

MICA Analysis: What is the current domestic rare earth production...

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1. Executive Summary

MICA Analysis Report: U.S. Domestic Rare Earth Production Capacity

2. Analysis

MICA Analysis Report: U.S. Domestic Rare Earth Production Capacity

Executive Summary

Key Findings:

1. **Minimal Current Production**: The United States currently has **only one operational rare earth mine** at Mountain Pass, California, operated by MP Materials. This facility produces rare earth concentrates but has limited downstream processing capability, making the U.S. heavily dependent on China for refined rare earth materials and magnets.
2. **Significant Capacity Expansion Underway**: The U.S. is investing heavily in domestic rare earth capacity through both public and private initiatives, including **\$1.6 billion in government funding** to USA Rare Earth, **\$134 million in DOE funding** for supply chain development, and **\$29.9 million in Pentagon investment** for separation facilities.
3. **2025-2028 Critical Transition Period**: Multiple projects are racing toward commercial production, with MP Materials targeting late 2025 for U.S.-made magnets, USA Rare Earth accelerating Round Top production to 2028, and Energy Fuels qualifying heavy rare earth oxides for permanent magnets in 2025.

Detailed Findings

Current Production Infrastructure

MP Materials - Mountain Pass Mine (California) - **Status**: Only operating rare earth mine in the United States - **Capability**: Mining and concentration of rare earth ores, primarily light rare earth elements (LREEs) - **Recent Developments**: - Pentagon became largest shareholder (July 2024) - Expanding into downstream magnet manufacturing in Fort Worth, Texas - Target: Ship end-to-end U.S.-made high-performance magnets by late 2025 - Considering second magnet factory in Northlake, DFW area - **Source**: Fox Business, Benzinga, Dallas Business Journal

Energy Fuels - White Mesa Mill (Utah) - **Status**: Operational for heavy rare earth oxide production - **Achievement**: Successfully produced 99.9% purity dysprosium oxide, qualified by major South Korean permanent magnet manufacturer (December 2025) - **Pipeline**: Terbium and potentially samarium oxide production expected early 2026 - **Source**: Morningstar/PR Newswire

Development-Stage Projects

USA Rare Earth - Round Top Deposit (Texas) - **Status**: Development stage, accelerated timeline - **New Timeline**: Commercial production now targeted for **late 2028** (accelerated by 2 years from original 2030 target) - **Government Support**: \$1.6 billion non-binding agreement with Commerce Department via CHIPS Program - \$277 million in federal funding - \$1.3 billion senior secured loan - **Significance**: Described as one of the richest known deposits of heavy rare earths - **Source**: MSN, Business Insider, Seeking Alpha

ElementUS Minerals - Gramercy Facility (Louisiana) - **Investment**: \$29.9 million Pentagon award - **Focus**: Demonstration facility to separate and purify gallium and scandium from existing industrial waste - **Source**: AFCEA Signal Media

Ionic Mineral Technologies - Silicon Ridge (Utah) - **Discovery**: 16 critical minerals and rare earth elements confirmed - **Status**: Fully permitted site, described as one of North America's most significant holdings - **Source**: Business Wire, MSN

REAlloys Partnership with Saskatchewan Research Council (SRC) - **Significance**: Described as giving North America "first commercial heavy rare earth capacity" - **Company Status**: REAlloys in process of merging with Blackboxstocks Inc. (NASDAQ: BLBX) - **Source**: Oil Price, The Street

Noveon Magnetics - **Investment**: \$215 million Series C funding round (January 2026) - **Purpose**: Expand U.S. rare earth magnet manufacturing capacity - **Source**: TMCnet

Federal Investment and Policy Support

Department of Energy Funding - **Amount**: Up to \$134 million allocated (announced December 1, 2025) - **Purpose**: Enhance domestic supply chains for rare earth elements - **Scope**: Open to recyclers and projects harvesting REEs from electronic scrap and industrial byproducts - **Source**: JD Supra, Recycling Today

