

The Chinese Rare Earths Monopoly Saga Continues

written by Jack Lifton | September 12, 2023

The blather in the media suggesting that China could or already be weaponizing the export of their “rare earths” to the rest of the world is so one-sided that it must make the Chinese wonder if non-Chinese “analysts” and “experts” ever bother to see the world from the perspective of “others.” For more than a decade China has been aggressively acquiring outright or buying the output of non-Chinese rare earth sources. At this point in time, China is the overwhelming buyer, worldwide, for example of the mineral monazite, which is produced primarily as a byproduct of the processing of heavy mineral sands, which are the source of zircon and ilmenite, source minerals for, respectively, zirconium and titanium.

Iluka Resources is building Australia's first fully integrated rare earths refinery

written by InvestorNews | September 12, 2023

Iluka Resources Limited (ASX: ILU) (“Iluka”) is an Australian critical metals producer, specializing in mineral sand mining and processing. Iluka is the world's largest producer of zircon,

a major producer of high grade titanium feedstocks rutile and synthetic rutile, and is set to become a significant global supplier of refined rare earths from 2025.

Christopher Ecclestone on the “eye-popping collection of metals” in Auxico Resources’ portfolio of monazite rich deposits

written by InvestorNews | September 12, 2023

In this InvestorIntel interview, host Tracy Weslosky interviews [Hallgarten & Company](#)’s Principal and Mining Strategist Christopher Ecclestone about his recent [Initiation Research Report](#) on [Auxico Resources Canada Inc.](#) (CSE: AUAG) that he published on November 9, 2022. Titled **Amassing Critical Mass in Strategic Metals** Christopher stresses how Auxico has emerged as “a real player in the monazite market”.

Over the course of this interview, Christopher comments on some of the positive highlights contained in this research report, which includes the following examples:

- + Auxico Resources is morphing from a rank-and-file explorer into a specialty metals trader and developer diversified across metals and continents
- + Through an accord with an unlisted sister corporation

(Central America Nickel), the company has access to Rare Earth Elements (REE) and other critical metals for sale into global markets

- + Rare Earth prices have held firm at levels substantially above the average levels of the last ten years

He then goes on to provide an update on Auxico's portfolio of monazite rich deposits that include an "eye-popping collection of metals" such as rare earths, titanium, hafnium and zircon.

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

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About Auxico Resources Canada Inc.

Auxico Resources Canada Inc. ("Auxico") is a Canadian company that was founded in 2014 and based in Montreal, trading on the Canadian Stock Exchange (CSE) under symbol AUAG. 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.

InvestorIntel Week-in-Review

for the Week of September 12-20, 2022

written by Tracy Weslosky | September 12, 2023

Week-in-Review for the week of September 12-19, 2022 –InvestorIntel Corp. would like to welcome new production managers to our team, Samantha and Riley Klatt, effective today. Also, if you haven't signed up for an InvestorTalk.com with Pat Ryan Ucore Rare Metals Inc. (TSXV: UCU | OTCQX: UURAF) for Wednesday, September 21st from 9:00-9:20 AM EST – [click here](#). On Thursday, September 22nd we have Robert Vallis from Signature Resources Ltd. (TSXV: SGU | OTCQB: SGGTF | FSE: 3S3). To register for this, [click here](#).

Speaking of registration, get ready for the [Critical Minerals Summit](#) on Wednesday, November 9th and if your not already a member of the Critical Minerals Institute, [click here](#) to find out more! PS 21 days to a new InvestorIntel website...

