

# Some potential winners from the White House commitment to 'Securing a Made in America Supply Chain for Critical Minerals' Announcement

written by InvestorNews | February 28, 2022

Could this be the moment the USA finally takes some actions towards supporting critical minerals supply chains? The big news in the world of securing domestic supplies of critical minerals for the USA last week were two key announcements by the White House:

- [FACT SHEET: Securing a Made in America Supply Chain for Critical Minerals](#) – *Biden-Harris Administration, Companies Announce Major Investments to Expand Domestic Critical Minerals Supply Chain, Breaking Dependence on China and Boosting Sustainable Practices.*
- [DOE Releases First-Ever Comprehensive Strategy to Secure America's Clean Energy Supply Chain](#) – *DOE Report Includes Over 60 Actions to Enhance Supply Chain Resiliency, Spur Domestic Manufacturing Capacity, and Create Millions of Good Paying Jobs for American Workers.*

Additionally, the first article linked above refers to earlier reports (E.g: [America's Supply Chains](#)) and [states](#): “the reports recommended expanding domestic mining, production, processing, and recycling of critical minerals and materials – all with a laser focus on boosting strong labor, environmental and

environmental justice, community engagement, and Tribal consultation standards.”

The takeaway here is that investors looking to benefit from the new White House initiatives need to look for U.S. domestic critical mineral projects, processing projects, and recycling projects. A U.S. processing project would include [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR) rare earths processing at their White Mesa mill in Utah, USA. Today I will focus on the U.S. critical minerals projects.

### **China has dominated the critical minerals supply chain, leaving the U.S. vulnerable this decade**

After many years of talk and very limited action, it appears the USA may finally be waking up to the need to urgently support and facilitate domestic U.S. critical minerals supply chains. Those of us involved in the manufacturing industry know that for years China has been buying up and controlling the critical minerals’ supply chains. The consequences are that China now completely dominates the supply chains for lithium-ion batteries, electric vehicles, wind energy, and solar energy. These are multi-trillion-dollar industries, but if you cannot access the raw materials then you cannot produce a product. We saw that in 2021, with semiconductor shortages slowing the U.S. auto industry, and we are seeing it again now with lithium-ion battery shortages leading to a limited supply of domestically produced EVs, despite enormous consumer demand. Tesla has an estimated [1.3 million pre-orders](#) for its Cybertruck but has [delayed production until 2023](#) due to not having enough lithium-ion batteries.

### **Green energy from solar, wind, and nuclear will increasingly power electric vehicles**



## **Companies that may benefit from U.S. support of the critical minerals industry**

Looking through the White House announcement gives us several clues:

1. "These minerals—such as **rare earth elements, lithium, and cobalt**.....As the world transitions to a clean energy economy, global demand for these critical minerals is set to skyrocket by 400-600 percent over the next several decades, and, for minerals such as **lithium and graphite** used in electric vehicle (EV) batteries, demand will increase by even more—as much as 4,000 percent.....will also discuss **\$3 billion** in [BIL funding](#) to invest in refining battery materials such as **lithium, cobalt, nickel, and graphite**"
2. "President Biden will announce that the Department of Defense's Industrial Base Analysis and Sustainment program has awarded MP Materials Corp. (NYSE: MP) **\$35 million** to separate and process heavy rare earth elements at its facility in Mountain Pass, California."
3. "Berkshire Hathaway Energy Renewables (BHE Renewables) will announce that this spring, they will break ground on a new demonstration facility in Imperial County, California, to test the commercial viability of their sustainable lithium extraction process from geothermal brine.....In addition to BHE Renewables, Controlled Thermal Resources (CTR) and EnergySource Minerals have established operations in Imperial County to extract lithium from geothermal brine."
4. "Redwood Materials will discuss a pilot, in partnership with Ford and Volvo, for collection and recycling of end-of-life lithium-ion batteries at its Nevada based facilities to extract lithium, cobalt, nickel, and graphite."

5. "Tesla intends to source high-grade nickel for EV batteries from Talon Metals' Tamarack nickel project."
6. "DOE, DOD, and the Department of State signed a memorandum of agreement (MOA) to better coordinate stockpiling activities to support the U.S. transition to clean energy and national security needs."

