

Earth's Resource

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July Edition

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Factbox: Rare Earths projects under development in U.S.

(Reuters) - The U.S. Government is planning to fund domestic Rare Earth Element (REE) in an attempt to reduce its reliance on China, the global leader of the specialized sector.



A wheel loader operator fills a truck with ore at the MP Materials rare earth mine in Mountain Pass, California, U.S. January 30, 2020.
REUTERS/Steve Marcus

REE's are a group of 17 minerals used in a plethora of military equipment and consumer electronics. There are no known substitutes! Apple Inc (AAPL.O), for instance, uses REE's in its iPhone's taptic engine, which makes the phone vibrate.

While the modern Rare Earth Elements industry had its genesis in World War Two's Manhattan Project to develop the atomic bomb; China had spent the last 30 years building a monopoly over the sector, at the expense of the environment Rare Earths became steadily in decline being mined in the U.S.

In an attempt to stop the foreign dependency, the Pentagon last year said it would fund mines and processors via the 1950 Defense Production Act, which gives the military a wide array to procure certain equipment. President Donald Trump, has recently considered using the same law to boost medical supply manufacturing as a way to stop more control from the country regaining momentum for recovery.

Here are Rare Earth Elements (REE's) projects under development in the United States:

Dorado Equities Inc. "Dorado"

Dorado Equities, Inc "Dorado" is already adapting in the effort to become a full-fledged mining company, utilizing all financial stimulant and other grants that the U.S. Government is making available to the industry and it's educational institutions. Some of the efforts to alleviate the U.S. dependency to foreign Rare Earth Mineral suppliers, Dorado has made a commitment already addressing the matter utilizing their own funds expediting the process to becoming a Rare Earth mining company. Dorado aims to distribute the majority of the available funds in revitalizing older mine sites that presently are not utilized. Playton, from Dorado, said that the present economy indicators are looking overly optimistic for a company of our size". Also, stated that the U.S. Geological Survey indicating the existence of Rare Earth Minerals, including Rhodium on the claims presently owned by Dorado, and in order to move forward, Dorado has applied for the necessary permits in hope to start producing small amounts of REE's by late 2020.

Additionally, Playton, stated "Dorado contractual, seasonal and permanent hiring will significantly add to the Alaskan economic structure".

Lynas Corp (LYC.AX) and privately-held Blue Line Corp

Australia-based Lynas is largest producer of Rare Earths outside China. The company extracts rare earths from a mine in western Australia and ships the ore to Malaysia for processing, though its Malaysian operations have come under increased government scrutiny in recent years.

Lynas inked a deal with Blue Line in 2019 to build Rare Earths processing plants in Texas. Lynas will be the majority owner. The companies last December jointly applied for Pentagon funding for processing of so-called heavy Rare Earths, a less-common type of the specialized minerals that are highly sought after for use in weaponry, part of the reason why Lynas sought a U.S.-based partner.

MP Materials

The privately held company owns California's Mountain Pass mine, the only Rare Earths mine in the United States. China's Shenghe Resources Holding Co (600392.SS) owns about 10% of the company, and Chinese customers account for all its annual revenue of about \$100 million.

MP Materials ships more than 50,000 tonnes of concentrated Rare Earths per year to China for processing. It is spending \$200 million to restart mothballed equipment and aims to be processing at the mine site by the end of the year, though some industry analysts have said the goal may be overly optimistic.

Once the refining equipment does switch online, the goal is to use that material on site to make more than 5,000 tonnes per year of neodymium and praseodymium (NdPr), two of the 17 types of rare earths that are used to make magnets.

NioCorp Developments Ltd (NB.TO)

The company, led by former Molycorp executives, is developing the Elk Creek mine in Nebraska. The deposit will primarily produce niobium, which is used to harden steel and is not a Rare Earth. But it also will produce the Rare Earth scandium.

The company is in the process of obtaining permits and is looking for financing.

Resources Ltd (REEMF.PK)

The company has been developing the Bear Lodge Rare Earths mine in Wyoming, since 1999. In recent years, the company has run into delays in obtaining permits and faced other challenges, hindering its ability to secure financing.

Texas Mineral Resources Corp (TMRC.PK) and privately held USA Rare Earth

The companies are developing the Round Top Rare Earths project in the western corner of Texas and hope to have it operational by 2023. In the meantime, the partners are building a pilot plant in Colorado to process Rare Earth Elements.