The Top 10 Trending Columns on InvestorIntel.com for the last 30-days include:

1. [To M&A or not M&A – that is the question](#)
2. [Neo Performance and Hastings – Will Wonders Never Cease?](#)
3. [Is Putin's war in Ukraine destroying Russia's economic future?](#)
4. [Are we slaves to Russian uranium processing?](#)
5. [American Rare Earths triples the Halleck Creek exploration target in Wyoming](#)
6. [Florida's Ron DeSantis declares war on ESG](#)
7. [Mining our way to the Green Revolution](#)
8. [Maritz Smith of Alphamin Resources talks about its updated tin resource at its Mpama North Mine](#)
9. [The Critical Minerals Institute to host the Critical](#)

[Minerals Summit 2022 – “Delivering A Mission Critical Supply Chain” Event in Toronto, Canada](#)

10. [John Cash of Ur-Energy talks about renewed support for uranium producers and nuclear energy](#)

InvestorIntel Interviews to WATCH:

- September 19, 2022 – [Joel Freudman talks about TRU Precious Metals’ key location and coming gold and copper drill results](#)
- September 16, 2022 – [Hubert Lau of TrustBIX talks about their new food supply chain solutions and building revenue](#)
- September 14, 2022 – [Peter Clausi of Silver Bullet Mines talks about their “just do it” philosophy](#)
- September 13, 2022 – [Christopher Ecclestone of Molten Metals talks about breaking China’s grip on antimony production](#)
- September 13, 2022 – [Chris Gibbs and Marty Weems of American Rare Earths talk about tripling its Halleck Creek Target](#)

InvestorIntel Columns to REVIEW:

- September 19, 2022 – [Molten Metals sees opportunity in bringing antimony projects back into production](#)
- September 16, 2022 – [All hands on deck – Top 10 rules for great PowerPoint presentations](#)
- September 16, 2022 – [Azincourt Energy is on the trail for the next big uranium story](#)
- September 15, 2022 – [Ucore Rare Metals is building its rare earths Field of Dreams with RapidSX](#)
- September 14, 2022 – [Murchison Minerals explores camp scale potential for nickel and zinc at HPM and BMK projects](#)
- September 13, 2022 – [Coming PFS generating buzz at Troilus Gold](#)

- September 12, 2022 – [US Futures Higher, as the Critical Minerals Summit Trending #1 on the InvestorIntel Week-in-Review for August 29 – September 9, 2022](#)
- September 12, 2022 – [When it comes to ESG, it's Rule Britannia](#)

ii8 System News Releases for the Week in Review for September 12-19, 2022:

- September 19, 2022 – [Visionstate Corp. portfolio company Freedom Cannabis completes acquisition](#)
- September 19, 2022 – [Geophysical Survey at Appia's Athabasca Basin Uranium Property Outlines EM Lineaments Exceeding 10 km In Strike Length](#)
- September 19, 2022 – [Zentek Provides Update on Icephobic Coating Technology](#)
- September 19, 2022 – [TrustBIX Inc. to Host Live Corporate Webinar on September 21, 2022 at 11:30am ET](#)
- September 16, 2022 – [Search Minerals Provides 2022 Exploration Update](#)
- September 16, 2022 – [Search Minerals Completes Magnetic Separation of Bulk Samples at SGS Canada](#)
- September 16, 2022 – [Hemostemix Announces the Appointment of Dr. Nadia Giannetti, MD, to its Scientific Advisory Board](#)
- September 16, 2022 – [Neo Performance Materials Announces Completion of \\$67.6 Million Bought Deal Treasury Offering of Common Shares](#)
- September 15, 2022 – [Fjordland Concludes Exploration Program at South Voisey's Bay](#)
- September 15, 2022 – [DLV Resources Ltd. and West Red Lake Gold Mines Inc. Announce Amalgamation Agreement for Business Combination](#)
- September 15, 2022 – [Appia Announces That Dr. John Belhumeur, Ph.D. Has Been Appointed as Senior Advisor to](#)

[the Company Regarding First Nations, Métis, and Government Relations](#)