The winners of the U.S. critical minerals policy should be those with projects in the USA which are focused on critical minerals (rare earths, lithium, cobalt, nickel, graphite), critical minerals processing and critical minerals recycling. Needless to say, they will need to pass environmental and permitting rules and support local communities and American jobs.

Of the companies mentioned above, MP Materials and Talon Metals are the only two that are listed. BHE Renewables, Controlled Thermal Resources (CTR), EnergySource Minerals, and Redwood Materials are all private companies.

### **MP Materials Corp.**

MP Materials Corp. (NYSE: MP) owns and operates the Mountain Pass open pit rare earths mine facility, located in Mountain Pass, California, USA. Mountain Pass plans to have an output containing 5,000 metric tons of neodymium and praseodymium (NdPr), starting in ~2022. MP Materials also plan to have their own Heavy Rare Earth separation facility at their Mountain Pass Mine. As discussed above MP Materials have now been [awarded a DoD contract](#) (refer to the US\$35 million in point 2 above). MP Materials Chairman and CEO, James Litinsky, [stated](#): "The ability to mine, process, and refine rare earths at Mountain Pass is foundational to a national effort to secure the U.S. rare earth supply chain.....We thank the Department of Defense for its confidence and support."

MP Material's stage III plan is to develop a rare earth metal,

alloy and [permanent magnet manufacturing facility in Fort Worth, Texas](#). MP Materials has [an agreement to supply General Motors](#) (GM) with magnets to be used in EV motors for the Hummer EV, Cadillac Lyriq, Chevrolet Silverado EV, and more than a dozen models using GM's Ultium platform.

### **Talon Metals Corp.**

Talon Metals Corp. (TSX: TL0) has a JV with Rio Tinto (ASX: RIO) at their Tamarack nickel-copper-cobalt Project in Minnesota, USA. Talon owns 50% but can earn-in to a 60% share of the Project. Talon recently announced a 5-year [nickel supply agreement](#) with Tesla (NASDAQ: TSLA).

### **Other critical mineral companies with USA projects**

**Lithium** – Lithium Americas Corp. (NYSE: LAC | TSX: LAC), Standard Lithium Ltd. (TSXV: SLI | NYSE.A: SLI), Piedmont Lithium Inc. (NASDAQ: PLL | ASX: PLL) (have a [supply deal with Tesla](#)), Cypress Development Corp. (TSXV: CYP | OTCQX: CYDVF), Ioneer Ltd (ASX: INR), Albemarle Corporation (NYSE: ALB).

**Cobalt** – Jervois Global Limited (ASX: JRV | TSXV: JRV), Electra Battery Materials Corporation (TSXV: ELBM | OTCQX: ELBMF) (previously First Cobalt), Global Energy Metals Corporation (TSXV: GEMC | OTCQB: GBLEF).

**Graphite** – Westwater Resources, Inc. (NYSE American: WWR), Syrah Resources Limited (ASX: SYR) (spherical graphite plant planned for USA).

**Nickel** – Global Energy Metals Corporation (TSXV: GEMC | OTCQB: GBLEF).

**Rare Earths** – Lynas Rare Earths Limited (ASX: LYC) (rare earths processing plant planned for USA).

**Li-ion batteries** – Magnis Energy Technologies Limited (ASX: MNS)  
– New York battery factory.

**Li-ion battery recycling** – Li-Cycle Holdings Corp. (NYSE: LICY)  
– [Partnership](#) with GM and LGES's Ultium JV for a battery recycling facility in Ohio.

## **Closing remarks**

In addition to the above-mentioned companies with U.S. projects it should be noted that allied countries such as Canada and Australia will also be needed to help supply critical materials. Several of these companies can be found [here](#) in our InvestorIntel member's page.

The USA's domestic production of green energy and the associated need for critical materials supplies has long been a major weak point for the USA to compete with China. It does look like the USA is finally taking some **actions** to catch up, albeit still about a decade behind China.