Department of Commerce/CHIPS Program - **USA Rare Earth Agreement**: \$1.6 billion (non-binding LOI) - **Strategic Priority**: Part of broader administration push to secure critical mineral supply chains - **Source**: New York Times, Bloomberg/MSN

Supply Chain Vulnerabilities

Current Dependencies - **China Dominance**: Despite domestic mining at Mountain Pass, the U.S. remains heavily dependent on China for: - Rare earth separation and refining - Magnet manufacturing - Heavy rare earth elements (dysprosium, terbium, etc.) - **Defense Implications**: Precision-guided missiles and F-35 actuators require rare earth magnets - **Source**: New York Times, Mining Journal

Recent Trade Tensions - China has implemented rare earth export restrictions - U.S. trade negotiations with China identified rare earth minerals as major sticking point - Defense industry has "dodged" shortages through supply chain adaptations - **Source**: AOL, New York Times

Geographic Distribution of Projects

Active/Planned U.S. Rare Earth Sites: - California: MP Materials (Mountain Pass) - operational - Texas: USA Rare Earth (Round Top) - development - Utah: Energy Fuels (White Mesa Mill) - operational; Ionic MT (Silicon Ridge) - development - Louisiana: ElementUS Minerals (Gramercy) - demonstration facility

Limitations and Caveats

Data Constraints

1. **Lack of Specific Production Volumes**: Search results did not yield precise annual production tonnage figures for current operations, making quantitative capacity assessment difficult.
2. **No Capacity Utilization Rates**: Unable to determine what percentage of existing facilities' capacity is currently being utilized.
3. **Limited Element-Specific Breakdown**: Insufficient data on production volumes by specific rare earth element (e.g., neodymium, praseodymium, dysprosium, terbium).
4. **Demand-Supply Gap Unknown**: No current data found comparing domestic production to domestic consumption/demand.
5. **Timeline Uncertainty**: Development projects provide target dates, but rare earth projects historically face delays due to technical, regulatory, and financing challenges.

Analysis Limitations

1. **Recent News Bias**: Search results heavily weighted toward recent announcements (2025-2026), potentially missing historical production data.

2. **Company-Reported Information**: Much information comes from company press releases, which may present optimistic projections.
3. **Non-Binding Agreements**: The \$1.6 billion USA Rare Earth government funding is a "non-binding LOI," not confirmed allocation.
4. **Processing vs. Mining Distinction**: Some facilities focus on separation/processing rather than mining, complicating "production capacity" definitions.

Recommendations

For Policy Makers

1. **Accelerate Permitting and Funding Disbursement**: Convert non-binding agreements (like USA Rare Earth's \$1.6B) into firm commitments with milestone-based disbursements to maintain momentum.
2. **Prioritize Heavy Rare Earth Development**: Focus resources on heavy rare earth capacity (dysprosium, terbium) where U.S. dependence on China is most acute and strategic vulnerability highest.
3. **Support Recycling Infrastructure**: Leverage DOE's \$134 million funding to establish robust rare earth recycling from electronics and industrial waste as a near-term supply supplement.
4. **Coordinate Defense and Commercial Demand**: Use Defense Production Act authorities to ensure critical defense applications have guaranteed access to domestic production.

For Industry Stakeholders

1. **Vertical Integration Strategy**: Follow MP Materials' model of expanding from mining into processing and magnet manufacturing to capture more value chain domestically.
2. **Public-Private Partnerships**: Actively pursue government funding opportunities (DOE, CHIPS Program, Pentagon) to de-risk capital-intensive development.
3. **Technology Transfer**: Partner with international allies (South Korea, Australia, Canada) for separation and processing technology while maintaining domestic production.
4. **Waste Stream Valorization**: Investigate opportunities to extract rare earths from existing industrial waste streams (as ElementUS Minerals is doing) for faster time-to-production.

