

Lynas Surges Ahead with Expansion Plans, Record Production & Solid Quarterly Results Despite Tesla's Rare Earths Comments

written by InvestorNews | May 22, 2023

[Lynas Rare Earths Limited](#) (ASX: LYC) (“Lynas”) recently announced some positive news that the Malaysian authorities have advised that their license to import and process lanthanide concentrate is now valid until 1 January 2024, effectively a 6-month extension to get their Malaysian rare earths unit in line with environmental requirements.

Meanwhile, Lynas continues to oppose the Malaysian government’s ‘new’ rules and is working on alternate facilities in Western Australia. Should the Malaysian situation not be resolved then Lynas has a backup plan. The announcement [stated](#):

“The licence variation allows the Lynas Malaysia cracking and leaching plant to continue to operate until 1 January 2024 and will remove the requirement for a shutdown at the Lynas Malaysia plant prior to 1 January 2024.”

At the heart of the issue is that the Malaysian authorities say the cracking and leaching plant generates radioactive waste. Lynas argues that they are meeting the conditions as per their original agreement with the Malaysian government. Lynas stated:

“Lynas had applied to the MOSTI Minister for the removal of the conditions which limit operations at the Lynas Malaysia

facility as they represent a significant variation from the conditions under which Lynas made the initial decision to invest in Malaysia.”

We will have to wait until January 1, 2024, to see what happens next regarding Lynas operating its cracking and leaching plant in Malaysia.

Lynas’ Kalgoorlie Rare Earths Processing Facility is in the final stages of construction, feed to start this quarter (Q4/FY23 – Ending June 30)

Lynas has been rapidly building a backup rare earths processing facility in Kalgoorlie, Western Australia. Lynas [stated](#) that the facility “has now entered the final phase of major construction activities, dry commissioning activities have commenced in certain parts of the plant, target feed on date for the Facility in Q4 FY23.”

Lynas plans to use rare earths carbonate feed from their Mt Weld Mine to feed the new Kalgoorlie rare earths processing facility once complete (noting a ramp-up period applies). The product would then be shipped to Malaysia for final processing.

FIGURE 1: Lynas’ under construction rare earths processing facility in Kalgoorlie Western Australia



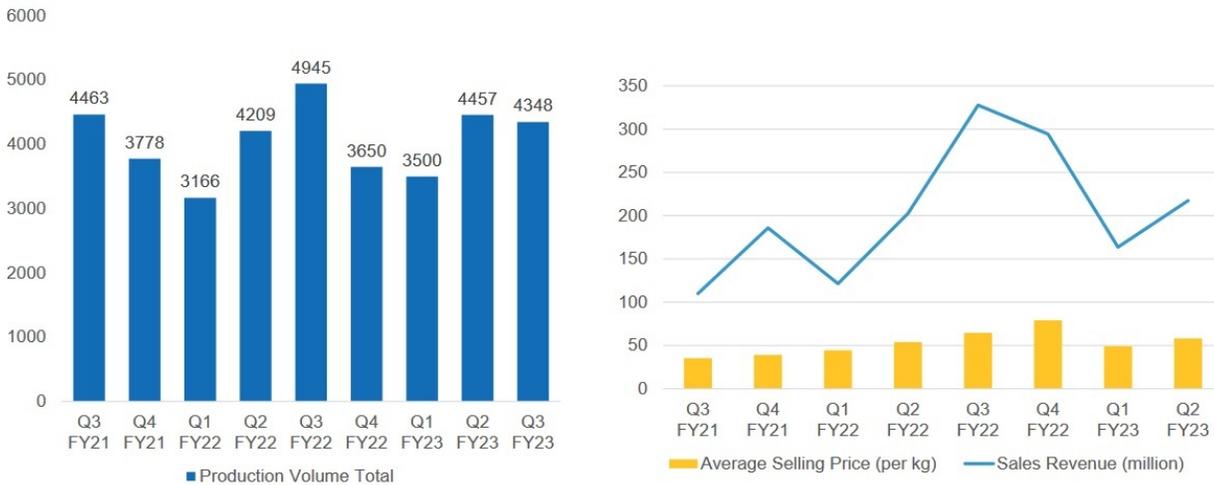
Source: [Lynas company presentation](#)

Lynas achieved record NdPr production in Q3/FY23 (Ending March 31)

In Q3/FY23 Lynas produced [4,348 tonnes](#) of total rare earths oxide and a record [1,725 tonnes](#) of Neodymium-Praseodymium (“NdPr”). This resulted in [A\\$237.1 million](#) of revenue for the quarter. The chart below shows Lynas’ revenue trending slightly higher over the past 2 years on the back of solid production and prices.

FIGURE 2: Lynas’ last 2 years Total Rare Earth Oxides (“TREO”) production volumes and sales revenues

Lynas' performance over the past 2 years



Source: [Company presentation](#)

USA LRE and HRE facilities update

The USA Light Rare Earth (“LRE”) and Heavy Rare Earth (“HRE”) facilities plan to be able to process both light and heavy rare earths.

Lynas has secured a greenfield site in an existing industrial zone in Texas, further progressed the detailed engineering design, and engaged a preferred U.S. Engineering, Procurement, Construction, and Management (“EPCM”) contractor.

Tesla plans to use non-rare earths motors in their next generation vehicle

Lynas CEO, Amanda Lacaze, stated in the [Q3, FY 2023 earnings call](#):

“The neodymium iron boron [NdFe] magnet technology is the most

energy efficient, because it is the lightest motor, and over the life time of the vehicle it gives you the best efficiency... ..and it has the lowest CO2 emissions... ..more are choosing NbFe technology than the alternative... ..today we find that demand still is ahead of our ability to service everyone who would like to buy Lynas NdPr... ..the current (price) softness is very much about internal China dynamics... ..but we at Lynas remain very confident of the long term trend and we know that the Chinese rare earth firms share that confidence. We remain committed to growing to meet the market and that's one of the reasons why our ambitious capital investment plan continues."

Closing remarks

Lynas is very well positioned in 2023 with [A\\$1.12 billion](#) in cash (as of March 31, 2023) and is on target with its expansion plans.

The 6-month Malaysian extension also means that Lynas' rare earths production can continue uninterrupted, at least until January 1, 2024. At that point, the Kalgoorlie facility should hopefully be operating smoothly and ramping up production and offer an alternative should the Malaysia cracking and leaching plant need to be shut down on January 1, 2024.

Lynas Rare Earths trades at a market cap of [A\\$6.82 billion](#) and a PE ratio (TTM) of [12.39](#).