Investors can look to play this catch-up trend, and as we saw with Tesla, if you invest early the sky is the limit.

*Disclosure: The author is long Tesla (NASDAQ: TSLA), MP Materials (NYSE: MP), Lithium Americas (TSX: LAC), Piedmont Lithium (ASX: PLL), Jervois Global (TSXV: JRV), Electra Battery Materials (TSXV: ELBM), Syrah Resources (ASX: SYR), Lynas Rare Earths (ASX: LYC), and Magnis Energy Technologies (ASX: MNS).*

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# Critical Materials for the Two American Economies, The Military and the Consumer

written by Jack Lifton | February 28, 2022

Today's demand for critical technology enabling materials was originally brought about by (industrial) policy driven military procurement during, after, and since World War II. The continuing production of these relatively scarce materials is only made economically today possible by the additional and much larger demand of the consumer economy based not on an industrial policy but on the (regulated) free market model of capitalism. Pentagon procurement of its needs for critical materials [through policy](#) can bend the law of supply and demand, but it cannot break it. The demands of the free market economy (in the USA) drive the creation of its critical material's supply. The present (2021) needs of the Department of Defense (DoD) for rare earths, mainly as permanent magnets, for example, are "classified," but are around 3,000 tons, measured as magnets per year. This is not enough demand for private capital to make an investment in a project that requires an entire supply chain to be (re) established.

The American consumer market from which 80+% of the domestic American rare earth demand arises has well established supply chains and has not experienced credible politically driven supply constraints. The largest single user of rare earth permanent magnets in the USA, the domestic [OEM automotive industry](#), is faced with the need for a fundamental shift in its use of capital if it attempts to restore a total domestic rare earth permanent magnet supply chain for its demand. The best way for such restoration would be vertical integration, the

antithesis of today's just in time system of sourcing components. For any individual automotive OEM the costs would be prohibitive and not only is the expertise not available in-house, but also the lack of suitable domestic personnel to carry out such a project, or to manage, or to engineer it is palpable.

The American administration's latest announcement on how it will address the supply chain "crisis" is wrongheaded and misguided. The related bill in the U.S. Senate to promote "innovation" is another misguided use of taxpayer borrowing ability. This, "borrowing ability" is, in fact how the US government is financed; its debt so far exceeds its revenues that to speak of spending in Congress is to describe moneyholics, drunk on their power, and putting the future on a tab.

Washington's aging and apparently permanent lawmakers, such as Senator ( D-New York) spout drivel written by their jejune staffers about innovation as science, which, of course, means funding of University and internal government "grant mills." The urgent need in America is for manufacturing "technology," the engineering of science to, modernize, rebuild, and utilize specialized legacy technologies. We do not do endless laboratory work to invent new ways to do things that industries can already do as efficiently as possible while remaining competitive. This particularly applies to capital intensive industries such as mining, automotive, and electronics.

The lithium-ion battery manufacturing industry is a good example of something completely misunderstood by Washington's insulated, isolated, and commercially illiterate mandarins. From Xanadu on the Potomac, the Biden administration decrees that it will bring lithium-ion battery production to the USA by aiming a money missile with a 19-billion-dollar warhead at the "problem."

But investment money is not the problem in commercializing

science; it is the projection of positive returns on investment that drive new consumer industries, not innovation on its own. A good example is the American OEM automotive industry. That industry's dominance peaked in the 1950s when a completely vertically integrated General Motors was the number one industrial firm in the world. It was not "innovation" that drove GM to the top; it was superior management that knew how to manufacture, finance, and deliver the company's products to the consumer who either desired that product or could be manipulated into thinking they did. The position of Chief Engineer of a successful OEM automotive company, once held by Henry Ford in his own company, evolved into Vice President, Engineering, perhaps the second most important position in a manufacturing company's management, and the one individual in any company who must know the limitations of his company to develop and manufacture its products.