The companies hope to be producing small amounts of processed Rare Earths by the middle of 2020- roughly 100 kg (220 pounds) annually. This would help them finalize supply deals with potential customers and secure financing for a full-scale plant near their Texas mine site.

UCore Rare Metals Inc (UCU.V)

The company is developing the Bokan mine in Alaska and building Rare Earths processing equipment. Alaska's state government has pledged \$145 million to support the project.

UCore has said it plans to focus first on building the processor and then develop the mine. The company teamed up with manufacturer Materion Corp (MTRN.N) to apply for Pentagon funding for the processing plant.

Materion has previously received financial support from the U.S. military to produce beryllium, a mineral used as a hardening agent for weapons. The beryllium production process has similarities to Rare Earths processing.

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2020 Decommissioning Market Report

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Papua New Guinea snatches Barrick Gold's Porgera mine

Cecilia Jamasmie



Lime plant at Porgera gold mine. (Image courtesy of [Porgera Joint Venture](#).)

Papua New Guinea is set to take control of Barrick Gold's (TSX: ABX) (NYSE: GOLD) Porgera mine after refusing to extend the company's lease on environmental and social grounds, Prime Minister James Marape said on Friday.

"In the best interests of the state, especially in lieu of the environmental damages, claims and resettlements issues, the Special Mining Lease will not be renewed," Marape said.

BARRICK PLANNED TO BOOST THE GOLD MINE TO ITS TOP-TIER ASSETS, DESPITE LANDOWNER AND GOVERNMENT DEMANDS TO CEDE A LARGER STAKE

The decision comes nine months after the mining lease expired. During that time, the world's second largest gold miner has faced backlash from landowners and residents over what they claim are negative social, environmental and economic factors.

US quandary: securing weapons-grade minerals without China

Reuters



The United States wants to curb its reliance on China for specialized minerals used to make weapons and high-tech equipment, but it faces a Catch-22.

It only has one rare earth's mine – and government scientists have been told not to work with it because of its Chinese ties.

The mine is southern California's Mountain Pass, home to the world's eighth-largest reserves of the rare earths used in missiles, fighter jets, night-vision goggles and other devices.

FOR NOW, MP MATERIALS SHIPS MORE THAN 50,000 TONNES OF CONCENTRATED RARE EARTHS PER YEAR TO CHINA FOR PROCESSING



But the U.S. Department of Energy (DOE) has told government scientists not to collaborate with the mine's owner, MP Materials, the DOE's Critical Materials Institute told Reuters.

This is because MP Materials is almost a tenth-owned by a Chinese investor and relies heavily on Chinese sales and technical know-how, according to the company.

"Clearly, the MP Materials ownership structure is an issue," said Tom Lograsso, interim director of the institute, the focal point of the U.S. government's rare earths research and a facility that typically works closely with private industry.

"We're going to allow the people in Washington to figure this out."

The DOE instruction, which has not been previously reported, illustrates the competing pressures facing officials looking to resurrect the U.S. commercial rare earths industry, which has all but disappeared since its genesis in World War Two's Manhattan Project to develop the atomic bomb. Lograsso did not say how the guidance was delivered to the institute.

Reviving domestic rare earths production has become a priority in Washington as relations with China, which dominates global supplies, have become increasingly frayed and U.S. lawmakers warn of the dangers of relying on a competitor for critical defense components.

Even as the DOE has blacklisted MP Materials, the company is a candidate to receive up to \$40 million in funding from the Pentagon, according to two sources familiar with the matter.

The Pentagon has yet to announce its decision on funding, which could go to more than one project, after delaying the decision from March due to the coronavirus crisis.

MP Materials is by far the most advanced player in the U.S. rare earths industry, given no rival project has even broken ground. As such, Mountain Pass is widely seen by industry analysts as the front-runner for Pentagon funding.

The DOE did not respond to requests for comment on the instruction to scientists or any potential conflict with Pentagon policy.

The Pentagon is working closely with “the president, Congress, allies, partners and the industrial base to mitigate U.S. reliance on China for rare earth minerals,” said spokesman Lt Col Mike Andrews. The department did not respond to requests for comment on whether it might fund Mountain Pass or potential conflicts with DOE policy.



Apple to Lockheed

MP Materials, which bought the mine in 2017, describes itself as an American-controlled company with a predominantly U.S. workforce. The privately held firm is 9.9%-owned by China's Shenghe

Resources Holding Co, though, and Chinese customers account for all its annual revenue of about \$100 million.