- September 15, 2022 – [Hemostemix Announces the Appointment of Dr. Johannes Grillari to its Scientific Advisory Board](#)
- September 15, 2022 – [Critical Minerals Institute Welcomes American Rare Earths Ltd.](#)
- September 15, 2022 – [Ucore's Rare Earth Separation Commercial Demonstration Plant On-Track for Q4-2022 Commissioning](#)
- September 15, 2022 – [Zentek Provides Update on HVAC Testing](#)
- September 15, 2022 – [Awakn Life Sciences Reports Strong Q2 2022 Results](#)
- September 15, 2022 – [dynaCERT to Exhibit at IAA Transportation 2022, the World's Largest Platform for Transport and Logistics, to be held in Hanover, Germany from September 20th to 25th](#)
- September 14, 2022 – [Hemostemix Announces the Appointment of Dr. Renzo Cecere, MD, FRCSC to Its Scientific Advisory Board](#)
- September 14, 2022 – [Troilus Shortlisted For AEMQ's "Entrepreneur Of The Year" Award](#)
- September 14, 2022 – [Hemostemix Announces Its Presentation to the Emerging Growth Conference](#)
- September 14, 2022 – [Murchison Intersects Best Hole to Date on HPM Property 121.2 metre Interval with a pXRF Estimate of 1.39% Ni Eq \(or 4.14% Cu Eq\) – Including 21.0 metre at 3.43% Ni Eq \(or 10.25% Cu Eq\)](#)
- September 14, 2022 – [Valeo Pharma Enters into Canadian Commercial Services Agreement with Veru for Sabizabulin in Hospitalized Adult Patients with Covid-19 at High Risk for Acute Respiratory Distress Syndrome \(ARDS\)](#)
- September 13, 2022 – [Lomiko Announces Completion of Exploration Drilling for its La Loutre Graphite Project](#)

- September 13, 2022 – [Valeo Pharma Reports Record Third Quarter 2022 Results and Highlights](#)
 - September 13, 2022 – [Neo Performance Materials Clarifies Technical Disclosure in August 22, 2022 Press Release](#)
 - September 13, 2022 – [Metallum Announces Proposed ASX Listing](#)
 - September 13, 2022 – [Hemostemix Announces the Appointment of Thomas Abraham, CA as President, PreCerv Inc.](#)
 - September 13, 2022 – [Kodiak Provides Update on 2022 Exploration Program at MPD Copper-Gold Porphyry Project in Southern British Columbia](#)
 - September 12, 2022 – [Sixth Wave and Magnus Mineral Resources \(PVT\) Ltd Sign USD\\$50M+ Contract for Implementation of IXOS\(R\) Mining Technology at the Penhalonga Gold Mine and Beyond](#)
 - September 12, 2022 – [Awakn Life Sciences Signs Drug Development Agreement with Catalent for Zydis\(R\) Technology \(An Orally Disintegrating Tablet\) to Conduct Feasibility Studies to Improve Differentiation of Its MDMA Program](#)
 - September 12, 2022 – [Lomiko Provides Corporate Update And Announces Fall Events and Speaking Engagements](#)
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Neo Performance Materials and Uranium Sector Leads this Week-in-Review...

written by Tracy Weslosky | September 12, 2023

“US Futures are down across the board, with no new economic

data or major earnings expected. Investors are looking to the August jobs report, scheduled for Friday, as they weigh up how big a rate hike could be coming from the Fed in September.

Last week saw equity markets close the last week on a down note, as all three major U.S. indexes sold off sharply for their worst closes in months after Federal Reserve Chairman Jerome Powell said the central bank would continue fighting inflation with rate increases. Don't expect much in the way of a reprieve in early trading as we get the day under way." – Kevin Thomsen, Morning Chatter for August 29, 2022

Friday was an intense day of speculation and discussion in the rare earths sector. With breaking news early AM with [Agreement to acquire strategic shareholding in Neo Performance Materials and cornerstone investment in Hastings by Wyloo Metals](#), Christopher Ecclestone put out a piece on InvestorIntel titled [Neo Performance and Hastings – Will Wonders Never Cease?](#) – that was followed later that day, with a second announcement [Neo Performance Materials Announces \\$67.5 Million Bought Deal Treasury Offering of Common Shares.](#)

Allow me to remind you that Constantine Karayannopoulos will be the luncheon speaker at the [Critical Minerals Institute](#)'s summit scheduled for Wednesday, November 9, 2022.