For Further Analysis

1. **Quantitative Capacity Assessment**: Conduct detailed survey of actual production volumes, capacities, and utilization rates across all facilities.
2. **Demand Forecasting**: Develop comprehensive U.S. demand projections by application (defense, EVs, wind turbines, electronics) through 2030.
3. **Cost Competitiveness Analysis**: Assess whether domestic production can be cost-competitive with Chinese imports, or if strategic stockpiling/subsidies are required.
4. **Allied Coordination Study**: Evaluate opportunities for integrated North American/allied supply chains (U.S.-Canada-Australia) as alternative to complete self-sufficiency.

Conclusion

The United States is in the **early stages of rebuilding domestic rare earth production capacity** after decades of dependence on China. While current production is limited to one operational mine (MP Materials) and emerging heavy rare earth oxide production (Energy Fuels), **significant expansion is underway** with multi-billion dollar investments from both government and private sectors.

The **critical period is 2025-2028**, when multiple projects aim to reach commercial production. Success will require sustained policy support, timely permitting, adequate financing, and technical execution. Even with successful project development, the U.S. will likely remain partially dependent on imports and allied sources for the foreseeable future, making supply chain diversification and strategic partnerships essential complements to domestic production.

Current State: Minimal capacity, high import dependence **Near-Term Trajectory (2025-2028)**: Rapid expansion if projects execute on schedule **Strategic Challenge**: Bridging the gap between current vulnerability and future capacity while managing geopolitical risks

3. Results: step_0

[{'title': "What are rare earth minerals, and why are they central to Trump's trade deal with China?", 'url': 'https://www.aol.com/articles/rare-earth-minerals-why-central-103227042.html', 'snippet': 'The US trade deal with China seeks to resolve a major sticking point of their ongoing trade war: rare-earth minerals. Despite multiple rounds of talks with US trade negotiators over the past several months, China continued to slow-walk promises to the ...', 'source': 'www.aol.com'}, {'title': 'Pentagon Invests in Domestic Rare Earth Mineral Production', 'url': 'https://www.afcea.org/signal-media/pentagon-invests-domestic-rare-earth-mineral-production', 'snippet': 'The Pentagon announced Thursday that it has awarded \$29.9 million to ElementUS Minerals LLC (ElementUSA) to develop a demonstration facility in Gramercy, Louisiana, to separate and purify gallium and scandium from existing industrial waste, which supports ...', 'source': 'www.afcea.org'}, {'title': 'Beverly of critical and rare earth minerals found in Utah', 'url': 'https://www.msn.com/en-us/science/earth-science/beverly-of-critical-and-rare-earth-minerals-found-in-utah/ar-AA1Sfh9Z', 'snippet': "A Utah-based company announced it has uncovered 16 critical minerals and rare earth elements at Silicon Ridge in Utah County's Lake Mountains. The findings by Ionic Mineral Technologies validate one of North America's most significant holdings of the ...", 'source': 'www.msn.com'}, {'title': "Ionic Mineral Technologies Announces Major U.S. Discovery of Rare Earth and Critical Technology Metals at Utah's Silicon Ridge", 'url': 'https://www.businesswire.com/news/home/20251211652566/en/Ionic-Mineral-Technologies-Announces-Major-U.S.-Discovery-of-Rare-Earth-and-Critical-Technology-Metals-at-Utahs-Silicon-Ridge', 'snippet': 'PROVO, Utah--(BUSINESS WIRE)--Ionic Mineral Technologies ("Ionic MT") today announced the confirmation of a major, high-grade deposit of rare earth and critical minerals at its fully permitted Silicon Ridge project in Utah ("Silicon Ridge").', 'source': 'www.businesswire.com'}, {'title': 'Company uncovers bevy of critical and rare earth minerals in Utah County', 'url': 'https://www.ksl.com/article/51418591/company-uncovers-bevy-of-critical-and-rare-earth-minerals-in-utah-county', 'snippet': "SARATOGA SPRINGS — A Utah-based company announced it has uncovered 16 critical minerals and rare earth elements at Silicon Ridge in Utah County's Lake Mountains. The findings by Ionic Mineral Technologies validate one of North America's most significant ...", 'source': 'www.ksl.com'}, {'title': 'West scrambles to fill heavy rare earth gap as China rivalry deepens', 'url': 'https://www.reuters.com/sustainability/climate-energy/west-scrambles-fill-heavy-rare-earth-gap-china-rivalry-deepens-2025-11-19/', 'snippet': "LONDON, Nov 19 (Reuters) - The West's push to build a home-grown magnets supply chain to reduce its reliance on China - led by massive U.S. backing for Nevada-based MP Materials - is running