“Had we not had a Chinese technical partner helping us do this relaunch, there’s no way this could have been done,” said James Litinsky, chief executive of JHL Capital Group LLC, a Chicago-based hedge fund and MP Materials’ majority owner.

Litinsky declined to comment on the Pentagon funding.

EVEN AS THE DOE HAS BLACKLISTED MP MATERIALS, THE COMPANY IS A CANDIDATE TO RECEIVE UP TO \$40 MILLION IN FUNDING FROM THE PENTAGON

Asked for comment on the DOE instruction to scientists, Litinsky said: “MP is on a mission to restore the full rare earth supply chain to the United States of America, whether the government helps us or not.”

Shenghe did not respond to requests for comment.

MP Materials is among a slew of U.S. companies dependent on China’s rare earths industry. Apple Inc uses Chinese rare earths in its iPhone’s taptic engine, which makes the phone vibrate. Lockheed Martin Corp uses them to make the F-35 Lightning fighter jet. General Dynamics Corp uses them to build the Virginia-class submarine.

The COVID-19 pandemic has further driven home the global nature of supply chains and how heavily Western countries rely on manufacturing powerhouse China for a host of key products, including drug ingredients.



Manhattan Project

Mountain Pass first opened in the late 1940s to extract europium, a rare earth used to produce the color red in televisions. It drew heavily on technology developed by Manhattan Project government scientists to separate the 17 rare earths, a complex and expensive process.

By the early 1980s, the mine was a top global rare earths producer. Its minerals were in much of the equipment that U.S. soldiers used during the first Gulf War in 1990.

However China ramped up development of a massive rare earths refining network and began boosting exports, undercutting other producers. “The Middle East has oil. China has rare earths,” then-Chinese leader Deng Xiaoping said in 1992.

In 2010, China halted supplies to Japan during a diplomatic dispute, unnerving U.S. military officials who wondered if China could one day do the same to the United States.

That refocused Washington’s attention on the mine and its then-owner Molycorp, which launched a \$400 million initial public offering the same year.

However, even as U.S. government scientists had begun research projects with Molycorp, the company went bankrupt in 2015 under the weight of its debt – partly built up to comply with tight environmental regulations from the Obama administration – and cheaper Chinese competition.

Two years later, Litinsky’s group and Shenghe bought Mountain Pass out of bankruptcy. The processing equipment installed by Molycorp, however, remains unused because of poor design, Litinsky said.

For now, MP Materials ships more than 50,000 tonnes of concentrated rare earths per year to China for processing, the Achilles heel of the U.S. industry.

The company aims to restart its own processing by the end of 2020, Litinsky said. The goal is to produce about 5,000 tonnes per year of the two most common rare earth metals, more than enough for U.S. military needs.



Some rare earths analysts and academics have doubted whether Mountain Pass can resume processing so soon, citing concerns about its plans for waste disposal and water filtration.

‘National security malpractice’

Florida Republican Senator Marco Rubio told Reuters that the United States’ reliance on China for defense components could pose a strategic military threat.

“It would be national security malpractice not to address this,” said Rubio, who sits on the Senate’s Intelligence and Foreign Relations committees.

THE PENTAGON ASKED MINERS IN EARLY 2019 TO OUTLINE PLANS TO DEVELOP RARE EARTHS PROJECTS AND PROCESSING FACILITIES



This was echoed by Representative Chrissy Houlahan, a Pennsylvania Democrat, who said the issue of creating a viable domestic industry had been ignored for too many years.

“This isn’t an issue we can just kick down the road,” said Houlahan, who sits on the House Armed Services Committee.

The Pentagon asked miners in early 2019 to outline plans to develop rare earths projects and processing facilities, according to documents seen by Reuters.

President Donald Trump sharpened the directive last July, telling the Pentagon to fund U.S. rare earths projects and find better ways to procure military-grade magnets made from rare earths.

On Wednesday, Australia-based Lynas Corp and privately held Blue Line Corp said they were chosen by the Pentagon to process in Texas so-called heavy rare earths, a less-common type of the specialized minerals, imported from Australia. The deadline for that project was in December.

MP Materials is said to have applied for the light rare earths funding, the deadline for which was March 2. No decision has been announced. Light rare earths are the most-commonly used of the specialized materials.

