

# Imperial Mining Patents its Process in Next Steps to Become a Leading-edge Supplier of Scandium and Rare Earths

written by InvestorNews | February 7, 2023

The race is on. It seems like there are a lot of junior miners out there working on new or improved technology to process or refine their commodity in a better, more efficient manner. This makes a lot of sense when you think about it. Obviously, the world is on a decarbonization kick, so it's only a matter of time before the carbon footprint of the raw materials starts to come into focus. It will help differentiate you from any competitors out there mining the same mineral, assuming you have any. If you happen to be fortunate enough to be located in a jurisdiction that is close to the demand centers and has abundant clean energy (like hydroelectric power) then that could make you the #1 supplier of a commodity.

One entity looking to control its own destiny, while being fortunate enough to be located in a key jurisdiction, is [Imperial Mining Group Ltd.](#) (TSXV: IPG | OTCQB: IMPNF). Imperial is a Canadian mineral exploration and development company focused on the advancement of its technology metals projects in Québec, Canada. The Company's flagship [Crater Lake Scandium-Rare Earth property](#) is located 200 km northeast of Schefferville, Québec, and is accessible via fixed-wing aircraft or helicopter. The property consists of 96 contiguous claims covering 47.0 km<sup>2</sup>, owned 100% by Imperial. The Company is led by an experienced team of mineral exploration and development professionals with a strong track record of mineral deposit discovery in numerous

metal commodities.

In mid-2022, Imperial [announced the results](#) of a positive Preliminary Economic Assessment (PEA) for the Crater Lake TG Zone Scandium (Sc) – Rare Earth Element (REE) deposit from Imperial's independent consultants WSP Canada. The results show positive cash flow, strong Internal Rate of Return (IRR), and positive Net Present Value (NPV) metrics at discount rates of up to 15% for a potential mining operation at the Crater Lake project. Highlights of the PEA include: a pre-tax NPV of C\$2.97 billion and an after-tax NPV of C\$1.72 billion (10% discount rate); pre-tax IRR is 42.9% and an after-tax IRR of 32.8%; and a pre-tax capital payback of 2.5 years from the start of production.

All of the PEA information was completed prior to the summer drilling program where the Company completed a total of 8 drillholes for 1,663.0 m. [Results](#) were encouraging and give inference to grade and tonnage increases to the TG North Lobe Deposit resource. Drilling indicates that the southern portion of the TG scandium Zone is composed of two different Sc bearing ferrosyenites and hosts a higher proportion of the higher-grade pyroxene-rich ferrosyenite. The mineralization of both Sc-bearing ferrosyenite zones is open at depth below the 200 m vertical level and along strike and appears to show great potential for additional scandium mineralization. With all of the results in, Imperial plans to undertake an updated 43-101 Mineral Resource Estimate with the goal of converting all of the Inferred Mineral Resources into the Indicated or Measured Mineral Resources category.

With all that said, the Company's latest news is my main focus today. Imperial Mining just [announced](#) the filing of patent applications for its two-stage hydrometallurgical methods and processes for the extraction of scandium and rare earth elements

from Crater Lake project mineralization titled “HIGH PRESSURE CAUSTIC LEACH METHODS AND PROCESSES FOR RECOVERY OF SCANDIUM AND RARE-EARTH OXIDES”. Imperial also provided an update on the Crater Lake Scandium Project flowsheet development program which commenced in early 2022 at SGS Canada, Quebec City and Peterborough and is partially financed by a \$245,355 grant from the Quebec Ministry of Energy and Natural Resources. The flowsheet development program was focused on further optimization of the mineral processing flowsheet by rejecting olivine, a non-Sc-REE-bearing mineral from the mineral concentrate and processing the olivine-depleted mineral concentrate through the patent-pending high-pressure caustic leach process for recovery of Sc and REE. During the flowsheet development program, Imperial invented a patentable process for rejecting olivine from the scandium-bearing mineral concentrate.

I won't begin to try and explain the science of what this all means other than to say simpler is usually better. The easier and more efficiently you can do something typically equates to a lower carbon footprint and less of an environmental liability. Just having the right, in-demand resource isn't good enough anymore, at least in most parts of the world. The production of that resource has to be done in a responsible, sustainable manner. This C\$15 million market cap company is taking steps to be a leading-edge processor of Sc and REE which could help propel them to the top of the supply chain.