This morning, we see indicators that the uranium sector has interest, we coincidentally have a headline story written by Jack Lifton titled [Are we slaves to Russian uranium processing?](#) It seems we are in the right place at the right time as we start out the InvestorTalk.com schedule this week with 2 uranium companies... followed by an antimony story on Thursday.

[InvestorTalk.com](#) line-up for this week:

- 9-9:20 AM EST, Tuesday, August 30, 2022 – InvestorTalk.com with John Cash from **Ur-Energy Inc.** (NYSE American: URG | TSX: URE), [click here to register](#)
- 9-9:20 AM EST, Wednesday, August 31, 2022 – InvestorTalk.com with Dev Randhawa from **Fission 3.0 Corp.** (TSXV: FUU | OTCQB: FISOF), [click here to register](#)
- 9-9:20 AM EST, Thursday, September 1, 2022 – InvestorTalk.com with Christopher Ecclestone from **Molten Metals Corp.** (CSE: MOLT), [click here to register](#)

Now for some highlights from the Week-in-Review for the week of August 22-26, 2022 –

The Top 10 Trending Columns on InvestorIntel.com for the last 30-days include:

1. [Nano One's cathode materials are inventing the zero-emission battery future](#)
2. [Announcing the Launch of the Critical Minerals Institute for Companies and Experts Focused on Electric Vehicles, Green Energy and Secure Supply Chains](#)
3. [The King of Tin is Alphamin](#)
4. [Rare earths expert Alastair Neill on Vital Metals](#)
5. [Lynas Bets \\$500 Million on Rare Earths Market Expansion](#)
6. [Zentek sets its sights on treating skin conditions as it expands potential uses for its ZenGUARD graphene coating](#)
7. [Eye on the price of uranium, Cameco brings crown jewel back into production and Ur-Energy is set to go.](#)
8. [Molybdenum – securing a domestic supply of the vital but underappreciated mineral](#)
9. [A titan of titanium – with a big HAMR](#)
10. [Valeo Pharma's Steve Saviuk talks about the US\\$40M non-dilutive financing from Sagard Healthcare Partners](#)

InvestorIntel Columns to REVIEW:

- August 26, 2022 – [Neo Performance and Hastings – Will Wonders Never Cease?](#)
- August 25, 2022 – [The Dean's List – Part 6: What cobalt companies could benefit from Canada's commitment to critical minerals?](#)
- August 24, 2022 – [dynaCERT puts its carbon emission reduction technology to the test](#)
- August 23, 2022 – [Mining our way to the Green Revolution](#)
- August 22, 2022 – [Musk Twitter Deal, Predatory Short Selling Takes a Hit and Rethinking Greenland Rare Earths in this Week-in-Review...](#)
- August 22, 2022 – [Greenwashing – It's not easy pretending to be green](#)

ii8 System News Releases for the Week in Review for August 22-26, 2022:

- August 26, 2022 – [West Red Lake Gold Closes \\$4,100,000 Flow Through Financing](#)
- August 26, 2022 – [Neo Performance Materials Announces \\$67.5 Million Bought Deal Treasury Offering of Common Shares](#)
- August 26, 2022 – [Agreement to acquire strategic shareholding in Neo Performance Materials and cornerstone investment in Hastings by Wyloo Metals](#)
- August 25, 2022 – [Awakn Life Sciences Signs Agreement with a Leading Drug Development Company to Deepen IP Moat for Its Lead Program](#)
- August 25, 2022 – [Rackla Metals focuses on Tombstone intrusive related gold](#)
- August 25, 2022 – [dynaCERT Advances its Verified Carbon](#)