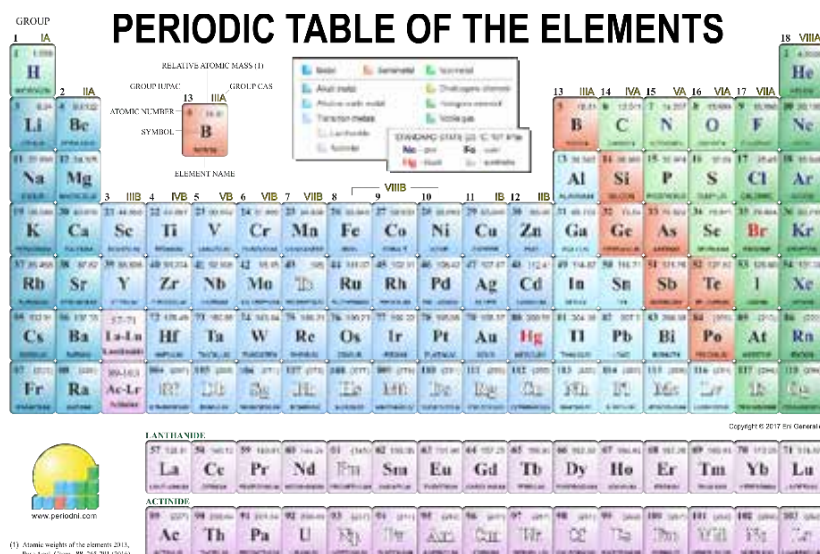
Other applicants for the Pentagon funding programs included Texas Mineral Resources Corp; a joint venture between Alaska's UCore Rare Metals and Materion Corp; Medallion Resources Ltd and Search Minerals Inc, both of Canada; and Nebraska's NioCorp Developments Ltd.

Meanwhile, U.S. government scientists at the DOE institute are studying ways to recycle rare earth magnets, to find substitutes and to locate new sources of the strategic minerals. None of that research is shared with MP Materials.

"MP Materials recognizes they have become the elephant in the room that the U.S. government doesn't want to acknowledge, given their relationship with Shenghe," said Ryan Castilloux, a rare earths industry consultant at Adamas Intelligence.

(By Ernest Scheyder; Editing by Amran Abocar and Pravin Char)

Why is the Periodic Table becoming Increasingly Important?



The image shows a standard periodic table of elements. It is color-coded by groups: Group 1 (IA) is pink, Group 2 (IIA) is light blue, Groups 3-10 (IIB) are various shades of blue and green, Group 11 (IB) is light green, Group 12 (IIB) is light blue, Groups 13-18 (VIIA) are various shades of green and yellow. The table includes element symbols, atomic numbers, and names. A legend on the left side of the table lists element categories: Alkali metals, Alkaline earth metals, Transition metals, Lanthanides, Actinides, and Noble gases. The title 'PERIODIC TABLE OF THE ELEMENTS' is prominently displayed at the top.

The periodic table has come a long way since Russian chemist Dmitri Mendeleev first drew up the original sketches in 1869. While plenty has changed over the past 150 years, including the addition of new elements such as Nihonium (Nh), Moscovium (Mc), Tennessine (Ts) and Oganesson (Og) in 2016, the underlying concept of the periodic table retains its relevance and importance.

Mendeleev designed the periodic table as a way of systematically categorizing elements according to atomic number, electron configuration and recurring chemical properties. This allows for the identification of elemental characteristics simply by analysing its position on the table.

Identifying patterns and predicting reactions

The **periodic table** is so accurate that it allows scientists to predict the chemical and physical

properties of elements that hadn't yet been discovered. In laboratories, the periodic table plays an important role in helping scientists anticipate the types of chemical reactions that could occur and balance equations accordingly. This is done by analyzing characteristics such as reactivity, pliability and the capacity to conduct electricity and likelihood of combining with non-metals.

"The elements, if arranged according to their atomic weights, exhibit an apparent periodicity of properties," said Mendeleev.

Pioneering periodic law

Elements aligned in the same column share similar properties and are known as groups. Elements that share the same row are known as periods and have the same highest unexcited electron energy levels. The periodic table also reveals information on the atomic number and weight of an element, as well as the usual charge. All this information, and more, is packed into one universal, easy-to-use reference table that graces the walls of classrooms and laboratories around the world.