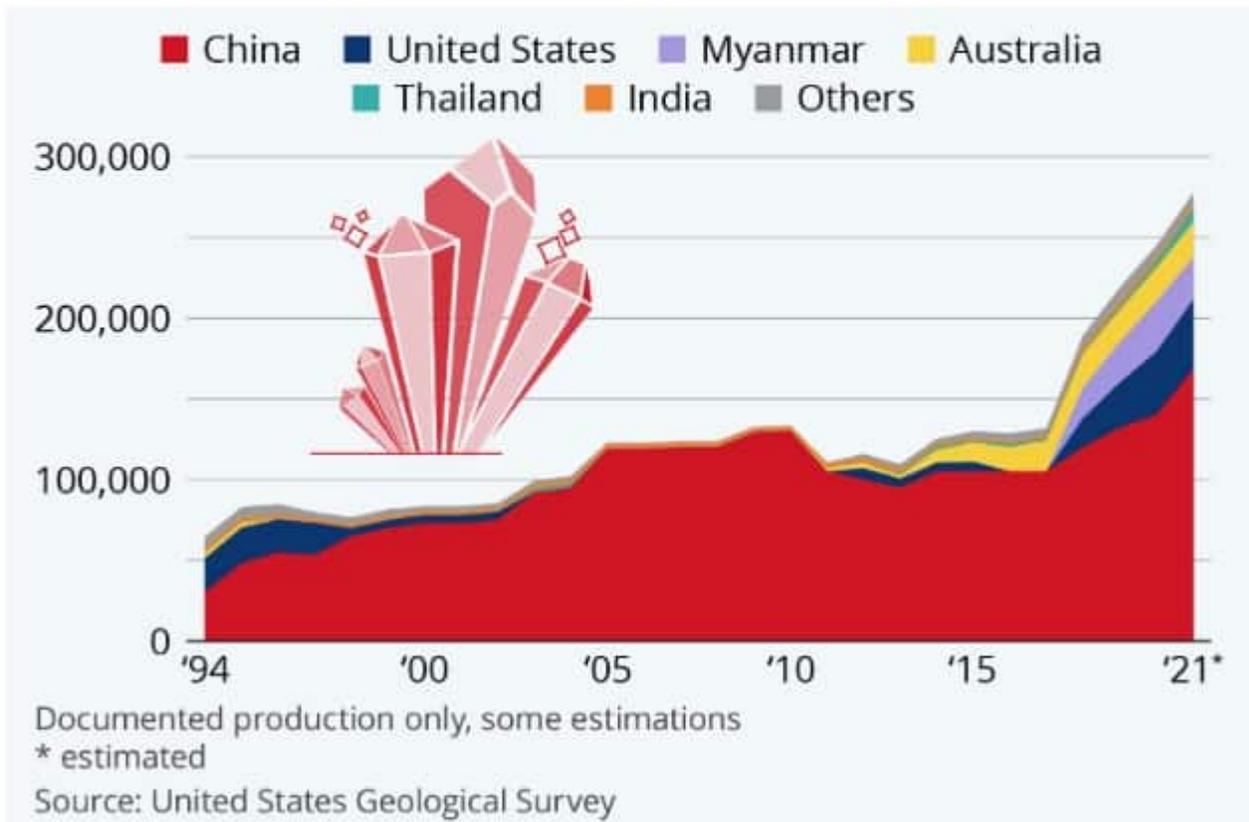
American Rare Earths is part of the global race to develop critical minerals in NA

written by Tracy Weslosky | May 22, 2023

The rare earths sector has had plenty of good news in 2022 including the recently announced proposal by the European Commission (“EC”) for a [European Raw Materials Act](#). A very telling comment in the announcement gives a big clue as to which critical materials hold the greatest concern. The EC [stated](#): “Lithium and rare earths will soon be more important than oil and gas.....Our demand for rare earths alone will increase fivefold by 2030.” The supply risk for key rare earths is a problem for all western countries. China dominates the rare earths supply chain ([58%](#) of mines, 85% of processing) and the production of powerful rare earth magnets used in EVs, wind turbines, and most military hardware that employ powerful magnets. The U.S has already started various initiatives to support the rare earths supply chain, including [some funding](#) from the Infrastructure Act. Last month the Biden administration announced [\\$2.8 billion of grants](#) for various critical materials and battery supply chain related projects in the USA.

So clearly the funds are now flowing and the race is on to develop both an EU and a U.S critical materials and battery supply chain. Given the rising global geopolitical tensions Europe and USA will now need to support the critical materials sector like never before – both funding and permitting.

China mines 58% of rare earths, but processes 85% at a time of rising geopolitical tensions.



Source: [American Rare Earths company presentation](#)

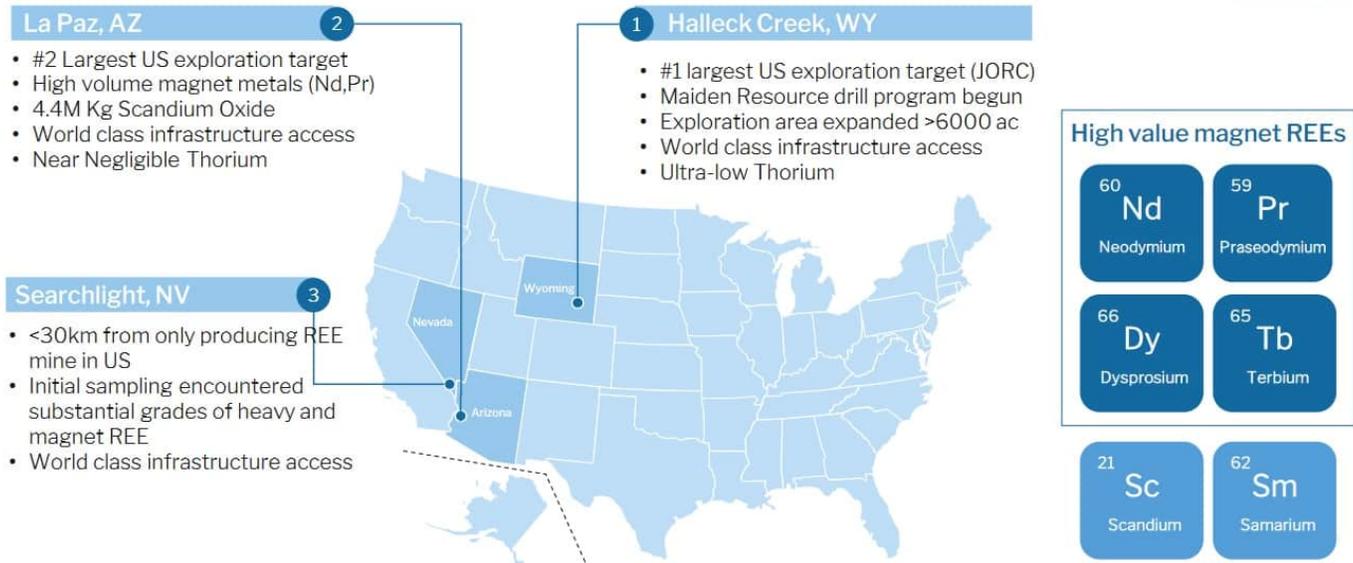
Today's company is working as fast as they can to help create a U.S source of critical rare earths from their three USA rare earths projects.