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## Neo Performance and Hastings –

# Will Wonders Never Cease?

written by InvestorNews | February 7, 2023

The term “Holy Moley” is seldom, if ever, used by us but our powers of speech are severely hampered by trying to digest the implications of the [latest deal](#) in the rare earths space. [Neo Performance Materials Inc.](#) (TSX: NEO) has now succeeded in flooring us twice in two weeks.

First, there was its [announcement](#) that it was acquiring a rare earths elements (REE) mining project in Greenland and making all the right noises as if it was going to move that forward (and if anyone can, it would be them). And then we have the shock announcement that [Hastings Technology Metals Ltd](#) (ASX: HAS), the sometime REE developer in Australia, is to acquire a 22.1% strategic shareholding in Neo Performance Materials. We need not remind investors that Neo is not only a leading global rare earths processing and advanced permanent magnets producer, but it is ***THE*** leading global rare earths processing and advanced permanent magnets producer outside China, with a string of plants around the world and most particularly its Silmet plant in Estonia, which is a cornerstone of the monazite sands processing strategy of [Energy Fuels Inc.](#) (NYSE: UUUU | TSX: EFR).

The market cap of Neo, on the eve of this announcement, was CAD\$605 million. The acquisition has been agreed at a price of CAD\$15.00 per Neo share, representing a total consideration of CAD\$135 million. Bargain basement, indeed, in our view.

According to the release, the acquisition is intended to be funded by an AUD\$150 million strategic investment in Hastings by Wyloo Metals through the issuance of secured, redeemable, exchangeable notes.

Interestingly, the stake is not a *de novo* investment by Hastings but rather the purchase of a stake from an affiliate of Oaktree Capital Management. Those with long memories will recall that this stake dates back to the ancient history of when Molycorp went spectacularly bust just under ten years ago and Neo was reconstituted bigger and better out of the ruins. The stake being vended by Oaktree consists of 8,974,127 common shares in Neo, representing a 22.1% shareholding.

The proposed acquisition provides Hastings (and Wyloo) with a strategic stake in Neo and exposure to the global downstream processing of rare earth materials into magnets.

We have written about Hastings' Yangibana deposit so long ago that we must fight through a veil of cobwebs to find what we wrote. The company claims that the project remains the key priority for Hastings, "with good progress being made on funding initiatives and other key milestones." But they would say that, wouldn't they?!

The acquisition of the Neo stake, and in particular the Wyloo investment, are subject to shareholder approval (50% voting threshold). All this begs the question as to whether Canada (or indirectly the US) will allow the crown-jewel (indeed the Queen on the REE chessboard) to pass into the hands of Wyloo Metals.

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**Mark Billings of Auxico**

# Resources Canada on Completing Its Second Trade of Rare Earths Ore

written by InvestorNews | February 7, 2023

In this InvestorIntel interview with host Tracy Weslosky, [Auxico Resources Canada Inc.](#)'s (CSE: AUAG) President Mark Billings discusses its announcement of the company's second trade of rare earths ore (monazite sands) from the Democratic Republic of Congo, and plans for future additional trades.

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here to access InvestorChannel.com](#)), Mark says that "we've completed two trades over the last couple of months for about 300 metric tons of rare earth concentrates and are looking to continue that." He goes on to say that "we're looking to do another trade very shortly for another 250 to 300 metric tons, and our goal is to ramp that up to 500 to eventually a thousand metric tons per month from the DRC."

Mark tells Tracy that one of Auxico's advantages is that its rare earths elements are contained in monazite surface sands instead of hard rock, and that it is able to use an ultrasound extraction process that is "all done at atmospheric temperature and pressure, and we're able to separate the ore into its component parts in a much quicker, cost effective and environmentally friendly way." He says that Auxico's ability to separate out the thorium and their unique extraction process are defining features of the company.

To access the full InvestorIntel interview, [click here](#)

Don't miss other InvestorIntel interviews. Subscribe to the InvestorIntel YouTube channel by [clicking here](#).

### **About Auxico Resources Canada Inc.**

Auxico Resources Canada Inc. ("Auxico" or the "Company") is a Canadian company that was founded in 2014 and based in Montreal. Auxico is engaged in the acquisition, exploration and development of mineral properties in Colombia, Brazil, Mexico, Bolivia and the Democratic Republic of the Congo.

To learn more about Auxico Resources Canada Inc., [click here](#)

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If you have any questions surrounding the content of this interview, please contact us at +1 416 792 8228 and/or email us direct at [info@investorintel.com](mailto:info@investorintel.com).