"Before the promulgation of the periodic law the chemical elements were mere fragmentary incidental facts in nature; there was no special reason to expect the discovery of new elements, and the new ones which were discovered from time to time appeared to be possessed of quite novel properties," said Mendeleev.

Parts of the Periodic Table

- The periodic table orders elements by increasing atomic number, which is the number of protons in the atom of an element.
- The rows of the periodic table are called periods. All elements within a period share the same highest electron energy level.
- The columns of the periodic table are called groups. All elements in a group share the same number of valence electrons.
- The three broad categories of elements are metals, nonmetals, and metalloids. Most elements are metals. Nonmetals are located on the righthand side of the periodic table. Metalloids have properties of both metals and nonmetals.

"The law of periodicity first enabled us to perceive undiscovered elements at a distance which formerly were inaccessible to chemical vision, and long ere they were discovered new elements appeared before our eyes possessed of a number of well-defined properties," he adds.

Today, companies like Anton Paar are continuing to pioneer new innovations within the science spectrum. For an introduction to the latest technology developed by the Austrian based company, don't miss '[Digital Density Measurement Redefined](#)' which spotlights the new Pulsed Excitation Method.

U.S. Bureau of Labor Statistics

Employment by major industry sector

Industry Sector	Thousands of Jobs			Change		Percent Distribution			Compound Annual Rate of Change	
	2008	2018	2028	2008 - 2018	2018 - 2028	2008	2018	2028	2008 - 2018	2018 - 2028
Total⁽¹⁾⁽²⁾	149,276.0	161,037.7	169,435.9	11,761.7	8,398.2	100.0	100.0	100.0	0.8	0.5
Nonagriculture wage and salary⁽³⁾	137,991.0	149,803.7	157,662.0	11,812.7	7,858.3	92.4	93.0	93.1	0.8	0.5
Goods-producing, excluding agriculture	21,277.9	20,661.3	20,872.7	-616.6	211.4	14.3	12.8	12.3	-0.3	0.1
Mining	709.9	683.3	727.9	-26.6	44.6	0.5	0.4	0.4	-0.4	0.6
Construction	7,162.5	7,289.3	8,096.8	126.8	807.5	4.8	4.5	4.8	0.2	1.1
Manufacturing	13,405.5	12,688.7	12,048.0	-716.8	-640.7	9.0	7.9	7.1	-0.5	-0.5

Footnotes:

¹ Employment data for wage and salary workers are from the BLS Current Employment Statistics survey, which counts jobs, whereas self-employed and agriculture, forestry, fishing, and hunting are from the Current Population Survey (household survey), which counts workers.

² Individual sectors do not necessarily add to major sectors due to rounding.

³ Includes wage and salary data from the Current Employment Statistics survey, except private households, which is from the Current Populations Survey. Logging workers are excluded.

⁴ Includes agriculture, forestry, fishing, and hunting data from the Current Population Survey, except logging, which is from Current Employment Statistics survey. Government wage and salary workers are excluded.

September 2019

Before President Trump's Executive Order 13817 was finalized, the United States had a declining population in the mining sectors on an annual basis. Now, there has been an increase population to the mining industry, meaning more attraction to work opportunities related to the structure of bigger, better and well-rounded companies being developed and updated as analysis have seen the firm push for a "Mineral Era". The mining and metals sector has been very vibrant in terms of mergers and acquisitions over the last few years. In 2010, a record high of 1,123 deals worldwide were reported, a number which stood at only 392 about ten years earlier. In 2017, some 448 deals worth around 51 billion U.S. dollars were completed. In terms of value, the major commodities targeted by

The Stage is Set, The Race is On Critical minerals made in the USA

When the United States picked Donald J. Trump to be its next President, little did the country know what it truly meant to have an Executive in the Oval Office battling obstacles every which way he turned. His Presidency has been vocalized clearly that the change this country needs is truly to its people. How does a president achieve such a feat in one term? Use the strength within the country's people, without the expectations of having to wait for a second term, you go to what lay's in the shadows dormant ready and available in given notice with a strong spirit to be awakened with a harsh shrug of reality that the time is now. The time for a national awakening of patriotism.