[American Rare Earths Limited](#) (ASX: ARR | OTCQB: ARRNF) is focused on developing their 100% owned La Paz Scandium and Rare Earths Project in Arizona, USA. The Company's other two projects are the Halleck Creek Project in Wyoming and the Searchlight Rare Earths Project in Nevada, USA.

American Rare Earths' 3 USA rare earths projects currently being explored and developed



Resources: massive targets in friendly jurisdictions



Source: [American Rare Earths company presentation](#)

La Paz Project update

The La Paz Project has high-value magnet rare earths (NdPr) as well as scandium with a 2021 JORC Resource of [170.6 million tonnes at an average grade of 469ppm Total Rare Earth Oxide \("TREO"\)](#) (contained ~80 million kgs TREO, plus 4.4 million kgs of Scandium Oxide (Sc₂O₃)). American Rare Earths Limited has recently completed the metallurgical test work at La Paz. The results were successful using the Watts & Fisher's proprietary technology for the extraction of rare earth metals. [According](#) to the Company: "The technology shows good promise with further development, moving into piloting down the track. Rapid dissolution of rare earth values within 2 to 3 minutes at leaching temperatures above 225°C." Next steps at La Paz include South-West Area resource expansion and then a PEA.

The Halleck Creek Project update

At the Halleck Creek Project, the Company continues their drilling campaign to define a significant JORC Resource. The Company stated recently: “The drilling commenced early October and is progressing well. It is anticipated the campaign, analysis and subsequent announcements relating to a maiden JORC resource will be completed in the first quarter of calendar year 2023.” In good news for shareholders, the Halleck Creek exploration target has been increased by 328%, boosted by the newly staked claim area Bluegrass which indicates consistent rare earth mineralisation. Beyond that, the next steps include metallurgy testing.

American Rare Earths has also recently [stated](#) they are evaluating even more potential rare earth opportunities in North America. Finally, in more good news the Company’s wholly-owned US subsidiary, Western Rare Earths (WRE), and a consortium of companies (Phenix, LLC and Virginia) [were awarded US\\$500,000 in R&D funding](#). The consortium will use the funding to develop extraction and separation focused processing technology studies on rare earths ore. The project goal is to produce light, medium, and heavy rare earth oxide products of greater than 95% purity.

American Rare Earths Limited trades on a market cap of [A\\$91 million](#). Exciting times ahead for this fast-moving company – they are a member of the Critical Minerals Institute.

Momentum versus fundamentals, that is the question for Neo Performance Materials

written by InvestorNews | May 22, 2023

I can honestly say that the volatility around earnings the last 2 to 3 quarters has been unprecedented. A miss versus expectations or disappointing guidance can lead to enormous losses for a stock with a single day double digit percentage loss becoming increasingly common. I don't know if it's related to the lack of confidence in the overall market, the rise of the retail investor (Robinhood and Reddit come to mind), or the increasing influence of algo trading that exacerbates both positive and negative momentum, but something has changed making these massive one day moves far more frequent. I guess one possible benefit to this is that if you feel the market has overreacted it could make for a great short-term trade in the event the market re-evaluates all the information available and determines things aren't as bad as the market initially thought.

That introduction sets the stage for us to review a company that continues to see sequential top line growth, has an iron clad balance sheet, is squarely in the driver's seat of the green revolution but as a result of some input cost pressures and demand issues, the bottom line saw an unexpected quarterly loss leading to a 17% yard sale on Friday. That company is [Neo Performance Materials Inc.](#) (TSX: NEO), manufacturer of the building blocks of many modern technologies that enhance efficiency and sustainability. Neo's advanced industrial materials – magnetic powders and magnets, specialty chemicals, metals, and alloys – are critical to the performance of many everyday products and emerging technologies. Neo has a global

platform that includes 10 manufacturing facilities located in China, the United States, Germany, Canada, Estonia, Thailand and South Korea.

So let's see if we can diagnose what happened in [Q3](#) that caused the market to punish Neo, driving it down to lows not seen since the pandemic plunge in early 2020. As I noted above, revenue numbers continue to see sequential growth both quarterly and year over year in all three of the Company's business segments – Magnequench, Chemicals & Oxides and Rare Metals. For the three and nine months that ended September 30, 2022, revenues of US\$146.6 M and US\$481.1 M were 22.4% and 24.7% higher, respectively, than the corresponding periods of 2021. Unfortunately, there's more to earnings than just revenue and that's where some of the challenges in the quarter occurred.

Starting with the Magnequench division, where Neo is the world leader in the production of permanent magnetic powders used in bonded and hot-deformed, fully dense neodymium-iron-boron magnets, there was a decline in volumes compared to the corresponding periods of 2021. The recent spike in COVID-19 has affected the free flow of people and production supplies across many parts of Asia and the ongoing semiconductor chip shortage is continuing to impact customers in the automotive and other industries. Additionally, by the third quarter of 2022, selling prices for Magnequench powders declined 30% to 40% from the peak (in the first quarter of 2022) negatively affecting (when prices are falling) overall pricing and margins due to the lead-lag effect of higher cost inventory on hand. In addition to lower margin on sales in the quarter, Neo recorded \$8.0 M of provisions for inventories in the third quarter, related to higher cost inventory on hand, relative to lowered selling prices.

Moving on to the Chemicals & Oxides (C&O) division, which

manufactures and distributes a broad range of rare-earth-based industrial materials including automotive catalysts, permanent magnetics, consumer electronics, petroleum refining catalysts, medical devices, and wastewater treatment, we see a similar theme. This segment was the biggest drag on the quarter with the three months ended September 30, 2022, reporting an operating loss of US\$5.3 M, compared to operating income of \$7.1 M in the same period of 2021. The C&O segment continues to see strong demand for various rare earth products, particularly its magnetic-based products, although the segment was adversely affected by the earlier noted rapid decline of rare earth prices while processing higher cost inventory. C&O saw mixed volumes for rare earth elements but slower volumes in the environmental catalyst end markets driven by semiconductor chip shortages. The rapid decline in prices necessitated C&O to record US\$6.0 M of provisions for inventories.