Standard Application with Verra

- August 25, 2022 – [Completion of Institutional Placement](#)
 - August 24, 2022 – [Westward Gold Completes Turquoise Canyon Anniversary Payment](#)
 - August 24, 2022 – [Molten Metals Corp. Announces Formation of Strategic Advisory Board](#)
 - August 24, 2022 – [Bald Eagle Announces Exchange Approval for Name Change to Hercules Silver Corp. and Provides Exploration Update](#)
 - August 23, 2022 – [Molten Metals Samples 39.4% Antimony \(Sb\) and 9.69g/t Au, at Tienesgrund, Slovakia](#)
 - August 23, 2022 – [TrustBIX Inc. Announces June 30, 2022 Third Quarter Financial Results](#)
 - August 23, 2022 – [Auxico Signs Offtake Agreement for Tin Concentrate from the Massangana Tin Tailings Project in Brazil](#)
 - August 23, 2022 – [DOE Funds Next-Generation Rare Earths Processing Research Collaboration](#)
 - August 23, 2022 – [Silver Bullet Mines Corp. Updates on Washington Mine in Idaho](#)
 - August 23, 2022 – [Nano One Receives C\\$1.8M towards SDTC Milestone 4 and Granted 2 Patents](#)
 - August 22, 2022 – [Hemostemix Announces Closing of UNIT Private Placement](#)
 - August 22, 2022 – [Hudson Resources And Neo Performance Materials Sign Agreement On The Sarfartoq Rare Earth Element Project In Greenland](#)
 - August 22, 2022 – [dynaCERT to Equip the City of Timmins with Winterized Carbon Emission Reduction Technology](#)
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A titan of titanium – with a big HAMR

written by InvestorNews | September 12, 2023

Companies that combine hard rock assets with technology have a unique appeal. It gives you the tangible and familiar steps of a mining company – drill, initial resource, PFS, and PEA progress that you can measure and monitor with reasonable transparency. But if it also has an innovative technology component, it also can offer the potential of a greater upside if the technology side of the business ends up being a game-changer. Granted you have to have the funding and the human resources to keep both aspects of the business moving forward in a way that is beneficial to shareholders, which can be a challenge depending on your size. But if you keep making positive progress on both fronts without sacrificing one aspect of the business or the other, then a shareholder can be handsomely rewarded. It's also good diversification if one of your business units lays an egg so to speak.

Today's company could also almost fit the bill for the [Dean's List](#) critical minerals series except that its mineral assets are in the U.S. Arguably, that's better for investors given the size of the market and the scale for potential government support. So let's dive into [IperionX Limited](#) (NASDAQ: IPX | ASX: IPX), a U.S. critical minerals company that is also pursuing a patented powder metallurgy process technology that allows for the production of titanium powders. The company aims to be a leading developer of sustainable critical mineral supply chains in the United States through a multi-pronged strategy comprising a variety of technology, integration, and sustainability focused initiatives.

Starting with the mining side of the business, IperionX holds a 100% interest in the [Titan Project](#) located in Tennessee, a very large titanium resource in North America which is also rich in rare earth minerals. The Titan Project is one of the largest titanium, zirconium and rare earth minerals deposits in the U.S., forming part of a large-scale critical mineralization trend in an area known as the Mississippi embayment. The Titan Project's unconsolidated, near-surface mineral sand hosted material allows the potential for simple, low-impact, low-cost and sustainable mineral extraction, unlike many hard rock mineral deposits.

IperionX released the result of a [scoping study](#) on the Project in late June which included an after tax NPV₈ of US\$692 million, potential for significant cashflow generation including an average annual EBITDA of US\$117 million, and a 1.9 year payback period. Another highlight that I believe will help elevate the profile of this project is the development of a sequential mining method to allow for a low cost, reduced area footprint and environmentally sustainable mining process. Lastly, the location (aside from simply being in the U.S.) is near existing infrastructure including low-cost power and gas, with high-capacity transmission lines near the Project, abundant transportation infrastructure including the Norfolk Southern mainline running through Camden, the major I-40 highway just 10 miles south of Camden and a major barge-loading point 15 miles from the Titan Project connecting to all major U.S. customers and export ports. I believe once the U.S. gets the ball rolling on domestic supply of various commodities, that sustainability and carbon footprint will be the differentiator between a good project and a great project.