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## What does the replacement of the Australian Strategic Materials CEO mean?

written by Jack Lifton | February 7, 2023

[Australian Strategic Materials Ltd.](#) (ASX: ASM) has accomplished the execution of a business model first described by Canada's former Great Western Minerals and then appropriated by the (second) American MolyCorp, neither of which could ultimately pull it off – the vertical integration of a critical mineral producer from the mine to the finished mass-produced product ready for end-user product fabrication.

For ASM the first integrated production will be of rare earth



metals, titanium, and zirconium, the mineral supply chain for each of them originates with the company's Australian mining operation, and the final processing to metals is done in a Korean joint venture, already proven at the pilot plant level and with a full-scale plant being contracted for with Hyundai Engineering.

I have no doubts that the entire output of ASM's Korean operations will be sold into the Korean market. The sister company of Hyundai Engineering, Hyundai Motors, is already mass producing a low-cost battery powered EV, which needs rare earth permanent magnet electric motors made independently of Chinese critical metals.

The Korean nuclear power industry needs zirconium (and its sister metal, hafnium [also to be produced by ASM in Korea]) for the cladding of fuel rods. And the Korean domestic armaments industry needs rare earth permanent magnet motors and titanium for its aircraft and shipbuilding (Korea's first full-scale aircraft carrier is now being planned).

ASM, having now structured its total supply chain for critical metals, just last week [installed a new CEO](#), its former COO, Rowena Smith, who has almost 30 years of global mining experience in strategic planning and mineral processing with senior mining corporations, including roles at South 32, Rio Tinto, and BHP. Previous CEO David Woodall abruptly stepped down from his roles and left the company.

It's important at this point to understand the significance of the replacement of now former CEO, David Woodall, by former COO, now CEO, Rowena Smith. Those who plan wars, or even battles, rarely carry them out. During David Woodall's tenure, the vertical integration of ASM was planned and the component ventures were acquired, modified and themselves integrated.

During that time Rowena Smith, as COO, familiarized herself with the plan, helped to implement it, and took over the day-to-day operations of the system as it matured. She has overseen areas of the Dubbo project and the Korean Metals Plant. Last week the board of the company determined that ASM was ready for her operationally-experienced and skilled management to assume overall control, and the management change was implemented.

ASM is now the first non-Chinese company to complete a vertically integrated business model from the mine through to the production of high purity critical metals for the EV, shipbuilding, aerospace, and nuclear industries.

ASM is Australian-owned and sited, and its first customers are in Korea.

The rest of the non-Chinese mining and processing world should look closely at this success and emulate this model.

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## **Imperial Mining's Quebec scandium play is aluminum's best friend**

written by InvestorNews | February 7, 2023

To me scandium sounds like it should be a country between Finland and Sweden in the Baltic Sea, but then again a lot of people have considered some of my thoughts pretty strange. However, scandium is becoming a critical metal of growing importance in aluminum alloys for auto, commercial aircraft, military armor and EV development, significantly reducing weight

and manufacturing costs. It's used as a hardener and strengthener of common aluminum alloys, which are also heat and corrosion resistant. Its weight reduction applications in the automotive, aerospace, fuel cell and defense sectors in turn help reduce the overall carbon footprint by making aircraft and vehicles lighter and more fuel-efficient with lower emissions. Because of these tremendous applications, demand is expected to grow considerably from the current 35 tonnes per annum of product availability to western markets to as high as 2,000 tonnes by 2040.



Source: Imperial Mining Group [Corporate Presentation](#)

Obviously, I don't need to comment on the importance of supply chains, "on-shoring", etc. in light of what the world has seen over the last year or two. We'll suffice it to say that domestic is better. Which leads us to today's topic of conversation – [Imperial Mining Group Ltd.](#) (TSXV: IPG | OTCQB: IMPNF). Imperial is a Canadian mineral exploration and development company focused on the advancement of its [Crater Lake scandium-Rare Earth property](#) led by an experienced team of mineral exploration and development professionals with a strong track record of mineral deposit discovery in numerous metal commodities. The Company also has a pair of gold prospects, [Opawica](#) and [La Ronciere](#) all in Quebec.

However, what makes Crater Lake so special is that it is the only hardrock scandium deposit in the world and happens to be in the mining friendly jurisdiction of Quebec, close to hydroelectric capacity and Quebec's aluminum metal production where 90% of Canada's "Green" aluminum is produced. As well, it is looking like Bécancour in Quebec is becoming Canada's battery cathode manufacturing hub with recent announcements from BASF regarding a [cathode active materials and recycling site](#) to

support North American producers in their transition to e-mobility and [General Motors and POSCO Chemical's \\$400 million facility](#) to produce cathode active materials for vehicle batteries. It would appear that Imperial could borrow a line from the real estate business and say their project is all about location, location, location.



