10 Largest Critical Minerals Projects

PLANETARY P&L



Greenbushes Lithium Mine (Australia)

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Mineral: Lithium (Spodumene)
Start Year: 1983
Status: Operating
Ownership: Operated by Talison Lithium, a joint venture between Tianqi Lithium Corporation / IGO Limited JV (51%) and Albemarle Corporation (49%).

Production Capacity
As of early 2025, the Greenbushes operation comprises a large open-pit mine and multiple processing facilities, including:

- Chemical Grade Plant #1 (CGP1)
- Chemical Grade Plant #2 (CGP2)
- Tailings Retreatment Plant
- Technical Grade Plant

These plants collectively have a total nominal processing capacity of 6.5 million tons per annum, producing up to 1.5 million tons of lithium mineral concentrate per annum.
Construction of a third Chemical Grade Processing Plant (CGP3) commenced in 2023, with commissioning expected in mid-2025. CGP3 will have a processing capacity of 2.4 million tons per annum, producing up to 500,000 tons per annum of lithium mineral concentrate.

Community and Environmental Considerations
The expansion has raised concerns among local residents regarding increased dust, noise, and light pollution. Talison Lithium has acknowledged underestimating these impacts and is working to minimize them through operational changes and community engagement.

Resource Estimates
As of February 2025, the total mineral resources at Greenbushes were updated to 440 million tons at an average grade of 1.5% lithium oxide, with total ore reserves estimated at 172 million tons grading 1.9% lithium oxide.

Expansion Plans
To meet growing global demand for lithium, Talison Lithium is proposing to expand the mine to the east and south of the current Greenbushes site. The expansion includes:

- An additional waste rock landform and expansion of the existing Floyds waste rock landform
- Expanded storage capacity at the Saltwater Gully Dam
- A highway crossing (overpass or underpass) to allow haul truck access to the new waste rock landform without disrupting traffic on South Western Highway

The proposal has been referred to the Environmental Protection Authority (EPA) of Western Australia for assessment.

Tanbreez Rare Earth Project (Greenland)

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Minerals: Rare Earth Elements (REEs), including significant concentrations of Heavy Rare Earth Elements (HREEs) such as dysprosium, terbium, and yttrium; also contains tantalum, niobium, zirconium, hafnium, and gallium.
Start Year: 2020 (Exploitation License Granted)
Status: Development Phase
Ownership: Initially owned by Rimbal Pty Ltd. In 2024, Critical Metals Corp. acquired a 42.5% stake, with plans to increase ownership to 92.5% upon meeting certain investment milestones. European Lithium holds a 7.5% stake.

Resource Estimates
Total Resource: Approximately 4.7 billion tons of mineralized kakortokite rock, hosting an estimated 28.2 million tons of Total Rare Earth Oxides (TREO).
Maiden Mineral Resource Estimate (2025): 45 million tons at 0.4% TREO, with 27% comprising HREEs.

Economic Highlights
Preliminary Economic Assessment (PEA): The project has an estimated pre-tax Net Present Value (NPV) ranging from US$2.4 to US$3.0 billion at discount rates of 10% and 8%, respectively. The Internal Rate of Return (IRR) is projected at 162%, with a mine life of 19 years.
Capital Expenditure (CapEx): Estimated at US$327 million, with a payback period of approximately three years.
Operating Costs: Projected at around US$31.61 per tonne of concentrate.

Strategic Importance
Geopolitical Considerations: The U.S. and Danish governments have shown interest in the project to diversify supply chains away from China, which currently dominates global REE production. The project's low levels of uranium and thorium make it more environmentally and politically viable.
Infrastructure and Accessibility: Located near Qaqortoq in southern Greenland, the project benefits from proximity to deep-water fjords for shipping and existing infrastructure, including a hydroelectric power line within 2 km of the site.

Recent Developments
Drilling Programs: In 2024, Critical Metals Corp. initiated a diamond drilling program to confirm and expand the resource base. Notable results include drill hole A1-24, which intersected 40 meters of mineralization averaging 0.47% TREO, including 26.96% HREEs.
Environmental and Regulatory Status: The project holds an exploitation license valid through 2050. Its low radioactive content aligns with Greenland's environmental regulations, which ban uranium mining.