President Trump has been taking back control of the country as efficiently permitted through the murky-waters of Washington D.C. and those critics World Wide. With much anticipation or should we call foresight, his next move was of genius. In early 2017, the newly elected President of the United States, ordered a well over due assessment of the country's "Critical" or sometimes referred to "Strategic" minerals. They are critical to the need of the country at the time of need, basic demand and supply. The demand from freedom from foreign power grips, has created an initiative that would halt the dependency from other nations, most notably like China. As the Chinese created a world dependency, along the way past administrations generously opening such commodity vitals of the U.S. economy, while leaving exposed the advancements of the military. The assessment lifts a clear exposure of weakness and the need for results, possibly the most important Executive Order to date. In December of 2017, with no further delay, the President announced Executive Order 13817, naming in detail the assessed critical minerals and the actions to be taken with big bold letters:

"Presidential Executive Order on a Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals"



The Executive Order listed 35 mineral commodities which most are found in the State of Alaska. Being the largest state with the most square miles of land and limited to designated mining area of land for mineral hard-rock explorations. In January of 2019, President Trump, relieving more of the handicaps from the existing mining claim owners by fast tracking permits for mining explorations through the Executive Order,

“d. streamlining leasing and permitting processes to expedite exploration, production, processing, reprocessing, recycling, and domestic refining of critical minerals.”

Since these presidential orders have been formally enacted, the State of Alaska, has increased its population by thousands arriving for mining industry related employment.

Further to the rich mining industry of the state and the vast growth taking place. The industry will be getting a big boost to the side of rarely mined minerals, sidelined as biproducts of ores due to the flooding of the markets by China. These mineral REE's or “Rare Earth” elements, like one executive of a mining company has well described in the past, “Rare Earth only in the sense of the elements rarely mined”, says George Playton, “the abundant supply found in Alaska can now be considered, liberating from the grip of manipulation of China is our duty as property owners of mines.” Some of the biggest mining company's in the U.S. have held their ground for a time like this, were the need has been introduced and the supply is required.



Visit: www.whitehouse.gov for more direct information from the E.O. 13817

STRATEGIC METALS

Strategic metals and minerals are those vital to modern technology and industry, but whose supply is limited and subject to disruption. They are important to support military, industrial or commercial purposes that are essential to the economy, defense, medicine or infrastructure. Low natural abundance, few known deposits and sporadic supply characterize strategic metals.

Antimony	Batteries ; antifriction alloys ; medicines, antiprotozoan drugs, small arms, buckshot, and tracer ammunition; matches
Chromium	Jet engines and gas turbines ; cookware and cutlery ; magnetic tape used in high performance audio tape ; high temperature refractory applications, like blast furnaces, cement kilns
Cobalt	Used in surgical instruments and hard metals for cutting tools and drills used in metal-working and mining industries; prosthetic parts such as hip and knee replacements ; batteries ; adhesion of the steel to rubber in steel-belted radial tires
Copper	Piping, electrical applications, construction industry and household uses
Gallium	Semiconductor use is now the primary industrial market for gallium, but new uses in alloys and fuel cells continue to be discovered.
Germanium	Semiconductor material used in transistors and various other electronic devices. Its major end uses are fiber-optic systems and infrared optics, but it is also used for polymerization catalysts, in electronics and in solar electric applications.
Indium	Liquid crystal displays (LCD) for televisions used for the manufacture of thin film solar cells Used in light-emitting diodes (LEDs) and Laser Diodes (LDs)
Lithium	Electric and hybrid car batteries
Manganese	Standard and alkaline disposable dry cells and batteries ; stainless steels ; aluminum alloys (ex. Beverage cans)
Molybdenum	Missile and aircraft parts; valuable catalyst in petroleum refining ; filament material in electrical applications alloying agent for ultra-high strength steels
Nickel	Many industrial and consumer products, including stainless steel, magnets, coinage, rechargeable batteries and special alloys
Platinum, palladium	Jewelry, laboratory equipment, resistant thermometers, dentistry, catalytic converters ; many electronics including computers, mobile phones, multi-layer ceramic capacitors, component plating, low voltage electrical contacts, and SED/OLED/LCD televisions ; fuel cells
Rare Earths ¹	Automobiles, including hybrid vehicles, air conditioners, wind power generators, fluorescent lights, plasma screens, portable computers, hand-held electronic devices
Rhenium ²	Jet engine parts, platinum-rhenium catalysts, which are primarily used in making lead-free, high-octane gasoline.
Silicon	Power transistors ; the development of integrated circuits such as computer chips as well as in construction industry as a principal constituent of natural stone, glass, concrete and cement
Silver	Jewelry, high-value tableware, utensils, and currency coins, electrical contacts and conductors, mirrors and in catalysis of chemical reactions. Its compounds are used in photographic film.
Tantalum	Electronic components, mainly capacitors and some high-power resistors ; tools for metalworking equipment and in the production of superalloys for jet engine components, chemical process equipment, nuclear reactors, and missile parts.
Titanium	Strong lightweight alloys for aerospace (jet engines, missiles, and spacecraft), military, industrial process (chemicals and petro-chemicals, desalination plants, pulp, and paper), automotive, agri-food, medical prostheses, orthopedic implants, dental and endodontic instruments and files, dental implants, sporting goods, jewelry, mobile phones, and other applications
Tungsten	Light bulb filaments, television tubes, X-ray tubes (as both the filament and target), superalloys, and hard metals for cutting tools and drills used in metal-working and mining industries.
Vanadium	High speed tool steels used in surgical instruments and tools