Today's, so-called, "tech" companies deliver specialized software (computer programs) as brainless toys to infantile adults using the throw-away model of consumer capitalism. Apple, for example, unconsciously mimicking the marketing ploy developed by GM to differentiate itself from Ford, has a new iPhone and Mac every year with "innovations" that only fit into their existing manufacturing supply chains. In order to maintain sales, existing customers must discard their existing products and buy the "new" ones. GM's marketers decided in the early 1920s that the next Chevrolet would be called the 1922 Chevrolet and that thereafter all GM cars would be named by the year they were produced. Other car makers continued to name models, such as Ford's Model T, but the success of the model-year naming ploy soon caught on. Car makers became fixated on the car's exterior appearance and its passenger compartment and experimented with drive and power trains mostly out-of-sight of the buying public, so that the enormous research, development, and manufacturing

engineering processes needing time for development in power trains could be done and tested before being offered for sale.

Safety regulations have contributed a great deal to the fall of the American OEM automotive industry to its present state, where all (both) of the domestic American OEMs have less market cap than just a couple of Wall Street's flavors-of-the-moment "tech" companies that make no profit and never will.

To sell a car or truck in the USA it must meet rigorous safety standards that have forced car makers to produce much more robust and therefore long-lived products. In 1970 GM predicted that the domestic car market in 2000 would be 26 million units per year and that it would need 28 domestic assembly plants to supply its share of that market. What has come to pass is a "mature" (aka, saturated) car market in which there is a vehicle on the road for every American citizen. The prediction of a 26 million unit year is long gone down the memory hole and the total number of assembly plants in North America does not equal what GM predicted for its own 2000 model year needs.

The Defense Department's investments were father and mother to the American technology boom that took place between 1941 and 1973 (The initial funding of the Manhattan "district" and the cancellation of the Space Shuttle). After that, innovation, slowed down considerably as private industry resumed its pre World War II internal funding of science and engineering that brought about the ascendancy of American consumer capitalism and global military dominance. Industries created before World War II, and without government support, included the telegraph, mass produced uniform quality steel and aluminum, the telephone, the light bulb, radio, the automobile, the airplane, television, the mechanical computer (OK, adding machine), miniaturized electronics, mechanical electric refrigeration, and many others in the life sciences, such as x-rays, insulin, and, originally,

penicillin. Although we pay lip service to the inventors of the above “technologies” as intentional promoters of higher living standards, in fact, their driving motive was almost always profit. The scientists whose discoveries led to the technologies listed above are long forgotten or known only to historians; they rarely sought fame or fortune.

It was Franklin D. Roosevelt who kicked off the great age of American innovation in 1941, not just by authorizing the Manhattan Project, but primarily by bringing in the CEOs of GM, Chrysler, Ford, GE, and Westinghouse to oversee the transformation of American free enterprise manufacturing and innovative product development into the industrial policy driven global powerhouse that crushed Nazi Germany, Fascist Italy, and Imperial Japan, all of which began a war to capture the raw materials and land their society’s desperately needed to manufacture the weapons of war and feed their armies.

After World War II a subset of American manufacturers soon known as the “military industrial complex created itself in order to produce products required by the industrial policy, and power to execute it, created by the War (now Defense) Department during the war. The civilian, soon to be known, as the consumer, economy decoupled itself and followed the free enterprise model of capitalism, but it was spillover from military spending that created the miniaturization of electronic switching into the integrated circuit, aka, the “chip,” which sparked a consumer product revolution the basis of which was further inspired by the rare earth permanent magnet the development of which was itself inspired by stylists in the OEM automotive industry who wanted slimmer doors on cars with power windows.

The Ford Scientific Laboratory was working on a sodium sulphur battery in 1964. I was a “helper” on that project. I didn’t work for Ford but I was being recruited by Ford Scientific for its

materials sciences group. I had been working with the electronic properties of Lithium and it's salts since 1962 at Energy Conversion Devices, my first employer, where we made a molten salt version of what is now known as a lithium ion battery in 1963. These molten salt power train batteries proved extremely inappropriate for automotive use, but my point is that there isn't much new under the sun other than different ways to do desired things such as energy storage more efficiently and safely. And these today are really engineering problems more so than scientific ones.