As a potential investor, it's now up to you to decide if the headwinds faced in Q3 are transitory or not. Looking forward, Magnequench, which accounts for roughly 45% of Neo's revenue, has pass-through pricing agreements for rare earth magnetic elements on the vast majority of its sales contracts. Magnequench earns a targeted margin spread per ton when rare earth prices are stable and over the long term. However, the short-term timing mechanics of the pass-through agreements generally lead to increasing margins when rare earth prices rise and declining margins when rare earth prices fall. The C&O segment, accounting for a little over 1/3rd of revenue, continues to see strong demand for various rare earth products, particularly its magnetic-based products and the environmentally protective water treatment solutions business continues to perform well with higher volume and new customer adoption. The Rare Metals business continues to make progress in several key strategic initiatives, including selling more products outside

of the aerospace industry, expanding its customer base, and diversifying its total end-market exposure. Sales prices in a number of end markets have recovered and gallium-based products are exhibiting improved market demand.

Neo Performance Materials closed Friday trading at 9.2x trailing 12 month earnings, has a 4.4% dividend yield and C\$3.65/share of cash sitting on the balance sheet. Last week the Company [announced](#) it has been awarded a grant of up to 18.7 M Euros from the Government of Estonia under Europe's Just Transition Fund program to help pay for the cost of constructing a state-of-the-art sintered rare earth permanent magnet manufacturing facility in Estonia. The question is, are fundamentals the most important thing in the market these days or momentum trading?

Jack Lifton addresses the problem of scalability of critical minerals in the EV supply chain

written by InvestorNews | May 22, 2023

In this video, [Critical Minerals Institute's](#) (CMI) Executive Chairman Jack Lifton talks about the upcoming [Critical Minerals Summit](#) (CMS 2022) on Wednesday, November 9, 2022, at the historic [National Club](#) in Toronto, Canada from 9 AM to 4 PM EST.

Jack says that his opening remarks at the summit will try to address the problem of scalability of critical minerals in the

EV supply chain. He adds that the problem is “severe but is the most ignored problem in critical minerals.” With the demand for lithium per person grown by “5000 times between 2007 to 2022”, Jack explains how we are moving towards “a world of the haves and the have-nots” when it comes to having access to non-fossil fuel energy.

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

Note from Publisher: Next week – on Wednesday, November 9th in Toronto, the inaugural [Critical Minerals Summit](#) is on! To secure a delegates pass, [click here](#) – READ: [Summit to Address the Impact of the \\$1.2 Trillion EV Market Demand by 2030 on the Critical Minerals Sector](#)

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About The Critical Minerals Institute

The [Critical Mineral Institute](#) (CMI) is an international organization for companies and professionals focused on battery materials, technology metals, defense metals, ESG technologies and practices, the general EV market, and the use of critical minerals for energy and alternative energy production. Offering an online site that features job opportunities that range from consulting roles to Advisory Board positions, the CMI offers a wide range of B2B service solutions. Also offering online and in-person events, the CMI is designed for education, collaboration, and to provide professional opportunities to meet the critical minerals supply chain challenges.

Defining Criticality

written by InvestorNews | May 22, 2023

Everybody is claiming to have “Critical Metals/Minerals” these days. Desperados in the copper space are the most shameless at touting this claim, while the most ludicrous are those in the gold space (though that goes without saying).

But how to measure what is and what isn't critical?

Rankings

Criticality and Chinese dominance have become popular themes over the last decade with the British Geological Survey's (BGS) first Criticality ranking in 2011 (in the midst of the Rare Earth boom) firing the starting gun on a race between countries to define what is critical to their own circumstances.

All attempts at ranking criticality are bound to run into criticism with different pundits and different economies perceiving different needs. Moreover, circumstances change, as Cesium showed when it went from being dominated by the US to being dominated by China when the US, fecklessly, let Sinomines acquire Cabot's specialty fluids division. In our perception, Tungsten is not as critical as it was due to numerous non-Chinese developments in the pipeline.

Of all the Criticality lists the BGS one was the only one giving scoring to the metals and then producing degrees of risk to supply. Moreover, it gives the impression of being focused upon which metals are at risk (largely from China-dominance, though unstated) rather than saying (as the JOGMEC list does) that certain metals are critical for a specific (i.e. Japan's) economy.

Criticality as Semantics

Metals rankings have now become like radio stations' Top 40 lists of days gone by. However, it may just be a matter of international semantics as to what the word "critical" actually implies.

Some are saying that this means a metal is vital to an economy (which of course iron ore is to every economy) but others are interpreting it as being that the supply is in some way threatened or vulnerable. And the latter is where the China Factor is invoked. Europe meanwhile wants to fence-sit and pretends that it is not accusing the Chinese of wielding a big stick threatening EU industries (when really the Chinese are being threatening indeed).

The BGS by using the word "Risk" did not mince its words. Everyone knew what it meant. Chinese dominance meant supply could be turned off.

Rising Tide of Concern?

The financial media chattering about Chinese dominance of particular metals is one thing, but it is when the average householder gets concerned that the issue really becomes popular. Giving a speech several years ago on Erbium and 5G we noted that few, if any, of the public even knew that the jump from black & white TVs to colour TVs was made possible by Europium and behind that lay the Mountain Pass mine.

For the public, the new 5G technology seems to come out of the ether, literally, and thus it is not a good idea to ask too many questions about what metals make it happen because one would find out that (notwithstanding Huawei's involvement) the REE component (Erbium) in 5G largely is China-sourced or China-processed. Who amongst the Great Unwashed (or experts) can tell us where other 5G inputs, like Scandium, Cesium and Tantalum, come from?

Alarm bells though have been ringing in the C-Suites (of Germany and South Korea, more than Detroit) about the vulnerability of the EV “revolution” to Chinese machinations and that has set off a furious hunt for non-Chinese supply chains.

Curiously though, the European list does not include Lithium amongst the critical metals, though this is probably predicated upon its upstream supplies being mainly from “friendly” sources such as Australia, Argentina and Chile. But with China dominating conversion of Lithium into Lithium ion batteries (and having a stranglehold on Cobalt from the DRC) it does not pay to be so simplistic in calculating where one’s sources might be.

Ergo, with China being the principal midstream processor, can one be so blithely dismissive of the criticality of Lithium?

The various surveys that followed on the heels of the original BGS Criticality rankings now reinforce the sheer number of metals at risk, though as one can see below each agency producing these lists has differing views of the criticality of different metals within their remit.



We can note from the lists above that the US regards most metals as having some degree of criticality.

Conclusion

The critical metals space is torn with rising demand for metals that have seen little, to no, development since before the Commodity Supercycle even began and is now seeing a secular decline in Chinese production due to over-production, exhaustion and environmental devastation. This makes for a rather dramatic tug of war.

It is now clear that the genie set free by Trump’s seemingly

prophetic “Trade War” of the Chinese threat to supplies cannot be put back in its bottle. The “love” of the US industrial complex’s for cheap Chinese minerals has now even been called into question. We doubt that the East Asians (i.e. Japan, Korea and Taiwan) and the Germans can ever be easily lulled back into a false sense of security (of supply) by the Chinese.