Source: Imperial Mining Group [March 15, 2022 Press Release](#)

It also doesn't hurt that Crater Lake already has 43-101 compliant resource estimate. In September Imperial received the inaugural [NI 43-101 Technical Report for the Crater Lake](#) TG Zone Mineral Resource Estimate.



Source: Imperial Mining Group Ltd. [press release Sep 23, 2021](#)

The results of the Resource Estimate for the Northern Lobe of the TG Zone far exceeded the minimum threshold resource Imperial internally set for a 20-25-year notional mining operation, or 10 million tonnes. And the good news is mineralization remains open laterally and at depth, demonstrating the potential to increase the mineral resource with additional drilling.

The Company has plenty of catalysts over the next several months to keep the news flow coming for investors. Work on a 43-101 Preliminary Economic Assessment (PEA) on the TG Zone scandium-rare earth zone resource is progressing and is expected to be completed in the next few weeks. A diamond drill program on the TG Zone (Northern Lobe and Southern Lobe) will commence in late June with up to 22 diamond drill holes for approximately 2,500 m. In addition, there is excellent potential to expand the mineral resources with further drilling on the Southern Lobe. In late Fall 2022, the new drill hole data from the summer program

will be forwarded to a consultant to revise and update the previous 43-101 Resource Estimate of the TG Zone. This revised resource will allow Imperial to move forward with a Pre-Feasibility (PFS) or Feasibility (FS) Study.

During Summer 2021, Imperial collected a 50-tonnes bulk sample for use in a pilot plant study. It is expected that the remaining 32-tonnes will be shipped to Sept-Iles, QC by the end of July 2022 to be used in a pilot plant study to further test and optimize Imperial's patent-pending metallurgical process method. Additionally, Imperial has commissioned a hydrometallurgical flowsheet development program based on its patent pending two-stage hydrometallurgical method for the extraction of scandium and rare earth elements with SGS Canada. The program, which started on January 31, 2022, is partially financed from a [\\$245,355 grant](#) from the Quebec Ministry of Energy and Natural Resources with expected completion at the end of Q3 2022. Results from the work will aid in the engineering design of Imperial's pilot program for the Crater Lake project for later in 2022.

As you can see, there is plenty on the go at Imperial Mining Group and the good news is they started May with C\$2.8 M in working capital and virtually no debt. The Company currently has a market cap of C\$14.7 million representing plenty of opportunities for a potential domestic supplier of an up and coming critical material.

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# China's Rare Earth Industry's Big Advantage is not Just in Mines

written by Jack Lifton | February 7, 2023

China's Real Rare Earth Infrastructure is based on a dedicated, and educated, specifically Experienced, and Skilled rare earth industrial and R&D workforce, financed, where needed, and supported by the State.

There is a debate among Western economists on the value and effect of industrial policies, set by governments, on the marketplace. It's argued that when governments, instead of the markets, pick winners and losers in industries it never ends well.

China's admittedly authoritarian central government does exactly that; it defines an industrial policy for the long term, and it picks winners and losers. But, unlike the American government, it does not careen from policy to policy based on the politics of the moment. China's government's long-term focus is on the growth of the overall economy, price stability, and domestic social harmony.

I think that it is the issue of price stability that has caused the Chinese central government to step into its domestic rare earth's industry lately. Stable, or at least predictable, prices allow the long term planning characteristic of the Chinese industrial economy.

Just before Christmas China announced that it had formed a large and state-supported vertically integrated rare earth products' company called, eponymously, China Rare Earths. This event, a

merger of the rare earths operations managed by three mostly state owned and state controlled companies has been widely reported. What journalists seem to have missed is that this will be a well financed rare earth company from the start. The Peoples' Bank of China (the PBOC) is the lender of last resort to any State Owned Enterprise (SOE) and if that enterprise is producing anything required by the current industrial policy then profit and loss take a back seat to security of supply. In rare earths, for example, mining and separation are today rarely, and then only barely, profitable especially in any country with strict worker health and safety and environmental management regulations. The profit is in downstream products, metals, alloys, and magnets, phosphors, and catalysts. This is why stand-alone rare earth ventures even with separation capability and capacity, such as Lynas Rare Earths Limited (ASX: LYC), make relatively little profit, while by contrast China's vertically integrated, and so far, mostly private Shenghe Resources, which is vertically integrated from the mine to the magnet does much better in sales volumes and profits than Lynas.