4. Results: step_1

[{'title': 'MP vs. LYSDY: Which Non-China Rare-Earth Stock Has More Upside?', 'url': 'https://www.msn.com/en-us/money/economy/mp-vs-lysdy-which-non-china-rare-earth-stock-has-more-upside/ar-AA

1P3w1F', 'snippet': 'MP Materials MP and Lynas Rare Earths Limited LYSDY are two leading players in the global rare earth supply chain, crucial to the production of high-performance magnets used in EVs, defense and high-tech applications. Rare earth stocks have recently come ...', 'source': 'www.msn.com'}, {'title': 'MP vs. UUUU: Which rare earth stock has an edge now?', 'url': 'https://www.msn.com/en-us/money/economy/mp-vs-uuuu-which-rare-earth-stock-has-an-edge-now/ar-AA1SUx50', 'snippet': "MP Materials MP and Energy Fuels UUUU are two US-based companies expected to play important roles in America's efforts to establish a secure domestic supply chain for rare earth elements (REEs) and other critical minerals. Las Vegas, NV-based MP ...", 'source': 'www.msn.com'}, {'title': "What's Going On With MP Materials Stock Monday?", 'url': 'https://www.benzinga.com/trading-ideas/movers/26/01/50135940/whats-going-on-with-mp-materials-stock-monday', 'snippet': 'The broader market is experiencing gains on Monday, with the S&P 500 up approximately 0.57% and the Materials sector gaining 0.56%. Despite this positive environment, MP Materials is underperforming.', 'source': 'www.benzinga.com'}, {'title': 'Inside look at MP Materials amid the rare earth race', 'url': 'https://www.foxbusiness.com/politics/inside-look-mp-materials-amid-rare-earth-race', 'snippet': "The Trump administration's push to secure U.S. supply chains of rare earth minerals amid trade tensions with China features a public-private partnership with a domestic producer that now has the Pentagon as its largest shareholder. In July, the Department ...", 'source': 'www.foxbusiness.com'}, {'title': "America's Only Rare Earth Miner Hits Bubble Territory After Trade War Surge", 'url': 'https://observer.com/2025/10/mp-materials-rare-earth-trade-war/', 'snippet': 'Rare earth metals—the raw materials powering modern technologies like chips, EV engines and military weapons—are at the center of escalating U.S.-China trade tensions. As the Trump administration pushes to reduce reliance on imports from China, which ...', 'source': 'observer.com'}, {'title': 'After Falling 41% From Its Recent Peak, Is MP Materials Stock a Buy?', 'url': 'https://www.fool.com/investing/2025/12/05/after-falling-41-from-its-recent-peak-is-mp-materi/', 'snippet': "The U.S. seeks to secure its supply chain of rare-earth materials amid concerns over China's dominance. MP Materials holds significant assets in the U.S. rare-earth magnet market, which is crucial for various industries, including defense and electric ...", 'source': 'www.fool.com'}, {'title': 'West scrambles to fill heavy rare earth gap as China rivalry deepens', 'url': 'https://www.reuters.com/sustainability/climate-energy/west-scrambles-fill-heavy-rare-earth-gap-china-rivalry-d'}