Resolution Copper Project (Arizona, USA)

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Minerals: Copper
Start Year: Permitting process initiated in 2013
Status: Permitting phase; awaiting legal and regulatory approvals
Ownership: Joint venture between Rio Tinto (55%) and BHP (45%)

Project Overview
The Resolution Copper Project is a proposed underground mining operation located near Superior, Arizona. It targets a deep-seated porphyry copper deposit situated approximately 5,000 to 7,000 feet (1,500 to 2,130 meters) below the surface. The deposit is estimated to contain approximately 1.97 billion tons of ore with an average grade of 1.54% copper and 0.035% molybdenum.
Once operational, the mine is projected to produce up to 40 billion pounds of copper over a 40-year lifespan, potentially supplying up to 25% of the annual U.S. copper demand.

Economic Impact
Investment: Over $2 billion invested to date in development and permitting.
Job Creation: Approximately 3,700 direct and indirect jobs during peak construction; around 1,500 permanent jobs during operations.
Economic Contribution: Estimated to contribute $61 billion to Arizona's economy over the mine's operational life, including $20 billion in tax revenue.

Regulatory and Legal Challenges
The project has faced significant delays due to environmental concerns and opposition from Native American tribes, particularly the San Carlos Apache Tribe. The proposed mining area includes Oak Flat, a site considered sacred by the Apache people. In 2025, a U.S. federal judge is expected to rule on whether to block the transfer of federal land to the mining companies, a decision that could impact the project's progression.
Despite these challenges, the U.S. government granted the project "Fast-41" status in April 2025, aiming to streamline the permitting process for infrastructure projects deemed critical.

Environmental Considerations
Mining Method: The project plans to use block caving, an underground mining technique that can result in surface subsidence.
Tailings Management: The mine is expected to produce approximately 1.3 billion tons of tailings over its lifespan.
Water Usage: Concerns have been raised about the mine's water consumption in an already drought-prone region.

Strategic Importance
The Resolution Copper Project is considered vital for securing a domestic supply of copper, a critical mineral essential for various industries, including renewable energy, electronics, and national defense. The U.S. currently imports a significant portion of its copper needs, and the development of this mine could reduce dependency on foreign sources.

Kvanefjeld Rare Earth Project (Greenland)

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Minerals: Rare Earth Elements (REEs), uranium (byproduct), zinc, and fluorspar
Start Year: Discovered in the 1950s; acquired by Greenland Minerals (now Energy Transition Minerals) in 2007
Status: Permitting phase; development stalled due to Greenland's uranium mining ban
Ownership: Energy Transition Minerals Ltd (formerly Greenland Minerals Ltd), an Australian company

Project Overview
The Kvanefjeld project, located near Narsaq in southern Greenland, is one of the world's largest undeveloped rare earth deposits. It contains over 1 billion tons of ore, including approximately 11.1 million tons of rare earth oxides and 593 million pounds of uranium oxide (U_3O_8). The deposit also hosts significant quantities of zinc and fluorspar.
The project's feasibility study outlines a 37-year mine life, with the potential to supply up to 15% of global REE demand.

Regulatory and Legal Challenges
In 2021, Greenland's government enacted legislation banning uranium mining, effectively halting the Kvanefjeld project's development. The law prohibits exploration and exploitation of deposits with uranium concentrations exceeding 100 parts per million.
Energy Transition Minerals has initiated legal proceedings against the governments of Greenland and Denmark, seeking arbitration and potential compensation of up to $11.5 billion, arguing that the ban constitutes expropriation.

Recent Developments
The 2025 Greenland general election resulted in a new government more open to mining activities. There is speculation that the uranium ban may be reconsidered, potentially reviving the Kvanefjeld project.
However, environmental concerns and local opposition remain significant hurdles. Residents of Narsaq have expressed fears about potential radioactive contamination affecting drinking water and the environment.

Strategic Importance
The Kvanefjeld project is strategically significant due to its potential to diversify global REE supply chains, which are currently dominated by China. Its development could contribute to the global transition to green technologies by providing essential materials for electric vehicles, wind turbines, and other renewable energy applications.

Kvanefjeld Rare Earth Project (Greenland)

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Environmental Considerations

Uranium Contamination Risks

Uranium Byproduct: The Kvanefjeld deposit contains significant uranium concentrations, leading to concerns over radioactive contamination. Although uranium is considered a byproduct rather than a primary target, its extraction and processing could release radioactive dust and waste.

Tailings Management: The project is expected to generate large volumes of tailings containing low levels of radioactive materials. Managing these tailings safely is a critical challenge. Proposed tailings facilities would require robust containment systems to prevent leaching into groundwater.