China's rare earths industry has had a long learning curve, and this has generated the world's largest rare earth R&D, rare earth mining, and rare earths production (processing and manufacturing) engineering reservoir of skilled and well-educated individuals dedicated to rare earths, in the world.

China Rare Earths inherits this human infrastructure, and, unlike, an American venture, such as MP Materials Corp. (NYSE: MP), does not go far to seek out specifically educated, experienced, and skilled engineers and workers from outside of the new company.

Each year China has a ruthlessly competitive national exam to determine admissions to its top universities. Last year some 15 million sat for the national exam. The top tier was selected for

China's most prestigious universities. Those chosen were mostly directed to what we call the STEM curricula, (the hard) sciences, technology, engineering and mathematics. This choice of direction is made in accordance with and support of China's Industrial Policy, of being independent of the West in 10 technologies by 2025, and becoming a permanent center of technological innovation, superior to any other nation.

The United States, where social forces are denigrating college admissions' qualification through the cancellation of blind testing, and where even mathematics may be branded as "racist" by half-witted college faculty and administrators, is surviving today as the top tier innovation nation through the work of legacy researchers, many of whom are foreign born, and most of whom are already in their peak productive years.

The American military pretends to be surprised by Chinese prowess in modern weaponry, and the American mainstream media simply does not report on China's astounding space program. Both are described as based on stolen intellectual property by a smug American media. Can they say the same about China's dominance in rare earths and battery materials and the end-use consumer products mass produced in China based on those groups of metals?

The United States can and will supply its military needs for rare earth and battery metal enabled products from domestic sources or through domestic processing of imported ores, and, perhaps, restrictive tariffs to politically level the price competition.

But such self sufficiency will not be possible for the entire civilian economy. Compromise and rationing are the future of the domestic supplies of technology metals for green energy purposes. The best we can hope for is a hybrid energy supply, green where possible, but mostly from fossil fuels and nuclear,



if the US intends to retain a domestic industrial economy.

More than ever now, the domestic production, processing, and fabrication of the critical metals and materials needed for a broadly prosperous technological society is itself critical. Depriving ourselves of STEM graduates to ensure those skills survive chosen is a step towards the national suicide of America's standard of living.

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# Welcome to the Future, Critical Metals' Ventures Discover Reality

written by Jack Lifton | February 7, 2023

Way back in 2011 there were nearly 250 rare earth themed junior mining ventures looking at 400 "deposits" mainly in Canada and Australia. Today, just two of them are producing, [Lynas Rare Earths Limited](#) (ASX: LYC) and [MP Materials Corp.](#) (NYSE: MP) (the successor in interest to the bankrupt Molycorp of yore). These two ventures, even then, stood out from the pack by their common purpose of delivering a value-added product, individual separated (or blended) rare earth chemical forms, in the case of Lynas, and "magnets," in the case of Molycorp. All of the others, without exception, stated that their saleable product would be a "mixed con." This was the great "con" of the rare earths' boom and bust of 2010-2013.

A concentrate of a mixture of all of the rare earths, from which the chemical elements that interfere with the separation of

those rare earths into individual, or purposely blended combinations, of individual rare earth salts, is what is targeted to be produced at a mining operation where the ore is “mined,” concentrated, cracked and leached, and then is chemically processed to remove elements that interfere with the next step, selective separation of the individual elements in a form required for the next step in the supply chain that ultimately results in a finished product for sale to consumers.

For the rare earths this concentrate is, for practical purposes of safety and economics, a mix of rare earth carbonate solids. This should have been the initial target of 2011’s 250 rare earth juniors. It wasn’t. They overwhelmingly (other than Lynas and Molycorp) did nothing to advance towards this target. That turned out to be a good thing, because the only non-Chinese customers for this “mixed con” before 2017 were Solvay in France (9,000 tpa capacity to produce individual rare earth salts), Silmet in Estonia (2,500 tpa), and assorted small operations in Asia, outside of China, with a combined capacity of perhaps 3,000 tpa. All of these bought their feedstock from China or (a tiny amount) from Russia at the time.

**No 2011 junior sold a single gram of mixed con to the marketplace prior to 2017 (Lynas)**

Why was the first 21<sup>st</sup> century, rare earth boom, such a bust?