The legacy of underinvestment and the lack of capital markets’ interest in specialty metals stories (beyond momentary pump-and-dumps) combined with the Chinese massive own goal in splurging its resource base in predatory pricing and, frankly, dumping over three decades has made for a secular crisis in metals supplies.

This crisis is likely to be enduring and will definitely result in the long-term higher prices (even shortages).

All the chatter does not provide money for projects. Unfortunately, it is only metal price spikes that seem to do so. The soaring price of Lithium and Cobalt in 2017 was a case in point and then the Vanadium surge of 2018. However, the REE putsch of mid-2019 waxed and waned so fast that no party got any financings done before the brief window of opportunity slammed shut.

Less sexier metals never even get their day in the sun. Tellurium or Cesium could quadruple and it would not generate more than a muffled whisper in the trade journals. The same for individual Rare Earths such as Erbium and Dysprosium.

We are of the opinion that the critical “state” of the metals world will remain as long as the West is not self-sufficient in its supply of specialty metals. The Chinese have shown themselves to be malevolent players and that was while they had the whiphand in many metals. As they start to lose their grip the frustrations will start to rise, already we are starting to

see some rancour in relations with Burma over neo-colonial resources policies being imposed by China on its neighbour. Other Belt-and-Road “beneficiaries” have found that Chinese largesse comes at a hefty price. Is this mere sparring or the first shots in a monumental struggle over the world’s most crucial mineral resources?

In retrospect, Trump’s “Trade War” of 2018-20 may be seen as the “phoney war” phase of a much bigger tussle over access to the world’s scarce specialty metals resources. The criticality rankings are the playlists for the background music as this plays out.

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Summit to Address the Impact of the \$1.2 Trillion EV Market Demand by 2030 on the Critical Minerals Sector

written by Tracy Weslosky | May 22, 2023

CMI Presents “The Race to Achieve a Critical Minerals Supply Chain ROW” at the Critical Minerals Summit on Wednesday, November 9th

Toronto, October 31, 2022 – The [Critical Minerals Institute](#), which was founded for education, collaboration, and to provide professional opportunities to meet the critical minerals supply chain challenges, is pleased to announce the inaugural Critical Minerals Summit (CMS 2022) on Wednesday, November 9, 2022, at the historic [National Club](#) in Toronto, Canada from 9 AM to 4 PM EST.

“With automakers planning on spending nearly \$1.2 trillion by 2030,” says Critical Minerals Institute founder Tracy Weslosky, “it is equally as important to discuss not only where these battery materials are coming from and the technologies involved, but also where will we find the skilled professionals it requires.”

Themed ***The Race to Achieve a Critical Minerals Supply Chain***, the Chairman of the Critical Minerals Institute Jack Lifton will begin the event with opening remarks aptly titled ***Scalability, Why the EV Timelines Simply do not Work***.

Geoff Atkins, Founder of Cheetah Resources and previously Managing Director of Vital Metals who succeeded in bringing the Nechalacho rare earths mine into production will kick off the day with his keynote speech titled ***The Perfect Storm: Prioritizing the Demand Drivers Necessary for Mission Critical Minerals Supply Chain***.

A one-day, in person event, the Critical Minerals Summit is a bi-annual event designed to bring industry leaders and investors together to address scalability, resource and human capital

needs, not only to meet the EV market demands, but to achieve the aggressive legislative timelines set around sustainability and climate change.

In the context of this theme, a special presentation designed by Prof. Saleem H. Ali, Ph.D., Chair, Department of Geography & Spatial Sciences, who is a Blue and Gold Distinguished Professor of Energy and the Environment from University of Delaware, will be presented during lunch. Author of a new book on environmental systems titled *How Natural Laws Define Human Life* (Oxford Univ. Press), his presentation will be followed by a Q&A style interview on the Global Critical Minerals Market with international expert and renowned market leader Constantine Karayannopoulos, President, CEO and Director of [Neo Performance Materials Inc.](#) (TSX: NEO).

Throughout the day, a series of 5 panels will be hosted by CMI Directors and the “Who’s Who” of international critical minerals experts, with leading industry CEOs participating as panelists. Highlights include the following panels:

- ***Securing the Capital to build a Supply Chain for the ROW.***
- ***The Extraction & Processing Timeline Advantage***
- ***Global Challenges in Advancing the Critical Minerals Supply Chain***
- ***Dealing with the Resource Challenge, the Critical Minerals Shortage.***
- ***The Power of Politics: Government Investment in the Critical Minerals Market***

In addition to the above, the CMI will have Ed Buiel PhD, President & CEO, Coulometrics, LLC, speak on the paradox of producing graphite in North America and competing with China, along with special guest and Acting Consul-General, Greg Quinn from the British Consulate-General Toronto, who will address the key points from the recently released UK national critical

minerals strategy.

The Critical Minerals Summit will be held at the historic [National Club](#) in Toronto from 9 AM to 4 PM EST. Space is strictly limited. For more information go to CriticalMineralsInstitute.com. To purchase a delegate pass, [click here](#).

About the Critical Minerals Institute: The [Critical Mineral Institute](#) (CMI) is an international organization for companies and professionals focused on battery materials, technology metals, defense metals, ESG technologies and practices, the general EV market, and the use of critical minerals for energy and alternative energy production. Offering an online site that features job opportunities that range from consulting roles to Advisory Board positions, the CMI offers a wide range of B2B service solutions. Also offering online and in-person events, the CMI is designed for education, collaboration, and to provide professional opportunities to meet the critical minerals supply chain challenges.



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Solvay starts making noise in the rare earths sector with a Hastings MOU

written by | May 22, 2023

[Solvay S.A.](#) (BRU: SOLB | OTCQX: SLVYY) ('Solvay') has started making news in the rare earths space. Solvay, a Belgian chemical company, acquired Rhodia in 2011 and with it the rare earth division with plants in France and China. Since Ilham Kadri was appointed the new CEO of Solvay in March, 2019, their only press releases on its rare earth division have been about three patent infringement cases surrounding materials for catalytic converters and their treatment of exhaust gases from internal combustion engines. Then suddenly over September-October of this year, there were [3 news releases](#) that were focused on developments in Solvay's rare earths division.

On October 11, 2022, Solvay announced the signing of a non-binding offtake [memorandum of understanding](#) (MOU) with [Hastings Technology Metals Ltd.](#) (ASX: HAS) ('Hastings') where Hastings will initially supply Solvay with 2,500 tonnes per year of mixed rare earth concentrate (MREC) from its Western Australian Yangibana Project. The Solvay plant in La Rochelle, France was founded in 1948 and originally was built for the separation of rare earths from monazite. The reported capacity for La Rochelle is 10,000-15,000 tonnes per annum of rare earths concentrate, which if accurate, made it a significant producer in the 1980s and 1990s. This would mean however that the agreement with Hastings alone would not bring the plant back to full capacity,

unless Hastings expands production over time or Solvay sources concentrate from other producers.