Groundwater Contamination: Local residents, particularly in the nearby town of Narsaq, have expressed concerns about the potential for radioactive material to leach into groundwater, affecting drinking water supplies.

Air Quality and Dust Emissions

Mining and Processing: The proposed open-pit mining and crushing of ore could release dust containing rare earth elements and radioactive particles into the air.

Dust Control Measures: To mitigate this, the project's developers have proposed dust suppression techniques, including water spraying and enclosed conveyor systems. However, the effectiveness of these measures in harsh Arctic conditions remains a concern.

Marine Pollution Risks

Wastewater Discharge: The project plans to use nearby fjords for wastewater discharge, which may contain trace amounts of metals, fluoride, and radioactive particles. This raises concerns about the impact on marine ecosystems and fish populations.

Cold Water Vulnerability: The Arctic marine environment is particularly sensitive to pollution, with slow decomposition rates and limited species diversity, making recovery from contamination difficult.

Community and Indigenous Concerns

Local Opposition: The residents of Narsaq, a town located near the project site, have been vocal in their opposition. They fear that the project will harm their health, environment, and traditional livelihoods, including fishing.

Transparency and Consultation: Critics have accused Energy Transition Minerals (formerly Greenland Minerals) of inadequate community consultation. In response, the company has committed to ongoing dialogue with local stakeholders.

Waste Management and Site Rehabilitation

Waste Rock Management: The project will generate large volumes of waste rock, some of which may contain trace levels of uranium and thorium. This waste must be managed to prevent acidic drainage and metal leaching.

Rehabilitation Plans: At the end of the mine's life, the project developers are required to restore the site to its natural state. This includes replanting vegetation and ensuring that any tailings facilities are permanently stabilized.

Kabanga Nickel Project (Tanzania)

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Minerals: Nickel (Class 1), Cobalt, Copper
Start Year: Initial exploration in 1976; development agreement signed in 2021
Status: Development Phase
Ownership: Tembo Nickel Corporation Limited (TNCL), a joint venture between Kabanga Nickel Ltd (84%) and the Government of Tanzania (16%)

Project Overview
The Kabanga Nickel Project is situated in the Ngara District of northwestern Tanzania, near the border with Burundi. It is recognized as one of the world's largest and highest-grade undeveloped nickel sulfide deposits. The project encompasses an underground mine and a concentrator at the Kabanga site, along with a hydrometallurgical refinery located in Kahama. This integrated "mine-to-metal" operation aims to produce high-purity nickel, cobalt, and copper metals entirely within Tanzania, thereby enhancing local value addition and reducing reliance on traditional smelting processes.

Strategic Importance
The Kabanga Nickel Project is a key component of the Minerals Security Partnership initiative, aiming to diversify global supply chains for critical minerals away from dominant sources. With backing from major stakeholders, including BHP and the Government of Tanzania, the project is poised to become a significant supplier of Class 1 nickel, cobalt, and copper-essential materials for electric vehicles and renewable energy technologies.

Environmental Considerations
Regulatory Compliance and Environmental Assessments
TNCL has conducted comprehensive Environmental and Social Impact Assessments (ESIAs) for the Kabanga mine, Kahama refinery, and associated resettlement projects. These assessments have been approved by Tanzania's National Environment Management Council (NEMC), with Environmental Impact Assessment (EIA) certificates issued for each component. The ESIAs provide critical baselines for environmental and social conditions, guiding the project's efforts to mitigate impacts and ensure sustainable operations.
In response to project optimizations, including an increase in mine production throughput from 2.2 million tons per annum (Mtpa) to 3.4 Mtpa and the relocation of the Residue Storage Facility (RSF) to Kahama, TNCL has submitted amendments to the existing Environmental and Social Management Plans (ESMPs) and variations in the ESIAs. These updates are currently under review to ensure continued compliance with national regulations and international standards.

Hydrometallurgical Processing Technology
The project utilizes Lifezone Metals' proprietary hydrometallurgical (Hydromet) technology for metal extraction and refining. This water-based process is more environmentally friendly compared to traditional smelting, as it significantly reduces carbon dioxide and sulfur dioxide emissions. The Hydromet process also minimizes the generation of hazardous waste, contributing to a lower environmental footprint.