Because none of them had the knowledge, education, experience or skill in processing or mineral economics to see that integration into a total rare earths supply chain targeted to a final product is necessary for **profitable operation**. Almost without exception the profitable part of the rare earth supply chain is concentrated in the metals, alloys, and magnet making end, and the only way to make a mine and separation system profitable is to distribute costs along a total supply chain. (America’s

[Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), which is operating on a total supply chain model through magnet alloys, is an exception, because it is able to make a profit selling a mixed carbonate due to the skill of its administrative and operation management and a unique, for North America, existing processing infrastructure).

If there is to be a domestic American, or European, total rare earth permanent magnet supply chain then there will have to be in place operating commercial rare earth separation systems, rare earth metals and alloys production, and rare earth permanent magnet production capability and capacity to support it.

In fact, if there are to be total domestic supply chains for any critical metals, then, not just a mine, but also all of the downstream elements of the supply chain have to be in place before that can happen.

I note that for the cobalt chemicals necessary for the production of lithium-ion battery cathodes, the Canadian integrated cobalt processing junior, Electra Battery Materials Corporation (TSXV: ELBM | OTCQX: FTSSF), has entered into a supply agreement for cobalt concentrates from the world's largest non-Chinese producer, Glencore, to process that concentrate into fine cobalt chemicals for the battery manufacturing industry in its existing Canadian facility. When and if Electra can produce cobalt concentrates from its company-owned deposits there will already be in place the downstream operations to support that. In the meantime, it will buy feedstocks from others, and/or also toll them for others. Electra's management looks also to have given considerable thought to pricing, so as to ensure profitability.

This business model, to have in-house as much of the total final

product supply chain as is necessary to be profitable, is the only practical business model for the production of critical metals and materials.

As of December 31, 2021, America's Energy Fuels (rare earths) and Canada's Electra (cobalt) are setting the pace for the future development of a North American critical metals' industry by commencing operations.

**Happy New Year!**

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# **How the Chinese dominance in the rare earths space creates a barrier for non-Chinese companies to enter the supply chain**

written by InvestorNews | February 7, 2023

In this episode of the **Critical Minerals Corner with Jack Lifton**, Jack interviews Ed Richardson, President of American's oldest magnet maker, [Thomas and Skinner Inc.](#), and a longtime veteran himself of the permanent magnet manufacturing industry, about the possibility of the revival of an American rare earth permanent magnet industry capable of supplying the needs of the North American market.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)),

Ed went on to explain how the Chinese companies are competitive in the rare earths space and how the Chinese dominance in the rare earths space creates a barrier for non-Chinese companies to enter the supply chain. Jack and Ed also discussed how China is using rare earths raw materials from other countries to expand its magnet-making capacity to satisfy its own local demand.

To watch the full video, [click here](#)

### **About Thomas and Skinner Inc.**

Thomas & Skinner is the world's leading manufacturer of cast and sintered alnico magnets, magnetic assemblies, and transformer laminations. Through its wholly owned subsidiary, Ceramic Magnetics, Inc., Thomas & Skinner is also a leading manufacturer of soft ferrite magnets. They are committed to providing our customers with the highest-quality, highest-performing magnetic materials available.

To learn more about Thomas and Skinner Inc., [click here](#)

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If you have any questions surrounding the content of this interview, please email [info@investorintel.com](mailto:info@investorintel.com).

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## **Only through a Secure Supply of EV Metals (Rare Earths) can a Hegemony Be.**

written by Jack Lifton | February 7, 2023

It has been reported today that the Biden administration is looking to allied nations as primary sources of critical mined raw materials, and that it, the administration, will focus on supporting the domestic American processing of such imported ores into useful products focused on domestic production of EVs, their batteries, and components. This is an example of a

complete disregard by the Biden administration for America's competitive advantage, safety, and, ironically, its economy to placate a loud anti-mining luddism that pervades the American left. It is in two words, hypocritical and stupid. It's hypocritical because it assumes that out-of-sight, out-of-mind, will placate the left's "greens" into thinking that pollution in Australia, Canada, or Brazil and its attendant costs doesn't exist. It's stupid, because it makes no economic sense. Transporting raw material concentrates to the USA for processing is rarely cheaper than mining and processing them domestically. In the case of cobalt, for example, its "ore" is mostly a byproduct of copper or nickel production, and there is no cobalt mine in the USA and there is only one facility in North America (Canada) capable of processing the ore concentrate into "battery grade" cobalt. In the case of the rare earths almost all ores are radioactive and thus have to be "cleaned" at licensed and specialized facilities. Only one such private facility exists today in the USA.

