fraction of 417 kg. Replacing those magnets with older types (like AlNiCo or ferrite magnets) would add some weight and reduce efficiency, but **it wouldn't make the jet unflyable** – the impact is marginal (perhaps a few tens of kilograms penalty). In fact, the most critical magnets in fighter aircraft and other high-end systems are often **samarium–cobalt (SmCo) magnets**, which are chosen for their stability under high temperatures and radiation (they can survive nuclear EMP bursts that might demagnetize NdFeB magnets). The U.S. defense sector's annual usage of SmCo magnets is relatively small – on the order of only **hundreds of tons** or less, by some estimates – because these are used in niche applications like precision-guided munitions and aerospace instruments. This is not to trivialize rare earths' importance; rather, it's to put it in perspective. We should avoid a panic narrative that without rare earths our military is helpless. The reality is more nuanced:

losing access to rare earths would inconvenience us and degrade some performance, but there are **workarounds and substitutes** (albeit inferior ones) for most applications in the short term.

- **Technology Metals vs. Base Metals:** Not all "critical minerals" are equally critical. Every nation needs iron, steel, aluminum, and copper in vast quantities – these are the base metals of modern civilization. Rare earths, gallium, germanium, cobalt, lithium, etc., by contrast, are **"technology metals"** – essential in enabling certain high-tech or green applications, but used in far smaller volumes. What is deemed critical depends on context. For example, gallium and germanium are critical for semiconductor chips, and indeed China moved to restrict those in 2023-2024 because they recognized the U.S. dependence. NdFeB magnets are critical for *certain* applications (electric vehicle motors, wind turbines, some weapons), but **many consumer products could use either lower-grade magnets or alternative designs** at some cost of efficiency or size. The current obsession with rare earths as if they were the **lifeblood of all technology** is somewhat exaggerated. Rare earths are enablers of *miniaturization* and *efficiency*. They make motors smaller and more powerful (one tiny magnet can replace a much larger older magnet), which is transformative for things like lightweight drones, electric cars, and miniature electronics. But one should remember: the **silicon integrated circuit** (microchip) has been far more central to the revolution in military and consumer tech than rare earths. If any materials deserve the highest "critical" status for modern technology, they would be the semiconductor materials (silicon, gallium, germanium, etc.), not neodymium. Without advanced chips, no amount of neodymium magnets will help a fighter jet or smartphone

function.

- **Hype vs. Execution:** The **rare earths sector has seen a lot of hype** (or "puffing and promoting," as I would say). Junior mining companies often tout that they'll supply all of America's needs, or that some new extraction technology will break China's monopoly overnight. MP Materials itself benefited from a narrative – fueled by its predecessor Molycorp a decade ago – that there was a "gold mine" in rare earths and that demand (and prices) would only skyrocket as green tech took off. Yet, time and again, the actual business comes down to **delivering a product to the customer's specifications, in the agreed volume, on time, at a competitive price**. This is where execution matters more than headlines. To date, **MP Materials has never commercially produced separated rare earth oxides at scale (its separation facility is just ramping up now) nor manufactured magnets in volume.** These are non-trivial tasks. Many companies have failed at one or another step of this notoriously complex supply chain. The **risk** remains that MP might stumble in scaling up its refining or magnet-making – a risk that in a normal market investors would price in. The DoD's deep-pocketed support mitigates some financial risk, but not the technical and operational risks. As one observer from Columbia University noted, *"MP Materials is only beginning to expand into magnet production and needs to prove its capabilities… at commercial scale"*. In essence, **MP still has to *execute*** and actually build the mines-to-magnets supply chain inside the U.S. If it fails, the DoD will have backed the wrong horse and precious time (and money) will have been wasted. If it succeeds, we must hope it does not do so as a complacent monopolist but as a world-class competitor that can eventually stand on its own.

Conclusion: A Balanced Path Forward

The question posed – *"Is there a rare earth permanent magnet gold mine?"* – is provocative. It suggests that perhaps we are chasing fool's gold by treating rare earth magnets as a bonanza that justifies any price or policy contortion. The truth lies somewhere in between alarmism and complacency. Rare earth magnets are indeed **strategic materials**, and rebuilding capacity in the West is arguably vital after decades of offshoring. The U.S. government's partnership with MP Materials marks a **significant shift in policy**, embracing industrial intervention on a scale not seen in years. It has some very **positive aspects**: it jumpstarts domestic production, signals seriousness about supply chain security, and could catalyze ancillary investments (like magnet recycling, which Apple and MP are pursuing).

However, the current approach also has **serious drawbacks**. By heavily backing one company and effectively **locking in a high-cost structure** (a $110/kg price floor is essentially admitting that U.S. production is much more expensive than China's), it might be creating a dependency on government support that will be hard to wean off. **Competition and innovation** should not be sacrificed in the name of expediency. If the U.S. ends up with only one rare earth producer, permanently on federal life support, then we will have replicated a state-owned enterprise in all but name – hardly the dynamic, resilient industry we want.

Policymakers should therefore consider **broadening the strategy**: support multiple projects (including heavy rare earth projects and alternative magnet technologies), set clear performance milestones for subsidies (so that companies are pushed to cut costs and improve processes), and plan an exit strategy for government support once the industry matures. The **goal** should be that in a decade's time, American-made rare earth magnets can

compete on price and quality without special treatment, perhaps protected by modest tariffs at most. That will require continuous R&D, process innovation (to close the cost gap with China), and perhaps accepting that U.S. producers might focus on **higher-end, specialized magnets** while importing lower-end magnets (just as we don't try to make every grade of steel domestically).

In Ludwig Wittgenstein's famous words, *"What can be said at all can be said clearly; and whereof one cannot speak, thereof one must be silent."* The discourse around rare earths has been muddied by hype and emotion. We need clarity. And we should also remember Cicero's timeless advice – to ask who benefits – to ensure that our critical minerals policies truly serve the **national interest** and not just well-connected interests. If we get this right, the U.S. can secure its supply of rare earth magnets **without losing the essence of free-market competition** that spurs progress. If we get it wrong, today's rare earth venture could join the list of once-hyped crises and fads, and taxpayers will be left wondering where the promised "gold mine" went.

Sources:

- Reuters – *"MP Materials seals mega rare-earths deal with US to break China's grip"*, July 10, 2025
- Mining.com – *"MP Materials lands multi-billion Pentagon deal"*, July 10, 2025
- FAS (Federation of American Scientists) – Alice Wu, *"Unpacking the DoD and MP Materials Critical Minerals Partnership"*, July 15, 2025
- FAS – Ibid., analysis of price floor and offtake terms
- Apple Newsroom – *"Apple expands U.S. supply chain with $500 million commitment to American rare earth magnets"*, July 15, 2025

- Investing.com — *MP Materials Q1 2025 Results Highlights*, May 2025
- Columbia Univ. SIPA Center on Global Energy Policy — Tom Moerenhout, *"MP Materials Deal Marks a Significant Shift in US Rare Earths Policy"*, July 11, 2025
- Aviation Stack Exchange — discussion debunking F-35 rare earth content (ref. Congressional Research Service claim)
- Keynes, J.M. — *Open Letter to President Roosevelt*, New York Times, Dec 31, 1933 (via UT Austin archives)