Kabanga Nickel Project (Tanzania)

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Environmental Considerations

Water Management

Water for the concentrator is expected to be primarily sourced from underground mine dewatering processes. This approach minimizes the need for external water extraction and reduces the impact on local water resources. The project area is located within the Nyamwongo River catchment, which ultimately flows into Lake Victoria. TNCL has committed to implementing robust water management practices to prevent contamination and ensure the protection of downstream ecosystems.

Waste Management and Residue Storage

The project includes the development of a Residue Storage Facility (RSF) at the Kahama site to manage waste generated from the refining process. The RSF design incorporates best practices to prevent leachate and ensure structural stability. Regular monitoring and maintenance protocols will be established to mitigate potential environmental risks associated with waste storage.

Community Engagement and Resettlement

The development of the Kabanga project necessitates the acquisition of approximately 4,179 hectares of land, affecting several local communities. TNCL has developed a Resettlement Action Plan (RAP) in line with international standards, including those set by the International Finance Corporation (IFC). The RAP outlines strategies for fair compensation, livelihood restoration, and ongoing community engagement to address the socio-economic impacts of resettlement.

Energy Infrastructure and Emissions Reduction

To support the project's energy needs, plans are underway to extend a 200 kV transmission line from a new hydroelectric project located approximately 70 km from the Kabanga site. Utilizing hydroelectric power aligns with the project's commitment to reducing greenhouse gas emissions and promoting sustainable energy use.

Ashram Rare Earth Project (Québec, Canada)

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Minerals: Rare Earth Elements (REEs), Fluorspar (CaF_2)
Start Year: Discovery in 2007
Status: Preliminary Economic Assessment (PEA) completed; Prefeasibility Study (PFS) underway
Ownership: Commerce Resources Corp.

Project Overview
The Ashram Rare Earth and Fluorspar Deposit is located in Nunavik, northern Québec, approximately 130 kilometers south of Kuujjuaq. It is recognized as one of the largest monazite-dominant carbonatite REE deposits globally, with a significant fluorspar component. The deposit outcrops at surface and has a drill-defined footprint extending over 700 meters along strike, 300 meters across, and 600 meters deep, remaining open at depth.

As of the May 2024 Mineral Resource Estimate (MRE), the deposit hosts:
Indicated Resource: 73.2 million tons at 1.89% Total Rare Earth Oxides (TREO) and 6.6% CaF_2
Inferred Resource: 131.1 million tons at 1.91% TREO and 4.0% CaF_2

The deposit exhibits high distributions of neodymium and praseodymium (NdPr), comprising over 21% of the TREO content, which are critical for permanent magnet applications.

Environmental Considerations
Tailings and Waste Management
Ashram's mineralogy is relatively simple, dominated by monazite, bastnaesite, and xenotime, with gangue minerals primarily consisting of carbonates. Metallurgical test work indicates that the tailings are non-acid generating and not considered hazardous or radioactive. A site trade-off study for the tailings management facility has been completed, evaluating both dry-stack and conventional tailings options within 10 kilometers of the process plant.

Water and Hydrogeology
A hydrogeological study has been conducted to develop a preliminary model for sub-surface water flow and slope stability of various pit shell configurations. This model will assist in evaluating the potential impacts on local water resources and inform the design of water management systems.

Energy and Emissions
Commerce Resources is exploring renewable energy options to reduce greenhouse gas (GHG) emissions associated with the project. A power generation trade-off study is evaluating various co-generation scenarios, including wind energy as an offset to baseload diesel power. The study also considers the utilization of waste heat generated during operations to heat local buildings, aiming to enhance energy efficiency and reduce the project's carbon footprint.

Ngualla Rare Earth Project (Tanzania)

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Minerals: Rare Earth Elements (REEs), primarily Neodymium (Nd) and Praseodymium (Pr)
Start Year: Initial exploration in 2010; construction commenced in October 2023
Status: Under construction; commissioning anticipated in 2025
Ownership: Mamba Minerals Corporation Limited (84% owned by Peak Rare Earths via Ngualla Group UK); Government of Tanzania holds a 16% free-carried interest

Project Overview
The Ngualla Rare Earth Project is situated near Ngwala Village, approximately 147 km from Mbeya in southern Tanzania. It is recognized as one of the world's largest and highest-grade undeveloped rare earth deposits. The project encompasses an open-pit mine and on-site processing facilities designed to produce approximately 28,300 tons per annum of rare earth concentrate grading 45% REO. The initial mine life is projected at 24 years, with proven and probable ore reserves of 18.5 million tons grading 4.80% REO, containing 887,000 tons of REO.
In April 2023, Peak Rare Earths signed a binding Framework Agreement with the Government of Tanzania, outlining the licensing, development, and economic benefit-sharing arrangements for the project. This agreement also established a joint venture between Peak and the government for the development and operation of the Ngualla Project.