The US Defense Department on its own and without subsidies cannot catalyze the reshoring of a total domestic American, lithium, cobalt, or rare earth permanent magnet supply chain. It's time for the White House to call in the managers of the manufacturing part of the domestic consumer products industry for a chat about the creation and implementation of a national industrial policy.

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## **The White House Executive Order on critical materials heightens scandium interest**

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The September 30, 2020 White House [Executive Order](#) ('E0') on critical minerals is just what was needed to give a huge boost to the mining sector. Not sure why 'scandium' and the 'rare earth group' was listed separately in the E0, since scandium is considered a rare earth, but the end result is that this has

escalated market interest in this critical material.

One of the 35 critical minerals is 'scandium', used mostly for the purpose of lightweighting, scandium-modified aluminum alloys have equivalent yield and tensile strength to steel and titanium alloy but are **1/3 the weight of steel and 40% lighter than titanium.**

Declaring this "[a national emergency](#)", the EO states that the US intends to support companies that have "projects that support domestic supply chains" and "the establishment of secure critical minerals supply chains", which could reasonably be expected to include Canadian projects such as [Imperial Mining Group Ltd.](#) (TSXV: IPG).

Peter Cashin, President, CEO and Director of Imperial Mining Group, which own their flagship **scandium-rare earth** Crater Lake Property in northeastern Quebec, commented to InvestorIntel when asked on their thoughts on the EO with the following:

"President Trump's Executive Order should force an orderly build-up of the necessary steps required to secure a domestic supply chain for rare earth materials. In addition to the European Unions expressed push to lessen Chinese import dependence, our hope is that the order will apply to development of the significant critical mineral resources that exist in Canada."

What is driving this market demand? Available scandium oxide supply today is estimated at just 25 to 35 metric tonnes per year, insufficient for widespread adoption of scandium-aluminum ("Sc-Al") alloys for automotive, aerospace and defense sectors where they can be used for high-strength applications and in sectors in which lightweighting is essential. In addition to Sc-Al alloys, scandium is used in the Solid Oxide Fuel Cell ("SOFC") industry because of its heat stabilization and

electrical conductivity characteristics. In essence, the competitive advantage of scandium is as a hardener in aluminum alloys, which is what renders them **corrosion-and thermal-resistant**.

If your not familiar with the Imperial Mining Group Ltd. (TSXV: IPG), Imperial's Crater Lake Property has a large diameter complex which is host to high-grade scandium and niobium deposits. Scandium oxide grades to date have been very good ranging from [0.0235% to 0.0319%](#) (235-319g/t). Other drill results have included [528g/t](#) scandium oxide over 8.8 meters, showing the high grade potential of the Crater Lake Project.

The company expects the Crater Lake Project to be a small open-pit operation with an on-site magnetic concentrator and/or sensor-based sorting. It is anticipated that the project will be low CapEx, OpEx due to the higher grades and expected simple process recovery methods.

Imperial Mining is currently working to expand the resource and have [recently discovered](#) several new areas of scandium mineralization. These new showings lie within the same 14-km arcuate magnetic trend hosting the three previously defined mineralized zones (Boulder, TGZ and STG) on the property. Assay results are expected very soon.

**Crater Lake's 14-km arcuate magnetic trend hosting the three previously defined mineralized zones (Boulder, TGZ and STG)**



### [Source](#)

Peter Cashin [states](#): "The new discoveries are extremely positive news for Imperial in view of the rapidly growing demand and limited supply for this important new technology

metal.....Currently, scandium is only produced as a minor by-product in China and Russia and, with supplies limited, it is our belief that Crater Lake represents an important alternative, primary scandium supply source to serve western consuming markets.”

A new US Executive Order to boost critical mineral mining, strong management, a high grade growing scandium-rare earths asset in a good mining jurisdiction, and a growing need for scandium and rare earths elements all combine to support Imperial Mining Group. Due to the early stage the current market cap is only C\$9m.

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## **White House News: Trumps test positive for COVID-19 and critical materials national emergency declared**

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As Americans wake up today they will learn that their President and First Lady have both tested positive for COVID-19 (coronavirus). This follows the other big news from the White House just two days earlier that an Executive Order has been issued declaring “[a national emergency](#)” to deal with the threat of a lack of critical minerals supply chain for the US. If we add in the debate earlier this week, it certainly has been a busy and bruising week for the White House.