This new MOU follows Hastings' recent move to take a [significant position](#) in [Neo Performance Materials Inc.](#) (TSX: NEO). NEO and Solvay compete vigorously in all aspects of rare earths but as noted above the main area is in the materials for catalytic converters. This move by Solvay with Hastings comes on the heels of Solvay announcing its plans to expand and upgrade its plant in La Rochelle to process rare earths and recycle rare earth magnets. NEO has also announced its plan to put magnet production capabilities in Estonia where it has a rare earth separation facility in Sillamae.

NEO's plant in Estonia has traditionally received its rare earth concentrate from Russia but given current political circumstances, it begs the question how long can this last? NEO does have an arrangement with [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR) to supply concentrate from Energy's uranium operation in White Mesa, Utah. This is the only uranium production facility in the USA. Energy Fuels is going to process monazite to produce RE concentrate. To that end, Energy Fuels [announced a deal](#) in May of this year to take a position in a heavy minerals deposit in Bahia, Brazil, which contains monazite.

Another [announcement](#) from Solvay this October was that it took 100% control of Solvay Special Chem Japan (SSCJ) through its purchase of the remaining 33% from Santoku Corporation. This facility, like La Rochelle, is focused on catalyst and semiconductor industries. Decades ago this plant was processing RE concentrate from China. When China stopped exporting concentrate in the late 1990s Anan Kasei, a Japanese joint venture between Santoku Chemical and Rhodia, stopped the separation of rare earths and bought intermediate products from

China again to produce more value-added products. Ilham Kadri, Solvay's CEO, commented on the transaction saying: "This transaction marks a logical step forward in our global plan to expand our leadership in Rare Earths specialties."

It will be interesting to watch Solvay and NEO position themselves in the European market which currently only has one metal/alloy producer, [Less Common Metals](#), and one magnet manufacturer, [Vacuumschmelze](#), a German producer. Let the games begin.

Biden Leads the build-out of an EV market critical minerals supply chain outside of China parade

written by Matt Bohlsen | May 22, 2023

For the past decade it has been China that has massively supported its battery and EV industry resulting in China now being by far the leader in EV production globally; and quite frankly a threat of totally dominating the future global auto industry as it goes electric.

Now, finally, the tide is turning with the Western governments starting to make very significant moves to support the EV and energy storage sectors (including batteries & the electric grid) and its supply chain. Today's article gives a summary of major western governments' new policies to support the EV and energy

storage supply chain so far in 2022.

USA

As [announced](#) last week the DoE awarded **US\$2.8 billion** of grants to accelerate U.S. manufacturing of batteries for electric vehicles and the electric grid. As [stated](#) by Energy.Gov.:

“The 20 companies will receive a combined US\$2.8 billion to build and expand commercial-scale facilities in 12 states to extract and process lithium, graphite and other battery materials, manufacture components, and demonstrate new approaches, including manufacturing components from recycled materials.”

A key component of the US\$2.8 billion in grants is that they will be matched with [US\\$9 billion](#) in recipient funds. Furthermore, the 20 company’s projects are spread across the key areas of the battery supply chain with the key purpose to build a new U.S lithium-ion battery industry.

As shown below some of the winners were lithium companies Albemarle Corporation (NYSE: ALB) and Piedmont Lithium Inc. (Nasdaq: PLL | ASX: PLL), spherical graphite (soon to be a producer) company Syrah Resources Limited (ASX: SYR), nickel junior Talon Metals Corp. (TSX: TL0) and several others.

Location map showing the planned project locations of the DoE project grant recipients



Source: [Energy.Gov DoE](#)

Earlier in 2022, the U.S government announced funding in the [Inflation Reduction Act](#) of **US\$369 billion** towards clean energy and climate change initiatives.

The Biden Administration is certainly leading the West in supporting the environment and building up a new clean energy industry with factories and jobs in the USA.

Canada

Canada has recognized that it is extremely well positioned to be a [supplier of EV metals](#) and components due to its inherent wealth of critical raw material resources. In the 2022 Canadian Budget the government allocated an additional [“C\\$3.8 billion](#) for critical minerals, including those that feed into clean technologies”. Clean Energy Canada [stated](#):

“This new funding will help Canada realize its vision of building an “end-to-end” battery supply chain through which Canada can do it all, from sourcing the materials to building the parts, batteries, and clean cars.”

Specifically, the Canadian government will spend up to [C\\$1.5 billion](#) over seven years, starting in 2023-24, for infrastructure investments that would support the development of the critical minerals supply chain, with a focus on priority deposits. Many very promising Canadian projects, such as Frontier Lithium Inc.’s (TSXV: FL | OTCQX: LITOF) PAK Lithium Project, need roads to be built to help bring their projects to production. Canada has a plan to make this happen, albeit rather slowly.

Australia

The Australian government under Prime Minister Albanese has brought a new focus towards EVs and climate change. As announced last week the [“support for critical minerals breakthroughs”](#) policy is designed to accelerate the growth of the critical minerals sector. The announcement [stated](#):

“The Strategy will complement other Government initiatives including the National Battery Strategy and the Electric Vehicle Strategy. The National Reconstruction Fund will include the \$1 billion Value Adding in Resources Fund which will work alongside the \$2 billion Critical Minerals Facility.....The Government will also allocate \$50 million over three years to the Critical Minerals Development Program for competitive grants to support early and mid-stage critical minerals projects, building on the \$50 million recently committed to six key projects across Australia.”

The winning “six key projects” [are owned by](#) Alpha HPA Limited (ASX: A4N), Cobalt Blue Holdings Limited (ASX: COB), EQ Resources Limited (ASX: EQR), Global Advanced Metals Pty Ltd, Lava Blue Ltd., and Mineral Commodities Ltd. (ASX: MRC).

Europe

Last month the European Commission [announced](#) a new policy proposal called the ‘European Critical Raw Materials Act’. The announcement emphasized Europe’s need to secure a safe and secure supply of critical minerals, notably lithium and rare earths. The announcement [stated](#):

“Lithium and rare earths will soon be more important than oil and gas. Our demand for rare earths alone will increase fivefold by 2030. [...] We must avoid becoming dependent again, as we did with oil and gas. [...] We will identify strategic projects all along the supply chain, from extraction to refining, from processing to recycling. And we will build up strategic reserves where supply is at risk. This is why today I am announcing a European Critical Raw Materials Act.”

The European Critical Raw Materials Act is still being developed but it looks like it will follow along similar footsteps as the U.S Inflation Reduction Act, supporting and building local

supply chains, but also relying on ally countries. The European Commission [stated](#) one objective as:

“To facilitate the roll-out of targeted raw materials projects in the EU, the Commission should be empowered to list Strategic Projects – which would be labelled as of European interest – based on proposals from Member States. These projects could benefit from streamlined procedures and better access to finance.”