There is today no commercial rare earth separation, metal making, alloy making, or rare earth permanent magnet manufacturing in the USA. The combined annual demand of the military and consumer industries in the USA for rare earth permanent magnets is between 10,000 and 15,000 tons per year. Never in American history has so much of any of these forms of rare earths been produced in a single year.

Yet Washington believes that the annual processing into fine chemicals and metallurgical forms of 170,000 tons each of lithium and cobalt (the amount required annually for 17 million BEVs if each has a 60 kWh battery [the smallest battery now offered by Tesla]) and of 50,000 tons per year of rare earth permanent magnets (the amount required by 17 million EVs annually if each uses one rare earth permanent magnet motor) could be accomplished by 2030.

The Biden administration's plan for sourcing critical materials for EVs is also an indication of the end of American dominated natural resource globalization and the acceptance of the fact that China has already constructed and is operating a global sourcing system for critical materials for China's domestic economy, which includes an emphasis on domestic Chinese processing of the ores of critical materials and a total domestic Chinese supply chain for the end-use products that depend on downstream forms of the critical materials for their operation and use both in the civilian and military markets. China today processes 60% of the world's lithium and 80% of the cobalt as well as 90% of the rare earths!

China has published its China2025 plan to become independent in 10 key technologies by 2025. Its globalization of secure sources of technology materials to ensure the success of China2025 is for all practical purposes already complete, as planned.

It is said that we live in the age of technology, and that we are all enjoying the fruits of applied science (aka, technology), but we have to ask "What is the purpose of a technology, in human terms?" Is it the jobs and spin-offs from the manufacturing and distribution of high-tech, consumer-oriented, and quality-of-life-improvement -goods to the general population through the economies of miniaturization, which alone makes them economically available? Is it primarily for military uses? Is it for both, the civilian and military markets, needs, and satisfaction?

For the fifty years from the successful conclusion of the manned [\*\*lunar landing program\*\*](#) in 1969 until today the target of technology has been upon making economically available business and leisure travel (civilian jet passenger and freight airliners), making individual wireless mass communication, both audio and video, cheap and available, and making electrical



energy universally available and affordable.

The last of these, the universality of cheap available electric power, is now the basis of our technological civilization!

Unquestionably it was military patronage of science and engineering from 1940 to 1970 that brought about the discovery of deposits, production, and processing of the technology metals that enable the [miniaturization](#), and thus widespread consumer availability, in today's society, of high-tech goods and services. But since President Nixon canceled the Space Shuttle Program in 1973 original research for product development in the USA has been the purview of private industry.

We are now at a turning point.

There are two directions to go for the need to have secure supplies of **technology enabling metals**.

One is to let the free market system as practiced in the USA make sure that items are always available through demand driven supply. The USA maintains a (ridiculously) small supply of critical materials for the Defense Department in case of emergencies, and private industry balks at inventory costs.

The other is to formulate and act upon an industrial policy, with which the State mandates a supply agenda and sets production quotas for all companies involved in a particular technology enabling metal supply chain. The Chinese government maintains large stocks of technology enabling metals to smooth out both demand spikes and prices.

The United States' financial system, known as free market capitalism, operates as if profit is the sole purpose of the existence of any manufacturing or service enterprise. China has adopted a Capitalism with Chinese Characteristics in which the

sole purpose of any Chinese venture is to do something which is good for China. Private enterprise is allowed, and individuals may accumulate enormous wealth if and only if this purpose, the good of China, is the goal.

A hegemon is the first among equals. Athens was the first to be known as a hegemon, followed by Alexander's Macedon, then Imperial Rome, and more recently, the British Empire, and the United States. In 1947 America had half of the world's gold, produced half of the world's steel, the most powerful military in history, and was embarking on an unparalleled era of technological brilliance.

**There can only be one hegemon, by definition.**

Globalization of the sourcing of critical materials with American characteristics (Neoliberal, free market, economics) can't work. It's too late.

To paraphrase the poet: This is how hegemony ends. Not with a bang but with a whimper.