1. Rare earth elements or rare earth metals are a collection of 17 chemical elements in the periodic table, namely scandium, yttrium, and the fifteen lanthanoids.

2. Obtained as a by-product of molybdenum and copper refinement

Gold heads for weekly gain despite investors cashing out

Intelligence Markets USA Gold



Some investors are cashing out gold, for now. (Image courtesy of Wallpaper Flare)

Gold price fell on Friday morning as investors took profits from gains earlier this week, but it is still on track for its third weekly rise this month.

Signs of stability in US consumer sentiment may have contributed to the profit-taking. Friday's data showed that while the University of Michigan's final sentiment index dropped to 71.8, higher than the median projection of 68 in a Bloomberg survey of economists.

However, investors could be "looking for anything to take profit," says Phil Streible, chief market strategist for Blue Line Futures LLC.

"I just don't see the economic backdrop having any kind of stability at all. I think this might have been someone blowing out and calling it an early weekend."

“GOLD CONTINUES TO BENEFIT FROM THIS BIG MIX OF STIMULUS THAT WAS SEEN FROM ALL OVER THE WORLD”

Edward Moya, senior market analyst, OANDA

Tai Wong, head of base and precious metals derivatives trading at BMO, also views this as simply “short-term profit-taking,” emphasizing that gold is still holding well near highs as both retail and institutional investors have been “consistently buying” while the outlook for the global economy remains uncertain.

Spot gold fell as much as 1.2% on Friday’s trading after rising 0.8% earlier in the day. It has since settled at \$1,719.89/oz as of 1:45 pm EST, on pace for a weekly gain of 2.1%.

Gold futures for June delivery were down 0.7% to \$1,734.50/oz on the Comex in New York.

RBC Capital Markets says the real test for gold will come when there is a clearer picture of how the “whatever it takes” economic policies around the world unfold, adding that it would still buy bullion on pullbacks.

The combination of low rates, massive stimulus, and high uncertainty point toward gold allocations rising regardless of whether equity markets improve materially, RBC analysts said in a note.

“Gold continues to benefit from this big mix of stimulus that was seen from all over the world. Also, the expectations are pretty high that we are not near the end of the stimulus (driven) trade and it is only going to intensify in coming months,” says Edward Moya, senior market analyst at broker OANDA.

“The one thing that could derail gold’s rally is going to be a vaccine breakthrough for covid-19,” Moya cautioned, though US pharmaceutical company Gilead’s failed drug trial on Thursday may have put a dent on the market’s best hope for an effective short-term treatment.

Christopher Vecchio, senior market analyst at DailyFX.com, echoed a similar sentiment, stating that “fiscal and monetary authorities across the world will continue to need to provide significant stimulus in order to keep the basic economy afloat.”

This would provide a “supportive fundamental bedrock” for precious metals, particularly gold prices, Vecchio added.



The collapse of American Rare Earth mining and lessons learned

By: Jeffery A. Green



Out in the Mojave Desert in California lies the Mountain Pass mine, once the world's foremost supplier of valuable rare earth minerals — 17 elements deemed critical to modern society. In an age where China controls 80 percent of the global output of these minerals, it is strange to believe that a once-dominant source sits within the United States. Stranger still is the tale of how this mine came to supply the Chinese rare earths industry. In 1952, Mountain Pass opened. First explored as a uranium deposit, it soon supplied rare earths for the electronic needs of the Cold War economy. Until the 1990s, it stood alone as the only major source of rare earths worldwide.