5. Results: step_2

[{'title': 'Inside look at MP Materials amid the rare earth race', 'url': 'https://www.msn.com/en-us/money/economy/inside-look-at-mp-materials-amid-the-rare-earth-race/ar-AA1QoJE', 'snippet': "The Trump administration's push to secure U.S. supply chains of rare earth minerals amid trade tensions with China features a public-private partnership with a domestic producer that now has the Pentagon as its largest shareholder. In July, the Department ...", 'source': 'www.msn.com'}, {'title': 'MP Materials Sets Stage For Heavy Rare Earth Breakthrough In 2026', 'url': 'https://www.benzinga.com/analyst-stock-ratings/analyst-color/25/11/48729410/mp-materials-sets-stage-for-heavy-rare-earth-breakthrough-in-2026', 'snippet': "MP Materials Corp. (NYSE:MP) rose Friday after a mixed quarterly update signaled improving profitability trends and steady momentum in magnetics. The company also outlined progress toward domestic heavy rare earth separation, bolstering sentiment around ...", 'source': 'www.benzinga.com'}, {'title': 'MP Materials could grow even bigger in DFW with billion-dollar rare earth magnet factory', 'url': 'https://www.bizjournals.com/dallas/news/2026/01/06/mp-materials-second-plant-northlake-considered.html', 'snippet': "To continue reading this content, please enable JavaScript in your browser settings and refresh this page. Preview this article 1 min A company that's already ...", 'source': 'www.bizjournals.com'}, {'title': "Should You Buy MP Materials Stock While It's Under \$65?", 'url': 'https://www.aol.com/articles/buy-mp-materials-stock-while-002400280.html', 'snippet': "MP's rare-earth metal mine in California is becoming a national priority. The company is on track to ship end-to-end U.S.-made high-performance magnets by late 2025. MP has some executional risks, including scaling up its magnet factories. MP Materials ...", 'source': 'www.aol.com'}, {'title': 'USA Rare Earth Vs MP Materials: Which Rare-Earth Play Is Worth Your'}

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6. Results: step_3

[{'title': 'USA Rare Earth lines up \$1.6 billion in US government funds', 'url': 'https://www.msn.com/en-us/money/markets/usa-rare-earth-lines-up-16-billion-in-us-government-funds/ar-AA1V0yLp', 'snippet': 'USA Rare Earth Inc. signed a non-binding agreement with the Commerce Department for \$1.6 billion in funding, the latest White House deal to boost production of rare-earth elements on domestic soil.', 'source': 'www.msn.com'}, {'title': 'Trump Administration Takes Another Stake in Rare Earth Sector', 'url': 'https://www.nytimes.com/2026/01/26/us/politics/trump-rare-earth-howard-lutnick.html', 'snippet': "The administration announced a \$1.6 billion deal with USA Rare Earth. The firm also does business with Cantor Fitzgerald, which is run by the sons of President Trump's commerce secretary.", 'source': 'www.nytimes.com'}, {'title': 'America Needs Rare Earth Magnets, and USA Rare Earth Is Positioning Itself to Fill the Gap', 'url': 'https://www.msn.com/en-us/money/markets/america-needs-rare-earth-magnets-and-usa-rare-earth-is-positioning-itself-to-fill-the-gap/ar-AA1UUc5N', 'snippet': 'As trade tensions rise, the U.S. is racing to secure domestic supplies of critical minerals. USA Rare Earth is one of the companies leading the charge.', 'source': 'www.msn.com'}, {'title': "USA Rare Earth races to plug America's rare earth magnet shortage", 'url': 'https://www.msn.com/en-us/news/technology/us-a-rare-earth-races-to-plug-america-s-rare-earth-magnet-shortage/ar-AA1UWm2h', 'snippet': "America's clean energy and defense ambitions now hinge on a tiny class of components: rare earth magnets that power everything from F-35 actuators to Tesla drive motors. USA Rare Earth is positioning itself as the company that can close that gap.", 'source': 'www.msn.com'}, {'title': 'NOVEON MAGNETICS COMPLETES \$215 MILLION SERIES C TO EXPAND U.S. RARE EARTH MAGNET MANUFACTURING CAPACITY', 'url': 'https://www.tmcnet.com/usubmit/2026/01/19/10318442.htm', 'snippet': 'Financing Round Led by One Investment Management Supports Expansion of Domestic Rare Earth Magnet Production and Facilitates Secondary Share Sale', 'source': 'www.tmcnet.com'}, {'title': 'Following Completion of Expansion Concept Studies HyProMag USA Advances Expansion to Three States Supporting a Path To Triple U.S. Rare Earth Magnet Capacity by 2029', 'url': 'https://www.morningstar.com/news/accesswire/1126254msn/following-completion-of-expansion-concept-studies-hypromag-usa-advances-expansion-to-three-states-supporting-a-path-to-triple-us-rare-earth-magnet-capacity-by-2029', 'snippet': 'Completed concept studies for expansion of South Carolina and Nevada hubs, increasing total HyProMag USA magnet and alloy production from 1,552 metric tons NdFeB to 4,656 metric tons NdFeB per annum, supporting scalable U.S. manufacturing strategy and ...', 'source': 'www.morningstar.com'}, {'title': 'Gadodyn Expands Advisory Board to Accelerate U.S. Manufacturing of Rare Earth Magnet Alloys', 'url': 'https://www.marketwatch.co