Environmental Considerations
Regulatory Compliance and Environmental Assessments
Peak Rare Earths has conducted comprehensive Environmental and Social Impact Assessments (ESIAs) for the Ngualla project, aligning with international standards such as the IFC Performance Standards and Equator Principles. These assessments have been approved by Tanzania's National Environment Management Council (NEMC), with an environmental certificate granted in March 2017.

Tailings and Waste Management
The project plans to implement a Tailings Storage Facility (TSF) constructed using overburden waste from the mine. The TSF design incorporates best practices to prevent leachate and ensure structural stability. Regular monitoring and maintenance protocols will be established to mitigate potential environmental risks associated with waste storage.

Water Management
Water for the processing plant will be sourced from a borefield and an existing creek, with water from the TSF recycled for use within the plant. A freshwater tank is also proposed to be constructed onsite.

Ngualla Rare Earth Project (Tanzania)

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Environmental Considerations

Energy Infrastructure and Emissions Reduction

The project will utilize diesel and heavy fuel oil (HFO) fired generators for electricity, with an option to install a solar farm at the site being considered to reduce greenhouse gas emissions.

Community Engagement and Resettlement

Peak Rare Earths is committed to engaging with local communities to ensure that development aligns with regional interests and provides economic opportunities. The project is expected to create around 600 direct jobs during construction and approximately 220 direct jobs during operations.

Strategic Importance

The Ngualla project is strategically significant due to its potential to supply critical REEs, particularly Nd and Pr, essential for various high-tech and green energy applications. The project's high-grade deposit positions it as a potential long-term supplier for the permanent magnet market, vital for electric vehicles and wind turbines. Additionally, the partnership with Shenghe Resources enhances the project's financial and technical capabilities, ensuring a streamlined path to production.

Tanco Mine (Manitoba, Canada)

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Minerals: Caesium (from pollucite), Tantalum, Lithium (from spodumene)
Start Year: Initial mining in 1929; commercial production began in 1969
Status: Operating
Ownership: Sinomine Resource Group Co., Ltd. (acquired in 2019)

Project Overview
The Tanco Mine, located on the northwest shore of Bernic Lake in Manitoba, is an underground operation renowned for its rich lithium-cesium-tantalum (LCT) pegmatite deposit. It holds the world's largest known deposit of pollucite, a primary source of caesium, and is a significant producer of tantalum and lithium. The mine's pegmatite body measures approximately 1,400 meters in length, 600 meters in width, and 100 meters in depth.
As of 2025, Tanco remains a critical supplier of cesium formate, a high-density brine used in oil and gas drilling fluids, and produces lithium concentrate for the battery industry. The mine also processes tantalum, essential for electronics and aerospace applications.

Strategic Importance
Tanco is one of the few commercial sources of cesium globally, with its pollucite reserves accounting for approximately two-thirds of known resources. Given the limited global production of cesium, Tanco's output is vital for industries requiring high-density drilling fluids. Additionally, its lithium and tantalum production supports the growing demand for batteries and electronic components.

Environmental Considerations
Tailings and Waste Management
In 2023, Tanco submitted a Notice of Alteration to Manitoba's Environmental Approvals Branch, proposing to process lithium-bearing ores from local junior mining companies lacking milling capabilities. This initiative aims to extend the mine's life and provide operational flexibility. Comprehensive testing protocols have been established to assess the chemical characteristics of external ores and their tailings, ensuring no significant environmental impacts on the existing Tailings Management Areas (TMAs).

Water Management
Tanco conducts regular water quality monitoring, measuring parameters such as pH and total suspended solids, to comply with Environment Act License No. 973. These measures ensure that effluent quality remains within regulatory limits, safeguarding local water resources.

Community Engagement
Historically, Tanco's engagement with the Red River Métis was limited. However, since 2023, the mine's leadership has initiated meaningful consultations with the Manitoba Métis Federation (MMF) to recognize and address the rights, claims, and interests of the Red River Métis in the region. This engagement aims to inform future planning and decision-making processes related to the mine's operations.