With just one month to go to the US election on November 3, the White House has been thrown into chaos. US futures have reacted negatively and are down. President Trump has been criticized for his poor handling of the COVID-19 crisis that has now infected almost 7.5m Americans and killed [212,694](#). Now he is one of them. There is no doubt as many Americans still await a long delayed stimulus package many will have mixed feelings about today's news. For investors they will be watching the fallout as markets open.

But there is a ray of sunshine for investors in critical materials companies. On September 30 The White House announced: "[Executive Order on addressing the threat to the domestic supply chain from reliance on critical minerals from foreign adversaries.](#)"

The U.S. List of 35 critical minerals include the [following](#): (1) Aluminum (bauxite); (2) Antimony; (3) Arsenic; (4) Barite; (5) Beryllium; (6) Bismuth; (7) Cesium; (8) Chromium; (9) Cobalt; (10) Fluorspar; (11) Gallium; (12) Germanium; (13) Graphite (natural); (14) Hafnium; (15) Helium; (16) Indium; (17) Lithium; (18) Magnesium; (19) Manganese; (20) Niobium; (21) Platinum Group of Metals; (22) Potash; (23) The Rare Earth Elements Group: (Cerium, Dysprosium, Erbium, Europium, Gadolinium, Holmium, Lanthanum, Lutetium, Neodymium, Praseodymium, Promethium, Samarium, Terbium, Thulium, Ytterbium and Yttrium); (24) Rhenium; (25) Rubidium; (26) Scandium; (27) Strontium; (28) Tantalum; (29) Tellurium; (30) Tin; (31) Titanium; (32) Tungsten; (33) Uranium; (34) Vanadium and (35) Zirconium. The six underlined are those included in the ORE Act, which also seeks to secure US supply of these 6 critical materials.

Major US import sources of non-fuel mineral commodities – China dominates



[Source](#): Courtesy US Geological Survey

The key points of the September 30 President Trump critical minerals Executive Order are:

- The US's undue reliance on critical minerals, in processed or unprocessed form, from foreign adversaries constitutes an unusual and extraordinary threat. "I (President Trump) hereby declare a national emergency to deal with that threat."
- "By expanding and strengthening domestic mining and processing capacity today, we guard against the possibility of supply chain disruptions and future attempts by our adversaries or strategic competitors to harm our economy and military readiness."

In response to the threat President Trump proposes several measures to be taken with different time frames ranging from 30 to 60 days from September 30, 2020.

The Executive Order says the US Gov. will look into giving "grants to procure or install production equipment for the production and processing of critical minerals in the United States", "loan guarantees" and for projects that support domestic supply chains "funding awards and loans pursuant to the Advanced Technology Vehicles Manufacturing incentive program."

For investors in the critical minerals mining sector this is good news and very welcome. The main winners so far have been the US or Canadian based critical minerals companies or those that can help supply the USA with critical minerals. Some examples have been Lithium Americas (lithium), Westwater Resources (graphite), most of the rare earths companies, and most of the electric vehicle (EV) metal miners.

## InvestorIntel Rare Earths Watchlist Top 5 from October 1, 2020



### [Source](#)

The Tesla Battery Day revelations now mean that the EV revolution will rapidly accelerate. Tesla plans to have 3TWh of battery capacity by 2030, which will be enough for Tesla to make 20 million (m) EVs per year plus energy storage products. To get a feel for the demand shock wave to hit EV metal miners, if Tesla produces 20m EVs in 2030 that will require 2.7m tonnes of lithium carbonate equivalent (LCE), which is 9x total 2019 global supply. Wow!

Investing in the critical materials miners and other parts of the supply chain to support the US this decade, as the world rapidly moves to renewable energy and EVs, just got a HUGE boost.

Now we wait and see what happens next with President and Lady Trump, the US election, and the COVID-19 pandemic. No-one can say that 2020 has been a boring year!