On the technology side, IperionX holds an exclusive option to acquire the [HAMR technology](#) and other associated technologies. The patented metal technologies, centered around Hydrogen

Assisted Metallothermic Reduction (HAMR), were invented by world-renowned metallurgist, [Dr. Zak Fang](#), Professor of Metallurgical Engineering at the University of Utah. The HAMR process allows for the production of titanium powders. This process can take almost any form of titanium or scrap titanium alloy feedstock and produce titanium powders at very low energy intensity, enabling the potential for low cost, low carbon emission production in a sustainable closed loop. I won't get into the details of the technology because it's way over my head and I'm not sure I'd explain it properly, but what's important is that its low cost, has reduced energy consumption, and has 100% titanium recycling potential.

IperionX is already producing titanium powder with its partner BlackSand at a pilot facility operating in Salt Lake City, Utah, built with funding from the U.S. Department of Energy's ARPA-E. Development of a larger Titanium Demonstration Facility (TDF) is currently underway with a targeted production capacity of 125tpa. The TDF will serve a dual purpose of demonstrating scale while allowing for the commencement of powder production for commercial sales.

Next on the list of milestones for the company is to continue work to get the Titan Project construction ready, begin discussions with potential titanium metal strategic customers and scale-up titanium metal powder production capacity (the TDF noted above). Any or all of these could provide catalysts for IperionX's shareholders over the next few months.

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

written by Jack Lifton | September 12, 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.

Iluka Resources looks to join exclusive club of rare earths producers

written by | September 12, 2023

[Iluka Resources Limited](#), (ASX: ILU) an Australian mineral sands company, is poised to add rare earth elements to its portfolio of products. The company's main products are zircon, titanium, plus iron and carbon materials from its processing plants in Australia. It also has recently announced the de-merger of its Sierra Leone company, Sierra Rutile Holdings Limited, to end up with two ASX listed companies.

The plan announced by Iluka is to start concentrating monazite and xenotime in the second half of this year from its mineral sands operation in Western Australia. Cracking and leaching will begin next year followed by separation to produce rare earth oxides in 2024 at Eneabba, Western Australia, which is a 3 hour's drive north of Perth. According to public company information, the planned output is 17,500 tons per year of Total Rare Earth Oxides (TREO). They note the plant will have a full capacity of 23,000 TPY of TREO with all circuits fully utilized. It is reasonable to assume that they are looking for additional monazite to fill their plant as the capacity is more than they can produce themselves.

Based on the feed rate of 17,500 TPY TREO Iluka expects to produce 4,000 TPY of Nd/Pr plus 500 TPY of Dy/Tb. Typically, Dy:Tb ratio varies from 2:1 to 5:1. At today's pricing of \$135/kg USD for Nd/Pr oxide, Dy oxide at \$362/kg USD, and Tb407

at \$2.056/kg USD, Iluka's annual revenue could be in the range of US\$1 billion.

The projected capital costs are AU\$170-200 million for the cracking and leaching, and AU\$320-390 million for the separation and finishing. Additional costs include plant and infrastructure AU\$110-140 million plus indirect costs, contingency, commissioning and miscellaneous costs of AU\$400-470 million for a total of AU\$1-1.2 billion. [According to the company](#), there will be support from the Australian government in the form of a loan from the government's Critical Minerals Facility fund and a risk-sharing agreement that would include non-recourse debt, royalty payments to Iluka, and flexibility in repayment schedules. This is what is necessary to get these projects off the ground – government support and vision to see that risk sharing is very important.

Raising this amount of capital in the markets today is a challenge and also very dilutive as their current market cap is AU\$3.8 billion. An advantage Iluka has over many other planned entrants into the rare earth space is their existing cash flow from current operations, as it will take time to generate revenues from this operation after construction begins this year and until the first output is expected to be seen in 2025.



Source: Iluka Company presentation, April 4, 2022

Based on using their existing stockpile at Eneabba, Iluka could produce 12,400 TPY TREO with an operating cost of AU\$13/kg or about US\$10/kg which is competitive with Chinese costs. I am assuming they put no value on the feed material as it is in a stockpile. They have not included any transfer costs from other sources in their expanded production estimates with other sources of feed. The stockpile feed would produce 2,700 TPY of

Nd/Pr or about half of the capacity of 5,500 TPY of Nd/Pr. This stockpile would be exhausted in 9 years, so they are actively looking for other sources to fill the plant.