An excerpt from the recent 2022 State of the European Union address discussing the need for Europe to source critical raw materials



Source: [European Commission](#)

Some possible winners might be rare earths processing company [Neo Performance Materials Inc.](#) (TSX: NEO) and European Metals Holdings Limited (ASX: EMH | AIM: EMH | OTCQX: EMHXY). The former owns [the only commercial rare earth separations and rare metal processing plant in Europe](#) and the later has a JV 49% ownership of the [largest hard rock lithium project in Europe.](#)

Closing remarks

The Western governments have woken up from a decade long slumber and are now finally moving to build key critical raw material, battery, and EV supply chains both locally and with ally countries. Project funding and permitting are key obstacles being addressed as they are the reason why much of USA and Europe have virtually no EV supply chain today.

As we approach COP 27 starting on November 6, the 2022 awakening of the Western governments should lead to one of the biggest investment themes this decade. That is, investing in quality

companies that are likely to succeed in supplying the EV and energy storage supply chains as the Western world looks to gain independence from China.

InvestorIntel has been bringing attention to these companies for more than a decade and provides the ideal starting point to research and learn about promising critical raw materials companies. Stay tuned.

Disclosure: The author is long Albemarle Corporation, Piedmont Lithium Inc., Syrah Resources Limited, Frontier Lithium Inc., Cobalt Blue Holdings Limited, European Metals Holdings.

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Ucore Steps into the American Rare Earths Processing Ring in Louisiana.

written by | May 22, 2023

[Ucore Rare Metals Inc.](#) (TSXV: UCU | OTCQX: UURAF) just announced

a [mutual commitment](#) between themselves and the State of Louisiana to establish a rare earth separation facility in the state which Ucore refers to as a Strategic Metals Complex (SMC). This is a change in direction from the earlier management drive to build a facility in Alaska. The government of Alaska had committed to supporting this approach through a bond of US\$145 million to develop the Bokan Project for infrastructure and construction costs. This is a significant shift – which, I view as positive.

From their [news release](#), they point to some advantages “Critical markers for success, such as streamlined inbound and outbound freight, ample supply and proximity of chemicals and reagents, attractive energy costs, the robustness of labor pools, room for ramp-up and production expansion and community support, including technical education infrastructure were all part of the size-up.” In addition, they are evaluating several brownfield sites which typically come with infrastructure already in place like power and buildings which would reduce the capital investment.

The Louisiana Economic Development (LED) sent a non-binding Letter of Intent (LOI) to Ucore last week. The LED laid out a 10-year US\$9.6 million economic incentive package in consideration for Ucore’s projected investment of US\$55 million. There may also be additional incentive’s once a site has been chosen which could bring the total package up to US\$11 million from the LED.

According to the LOI, the following were identified:

- The financial, economic and tax incentive offers described in the LOI are estimates based on the Company’s commitment to and fulfillment of its capital investment, employment and expected payroll schedules for the Louisiana SMC. This

includes: (i) a total capital investment by the Company for the Louisiana SMC of at least US\$55 million by December 31, 2026; and (ii) new jobs in Louisiana at the Louisiana SMC in the amount of 45 jobs in 2025 with an annual payroll of US\$2.4 million rising to 80 jobs in 2034 with an annual payroll of US\$5.2 million.

- Louisiana's Industrial Tax Exemption Program can offer up to a 10-year tax exemption to the Company. LED estimates that the exemption may result in up to US\$6.0 million in tax savings for the Company. The State's Industrial Tax Exemption Program is administered by and will be subject to a contract to be finalized between the Company and the Louisiana Board of Commerce and Industry and requires approval from Parish and municipal governing bodies as well as the Parish school board.
- Louisiana's Quality Jobs Program provides a 4% or 6% payroll rebate on the gross annual payroll for qualifying new jobs for up to 10 years. The program also refunds state sales/use tax paid on construction materials purchased during construction or a 1.5% project facility expense rebate on certain capital expenditures. LED estimates that the value of this program could be up to US\$3.6 million for the Company. The Quality Jobs Program is administered by and will be subject to a contract to be finalized between the Company and the Louisiana Board of Commerce and Industry.

Initial plans are to build a plant that will produce 2,000 tonnes per year (TPY) of separated rare earths by the second half of 2024. Plans would be to expand to a world scale production level of 5,000 TPY by 2026. The technology to be used is Ucore's wholly owned Innovation Metals Inc. Rapid SX™ technology. This has been piloted for some time now at Kingston Process Metallurgy (KPM) to develop knowledge of the process and

design parameters.

This appears to be the first major investment in rare earth separation processes in the USA, although there are others also talking about this including [Lynas Rare Earths Ltd.](#) (ASX: LYC) and [MP Materials Corp.](#) (NYSE: MP) with grants from the Department of Defense (DoD). MP received US\$35 million and Lynas US\$120 million. This begs the question of whether or not the DoD will support Ucore with this plan of action. With a current market cap of approximately US\$30 million raising the funds through equity financing would be very dilutive to existing shareholders so either the DoD assists or Ucore gains a strategic partner or a combination of these two will allow the financing of the SMC.

I am sure more news will be forthcoming as engineering and construction will likely need to start by mid-2023 to achieve the stated target of production in 2024-H2.

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With plans to become a significant producer of the magnet rare earths, Defense Metals deserves a deeper dive

written by Tracy Weslosky | May 22, 2023

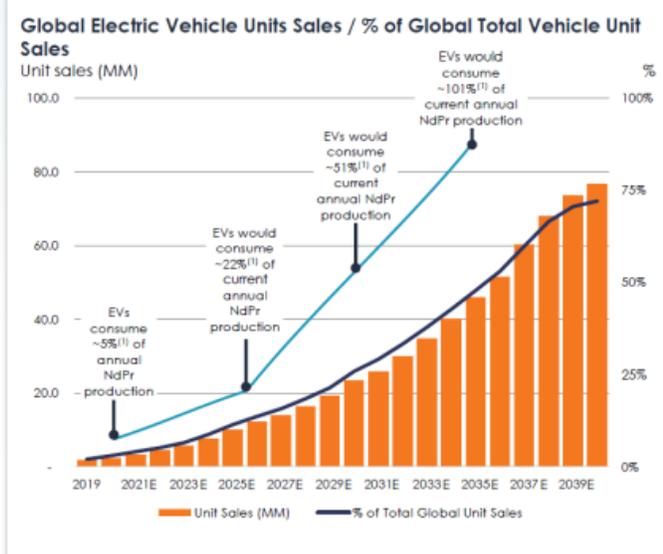
The Wicheeda Project plans to produce 25,000tpa of REO which represents ~10% of the current global production

Magnet rare earths demand is forecast to surge this decade. This is because an electric vehicle (“EV”) uses 1kg to 3kg of neodymium–iron–boron (“NdFeB”) magnets in standard drivetrain electric motors. NdFeB magnets are in [93%](#) of all EVs. Global demand for EVs is expected to grow from 6.75 million in 2021 to over 70 million by (or before) 2040. This will require huge amounts of neodymium.