Pilgangoora Lithium Project (Western Australia)

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Minerals: Lithium (Spodumene)
Start Year: Construction commenced in January 2017; first production achieved in 2018
Status: Operating
Ownership: Pilbara Minerals Ltd (100%)

Project Overview
Located approximately 120 kilometers south of Port Hedland in Western Australia's Pilbara region, the Pilgangoora Lithium Project is one of the world's largest hard-rock lithium operations. The project encompasses two processing facilities: the Pilgan Plant and the Ngungaju Plant.
In January 2025, Pilbara Minerals achieved first ore from its P1000 Expansion Project at the Pilgan Plant, marking a significant milestone in increasing the site's production capacity. This expansion is expected to elevate the annual production capacity to 1 million tons of spodumene concentrate, reinforcing the project's position as a key supplier in the global lithium market.
The company is also conducting a feasibility study for the P2000 Expansion Project, which aims to further increase production capacity to over 2 million tons per annum. The outcomes of this study are anticipated in the December Quarter of 2025.

Strategic Importance
The Pilgangoora Lithium Project is strategically significant due to its substantial lithium reserves and production capacity, which are essential for various high-tech and green energy applications. The project's expansions position it as a potential long-term supplier for the global electric vehicle and energy storage markets.

Environmental Considerations
Tailings and Waste Management
Pilbara Minerals has implemented comprehensive measures to manage tailings and waste, including the construction of Tailings Management Facilities (TMFs) designed to minimize environmental impact. The company conducts regular risk assessments and monitoring to ensure the integrity of these facilities and to prevent potential seepage or contamination of surrounding ecosystem**s.**

Water Management
The project includes strategies for efficient water use and management, such as recycling process water and monitoring groundwater levels to prevent over-extraction. These measures aim to protect local water resources and maintain ecological balance in the region.

Energy Infrastructure and Emissions Reduction
Pilbara Minerals is exploring renewable energy options to reduce greenhouse gas emissions associated with the project. Initiatives include the potential integration of solar power and battery storage systems to supplement existing energy sources, thereby decreasing reliance on fossil fuels.

Community Engagement and Indigenous Partnerships
The company is committed to engaging with local communities and Indigenous groups to ensure that development aligns with regional interests and provides economic opportunities. This includes consultation with traditional landowners and investment in community development programs.

Mountain Pass Rare Earth Mine (California, USA)

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Minerals: Rare Earth Elements (REEs), primarily Neodymium (Nd), Praseodymium (Pr), Cerium (Ce), and Lanthanum (La)
Start Year: Initial mining in 1952; commercial production began in the 1960s
Status: Operating
Ownership: MP Materials Corp.

Project Overview
The Mountain Pass Rare Earth Mine, located in San Bernardino County, California, is the only active rare earth mining and processing facility in the United States. The mine primarily extracts bastnäsite ore, which contains a mix of light rare earth elements. In 2024, MP Materials achieved record-breaking production, delivering over 45,000 metric tons of rare earth oxides (REO) contained in concentrate. The company also produced approximately 1,300 metric tons of NdPr oxide, essential for manufacturing high-strength permanent magnets used in electric vehicles and wind turbines.
In response to geopolitical tensions and China's imposition of a 125% tariff on U.S. rare earth imports, MP Materials ceased shipments of rare earth minerals to China in April 2025. The company is now focusing on expanding its domestic processing capabilities, including the development of a rare earth magnet manufacturing facility in Fort Worth, Texas, which began producing NdPr metal in January 2025.

Strategic Importance
Mountain Pass plays a crucial role in reducing American dependence on Chinese rare earth supplies. With the expansion of domestic processing and manufacturing capabilities, MP Materials is positioning itself as a key player in the U.S. supply chain for critical minerals essential to national security and the clean energy transition.

Environmental Considerations
Historical Environmental Impact
Between 1984 and 1998, the Mountain Pass facility experienced approximately 60 spills of radioactive and hazardous waste due to pipeline ruptures, releasing about 600,000 gallons of waste onto the desert floor. These incidents led to the mine's closure in 2002.

Current Environmental Practices
Since resuming operations under MP Materials in 2018, the Mountain Pass facility has implemented several environmental measures:
Closed-Loop Water Recycling: The site operates as a net-zero-discharge facility, recycling approximately 95% of its process water to minimize environmental impact.
Tailings Management: Modern tailings management practices have been adopted to prevent contamination of surrounding ecosystems.
Emission Controls: Advanced emission control systems have been installed to reduce air pollutants associated with rare earth processing.