By 2002, however, the mine was defunct. In the eyes of the U.S. government and major manufacturers, it no longer made sense to acquire rare earths from a U.S. source subject to stringent environmental regulations. Instead, the hard business of extracting useful minerals was exported to other countries, where environmental damage was safely out of sight. China happily obliged, allowing environmental harm to proliferate so long as the costs of rare earth mining were kept down. In 2008, a group of investors formed Molycorp and convinced Wall Street to resurrect Mountain Pass under an audacious plan dubbed "Project Phoenix." With the promise of wealth to be generated from

new (but untested) technologies, Molycorp bullishly claimed that it could compete with (or even under price China's near-monopoly. Molycorp's critics weren't convinced, pointing to the immaturity of the company's mineral separation technology, the high barriers to entry and the lingering threat of the Chinese monopoly to manipulate prices at will. Despite these reservations, Wall Street and the Pentagon supported the project. For the Pentagon, and for an administration often indifferent to mining interests, it was a dream come true: Private investors would deliver a secure supply chain without the U.S. government's help. At first the situation looked promising. Chinese companies restricted rare earth exports to Japan over a diplomatic dispute in 2010, leading prices to spike. Molycorp's stock would later soar. The cash-rich company announced several acquisitions — processing plants in Arizona and Estonia as well as a Canadian rare earth technology group named Neo Materials that had extensive operations in China. But in actuality, Molycorp was struggling to stay solvent. Those new innovative technologies? They didn't generate significant revenue or work as designed. By 2013, the company's revenues were in free fall. The president and CEO stepped down amid an investigation by the U.S. Securities and Exchange Commission into the accuracy of the company's public disclosures (though he was never charged with any wrongdoing). As the company's fortunes dwindled, its new CEO oversaw much of Molycorp's most profitable assets being transferred to Chinese-linked Neo Materials, where he formerly served as CEO. Molycorp's final remaining husk declared bankruptcy in 2014. Unsurprisingly, the majority of Neo Materials' revenue-producing operations are now in China. To make matters worse, the Mountain Pass mine was purchased out of bankruptcy by a consortium that included a Chinese-owned firm. By 2017, it was obvious that in the showdown between Molycorp and China, the Chinese had won. Mountain Pass was now sending U.S. mined rare earth concentrate to China for processing. The dream of a one-stop American rare earths solution was over, and the private sector had little appetite for reviving it.

The history of Molycorp is littered with “what ifs.” What if the Pentagon's mid-2010s industrial policy determined that rare earths were critical to national security, like it does now? And, most importantly, what if American customers, including those in the U.S. government, had decided that diversifying their rare earth supplies with an American source had been worthwhile?

Recently there have been stirrings of interest in repatriating rare earth production to the United States. The U.S. military has become acutely aware of its dependence on China due in part to belligerent Chinese threats to cut rare earth exports. American companies, too, are realizing how dependent they are on this single supplier, a country that is becoming more expensive to work with as trade tensions rise. However, those in the private sector know all too well how difficult it is for companies to take proactive supply chain steps. Therefore, it is the government's responsibility to set the stage for increased American rare earth production.

There are a number of steps the U.S. government can take to establish a more certain future for domestic rare earth production. Reducing red tape and bureaucratic inertia will lower costs and reduce risk — there is no reason that permitting a mine in the United States should take five times longer than it does in Canada or Australia.

The government can also protect the market, at little cost, from Chinese manipulation by agreeing to purchase rare earths from American producers when such materials are intended for military systems. Instead of funding substitution technologies to reduce demand for rare earths, the U.S. should invest in production technologies to increase its supply.

US Commerce Department offers solution for obtaining minerals critical to the military.

(<https://www.defensenews.com/global/the-americas/2019/06/05/us-commerce-department-offers-solution-for-obtaining-minerals-critical-to-the-military/>)

The Department of Commerce has released a report that sets goals to protect minerals critical to military development.

By: Kelsey Reichmann



The Department of Defense has taken note having recently solicited industry for options on rare earth separation capability, which could result in direct investment. These fixes, properly executed, represent the best chance the U.S. has at revitalizing a crippled industry essential to our national security.

Now, leaders must act so that industry can follow. If the story of our nation is of any indication, American innovation will rise to the occasion and deliver us solutions for our rare earth needs.

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