Every ten million new EVs require ~10,000 tonnes of additional neodymium or ~20% of the current annual global supply

ELECTRIC VEHICLES – A DRIVER FOR RARE-EARTH DEMAND

- An electric vehicle (EV) uses 1kg to 3kg of neodymium-iron-boron (NdFeB) magnets in standard drivetrain motors
- NdFeB magnets are in 93% of all electric vehicles. Tesla, GM, Ford, VW, Hyundai, Toyota and others build vehicles using these magnets
- Every ten million new EVs require ~10,000 tonnes of additional neodymium or ~20% of current annual global supply. Over 70 million electric vehicles are expected to be sold when internal-combustion-engine vehicles are phased out



DEFENSE METALS CORP. TSXV:DEFN OTCQB:DFMTF FSE:35D

6

Source: [Company presentation](#)

The key problem for the EV industry is where will the new magnet rare earths supply come from and can the West become independent from Chinese supply. Today's company is working towards a solution.

[Defense Metals Corp.](#) (TSXV: DEFN | OTCQB: DFMTF | Frankfurt: 35D) ('Defense Metals') plans to become a significant producer of the magnet rare earths neodymium and praseodymium from their 100% owned Wicheeda Rare Earth Element Project spread over 4,244 hectares and located 80 km northeast of Prince George, British Columbia, Canada.

Brought to my attention a few dozen times over the last 2-years, I am fond of Dr William Bird, Director – who is deemed a leader in understanding rare earths in our sector; and likewise, President & Director Luisa Moreno who has at least 10,000 professional hours in this sector by now I suspect. With a PhD in Materials Science and Mechanics, this is the theme we are stressing at the [Critical Minerals Summit](#) on Wednesday, November

9th and that is the scarcity of talented professionals with both the experience and education to tackle the formidable task of creating a decarbonized economy.

The Project has an Indicated Mineral Resource of [5 million tonnes averaging 2.95% LREO](#) (“Light Rare Earth Oxide”), and an Inferred Mineral Resource of 29.5 million tonnes averaging 1.83% LREO. Key rare earths contained include neodymium (Nd) and praseodymium (Pd), as well as cerium (Ce) and lanthanum (La). The Resource is amenable to an open pit project and contains a mix of monazite and bastnaesite ore.

Some of the best drill results to date at the Wicheeda Rare Earth Element Project include:

- WI21-49 – [3.79% Total Rare Earth Oxide \(“TREO”\) over 150 Metres](#)
- WI21-54 – [3.81% TREO over 117 metres.](#)
- I21-58 – [3.09% TREO over 251 metres.](#)
- WI21-59 – 2.76% TREO over 212 metres.

Strong PEA result with a NPV8% of C\$517 million

The Wicheeda Project [PEA](#) (Jan. 2022) resulted in a post-tax NPV8% of [C\\$517 million](#) and a post-tax IRR of 18%, using a price assumption of US\$100/kg NdPr. Initial CapEx is estimated at [C\\$440 million](#).

Once in production Defense Metals targets to produce 25,423tpa of REO over a 16 year mine life, which would make the company a globally significant rare earths producer with ~10% of the current global production.

The Wicheeda Project plans to produce ~25,000tpa of REO which represents ~10% of the current global production

CHINA CONTROLS THE RARE-EARTH SUPPLY CHAIN

Projected Wicheeda annual production 25,000 tonnes REO

~10% of the Global Current Production

(tonnes REO)	Country	SUPPLY CHAIN		
		Mining & Mineral Upgrade	Cracking	Separation
		Ore Conc	Mixed Chemical Conc	Separate Oxides
140,000	China	China	China	China
38,000	United States	United States	China	China
30,000	Myanmar	Myanmar	Myanmar, China	China
25,000	WICHEEDA	(projected)		
17,000	Australia	Australia	Malaysia	Malaysia, China
3,000	India	India	India	India
2,700	Russia	Russia	Estonia	Estonia
4,000	Madagascar	Madagascar	China	China
2,000	Thailand	Thailand	Thailand	Thailand
1,000	Brazil	Brazil	Brazil	Brazil
1,000	Vietnam	Vietnam	Vietnam	Vietnam
500	Burundi	Burundi	China	China

Source: [Company presentation](#)

The Wicheeda Project is accessible by a major forestry road that connects to a highway, with the town of Prince George 80kms away. Power lines and a gas pipeline are <40kms away and a major rail line is nearby.

Next steps for Defense Metals include a PFS to be completed in H1 2023, a pilot plant in 2024, and a FS completed in 2025.

The Wicheeda Project location map and key points showing adequate road access and reasonable local infrastructure including access to power and gas <40kms away

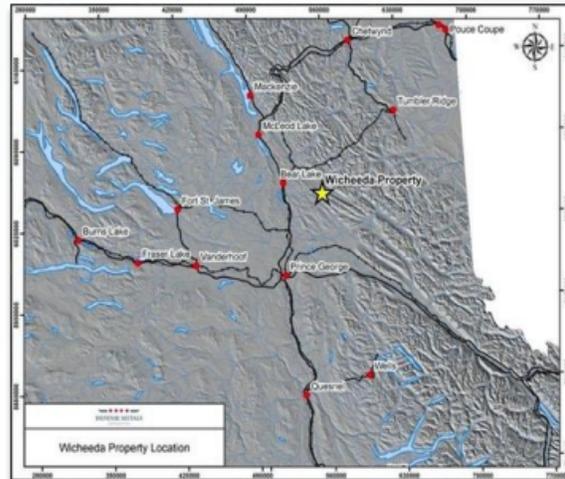
WICHEEDA DEPOSIT IN STRATEGIC LOCATION

Strategically positioned 80 km from Prince George and accessible from a major forestry service road, which connects to **Highway 97**

The 100% owned 4,244-hectare Wicheeda deposit, has power transmission lines, a gas pipeline and a major rail line nearby

Prince George, British Columbia, is a mining centre, with a skilled workforce

Port of Prince Rupert is 500km to the west and accessible by rail and road



Source: [Company presentation](#)

Given the size and quality of the resource, safe location in Canada (with forestry road access, power & gas not too far away) and strong fundamentals supporting key magnet rare earths demand this decade; most investors would agree Defense Metals is worthy of a deeper look. Defense Metals current market cap is [C\\$44 million](#).