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## **Vital Metals new Rare Earths Extraction Plant planned adjacent to SRC's Separation Plant**

written by InvestorNews | February 7, 2023

# **Vital Metals on track to become a rare earths carbonate producer in 2021**

In news out today rare earths carbonate developer Vital Metals Limited (ASX: VML) ('Vital'), through its 100% owned subsidiary Cheetah Resources, has [signed a binding Term Sheet](#) with the Saskatchewan Research Council ('SRC') to negotiate definitive agreements for the construction and operation of a Rare Earth Extraction Plant to produce a mixed rare earth carbonate product. The capital cost estimate of the Rare Earth Extraction Plant is A\$5.25m.

The Rare Earth Extraction Plant is planned to be located adjacent to a recently [announced](#) Rare Earth Separation Plant in Saskatchewan, Canada, and could provide a rare earth carbonate feedstock to produce a commercial grade separated rare earth oxide. The proximity makes it natural for SRC's Separation Plant to be a potential customer of Vital/Cheetah's mixed rare earth carbonate product from their planned Extraction Plant.

## **Vital Metals' Managing Director Geoff Atkins comments**

"The signing of this Term Sheet with SRC marks an important milestone for Vital and the development of the Nechalacho Project," said Vital Metals' Managing Director Geoff Atkins. "Whilst the Definitive Agreements continue to be finalised in line with the Term Sheet, the Company is excited about the prospect of the construction and operation of a rare earth demonstration extraction plant, as well as it being co-located with SRC's recently announced rare earth separation plant. Being the only rare earth project in Canada with near term production capability, co-located with Canada's only Separation Facility, provides Vital the opportunity to be a cornerstone of the North America Critical Minerals Strategy."

## **Vital Metals low CapEx strategy to become a rare earths carbonate producer in Canada**

Traditionally rare earth miners would look to build a huge plant to make a rare earths end product, however Vital Metals has a different strategy to reach production quicker and with a much lower CapEx, as well as supporting a much needed **non-China rare earths supply chain**.

Vital is an explorer and developer with highly prospective mineral projects, focusing on their world-class rare earth Nechalacho Project in Canada. **Their strategy is to be the largest independent supplier of clean mixed rare earth feedstock outside of China**, with a goal to produce a minimum 5,000 tonnes of contained rare earth oxide (REO) by 2025. A key component to the plan is a much smaller scale plant with an extremely low CapEx of just A\$20m to produce rare earth carbonate. Subject to the various hurdles such as funding, Vital Metals hopes to begin production at their Nechalacho Project in 2021. Once in production, Vital's strategy is to generate low cost near-term cash flow to fund the development of large-scale operations.

### **Vital Metals Nechalacho Project and Stage 1 strategy**



#### [Source](#)

Vital owns two world class rare earth projects – Nechalacho in Canada with [~95mt at 1.46% TREO](#), and Wigu Hill in Tanzania with 3.3mt at 2.6% TREO.

#### **The Nechalacho Project (Canada)**

The Nechalacho Project is a rare earth project located in Northwest Territories, Canada. The current resource estimate is [94.7mt at 1.46% REO](#) (measured, indicated and inferred). The

North T Zone at Nechalacho hosts a high-grade resource of 101,000 tonnes at 9.01% LREO ([2.2% NdPr](#)). Vital is targeting production of rare earth oxide in 2021 with early production from the North T starter pit.

More than \$120 million has been spent by previous owners on drilling, permitting and project development at Nechalacho, which includes a 40-person camp and airstrip. The Project is **fully permitted for a 600kt mining and ore sorting operation** and is 100km from Yellowknife. The local infrastructure is well established with access to the Canadian National Railway at Hay River. Access to the site is via barge in summer and ice road in winter.

The metallurgy is a simple process involving a 35%+ initial beneficiation via ore sorting and 97% recovery into solution via hydrochloric acid using an industry standard process.

Vital has already completed detailed engineering for the ore sorting plant, defined capital and operating costs, and begun site preparation works. Off-take negotiations are reported to be progressing well with a number of non-China buyers.

### **Vital Metals next steps and map showing the Tardiff Zones**



[Source: company presentation](#)

Management [is highly experienced](#). For example, Managing Director Geoff Atkins has 25 years of project and corporate development experience, including four years as Corporate Planning Manager at Lynas Corporation where he oversaw the strategic planning process and the development of the Mt Weld Concentration Plant and Lynas Advance Materials Plant in Malaysia.

Today's news from Vital suggests that, assuming progress

continues successfully, the SRC will support Vital in its construction and operation of their Nechalacho Project. Subject to execution of definitive agreements, processing operations are planned to start in the third quarter of 2021.

The current market cap of Vital Metals is A\$52m.