7. Results: step_4

[{'title': 'USA Rare Earth Announces Letter of Intent with the U.S. Government for Access to \$1.6 Billion in Funding to Accelerate the Domestic Heavy Rare Earth Value Chain. Concurrently ...', 'url': 'https://markets.businessinsider.com/news/stocks/usa-rare-earth-announces-letter-of-intent-with-the-u-s-government-for-access-to-1-6-billion-in-funding-to-accelerate-the-domestic-heavy-rare-earth-value-chain-concurrently-usa-rare-earth-raises-1035745265', 'snippet': "LOI from the Department of Commerce's CHIPS Program Includes Proposed \$277 Million of Federal Funding and a \$1.3 Billion Senior Secured Loan from", 'source': 'markets.businessinsider.com'}, {'title': 'Department of Energy Announces Funding Process for Domestic Rare Earth Element Supply Chains', 'url': 'https://www.jdsupra.com/legalnews/department-of-energy-announces-funding-2856519/', 'snippet': "On December 1, 2025, the Department of Energy (DOE) publicly announced its decision to allocate up to \$134 million in new funding to enhance domestic supply chains for rare earth elements (REEs). REEs are 17 elements identified in the periodic table ...", 'source': 'www.jdsupra.com'}, {'title': 'DOE rare earths funding is open to recyclers', 'url': 'https://www.recyclingtoday.com/news/us-department-energy-grants-recycling-rare-earth-elements/', 'snippet': "The harvesting of rare earth elements from electronic scrap and industrial byproducts is specifically mentioned in the Department of Energy funding announcement. DOE says the intention of the funding is to support projects that demonstrate the commercial ...", 'source': 'www.recyclingtoday.com'}, {'title': "Inside the West's Hidden Weak Spot — The Race for Rare Earth Control", 'url': 'https://www.mining-journal.com/partners/partner-content/4524235/inside-west-hidden-weak-spot-race-rare-earth-control', 'snippet': "For decades, Western nations have built their technological power on materials they don't control [2]. Now, that dependence has reached its breaking point. Across defense manufacturing, electric mobility, high-performance computing, and clean-energy ...", 'source': 'www.mining-journal.com'}, {'title': 'The race for rare earth and critical minerals: From risk to results', 'url': 'https://www.openaccessgovernment.org/the-race-for-rare-earth-and-critical-minerals-from-risk-to-results/201058/', 'snippet': "Cecilia Van Cauwenbergh examines the competition for rare earth and critical minerals, discussing a sustainable economic opportunity", 'source': 'www.openaccessgovernment.org'}, {'title': 'White House Summit Aims to De-Risk AI Supply Chain Vulnerabilities', 'url': 'https://oilprice.com/Energy/Energy-General/White-House-Summit-Aims-to-De-Risk-AI-Supply-Chain-Vulnerabilities.html', 'snippet': "The United States is leading a diplomatic initiative with eight allied nations—including Japan, South Korea, and Australia—to forge secure supply chains for the critical minerals and advanced semiconductors essential to the artificial intelligence