One question that is not clear is whether they will take a Molycorp plant design approach or the Lynas approach. Molycorp originally designed a single train 20,000 TPY TREO capacity. Lynas built four 5,500 TPY TREO trains so that if supply or demand changed, or there was a problem in one train, they did not lose all their production. This came to light over the COVID era when demand dropped. This is a major consideration of any new plant design as economies of scale are limited or offset by potential operational problems.

Overall this may well be one of the players to cross the finish line in the race for more production of rare earths outside China.

In-house production key to making Energy Fuels the world's lowest cost producer of rare earth metals

written by Jack Lifton | September 12, 2023

Energy Fuels takes giant step towards

complete, in-house, vertical integration in the production of rare earth permanent magnet alloys

[Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR) has just this week [announced](#) that it will buy, subject to due diligence, a huge Brazilian deposit of heavy mineral sands, which it will mine to produce a concentrated mineral mix that will contain zircon, ilmenite (titanium), and monazite. This concentrate is expected to be sold to partner companies, which will extract the zircon and ilmenite as payables, and the residual monazite, a waste product in zircon/ilmenite processing, will be conveyed at a nominal cost (as part of the arrangement to supply the heavy mineral sands to partners) to Energy Fuels' White Mesa, Utah, where the monazite will be cracked and leached to extract a clean rare earth content as a mixed carbonate and to extract and sell or legally dispose of its uranium and thorium content.

Energy Fuels is already buying, and processing monazite produced in the above way from the zircon/ilmenite operations of Chemours in Georgia, but the Brazilian purchase will allow Energy Fuels to diversify and lower its cost of monazite concentrates.

The in-house production of monazite rich heavy mineral sands by Energy Fuels will be the foundation of its program for the vertically integrated (in-house) production of rare earth metals and alloys from (in-house) separated and purified individual and blended rare earth salts.

Energy Fuels operates the only operating uranium processing "mill" in the United States and the only facility in the United States in the U.S. capable of processing monazite for the recovery of uranium for sale to nuclear power plants, and the recovery or legal disposal of the thorium and other radionuclides associated with monazite.

The company has already begun processing purchased monazite into a mixed rare earth carbonate, and currently has the capacity to produce thousands of tons of such mixed rare earth carbonates per year. Energy Fuels' mixed carbonate is the most advanced rare earth product being produced at a commercial scale in the U.S. today. The company is also making major strides in producing separated and refined individual and blended rare earth products at its mill.

Comparatively, monazite contains up to 50% more of the recoverable core magnet metals, neodymium and praseodymium than the bastnaesite mined at Mountain Pass, California.

Energy Fuels is finalizing a scoping study for a dedicated, rare earths, solvent extraction separation system and is finalizing the commercialization of a new rare earth metals and alloys production process demonstration.

Within 24-36 months Energy Fuels has the potential to be the world's lowest-cost producer of separated individual rare earths and will therefore the lowest cost producer of rare earth metals and alloys. No government subsidies have been needed. Just managerial knowledge, experience, and skill.

Energy Fuels already is a major domestic supplier of uranium and vanadium. In fact, the company announced at its AGM, earlier this week, that it has signed a decade long supply deal with two American utilities to provide them with more than 4,000,000 lbs of uranium. This contract will bring in more than USD\$200,000,000 over its life.

Energy Fuels is a producing and growing domestic American critical metals processing hub.

Disclosure: Jack Lifton is a member of the Advisory Board for Energy Fuels Inc., and may hold securities or options in some of

the companies mentioned in the above article.

Russia's War, Supply Chain Turmoil and What It Means to You

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What a week! Last Thursday, Russia invaded Ukraine. Then this week global supply chains went crazy, with skyrocketing price moves and a global-scale sense of worry about where it all leads.

I won't dwell on war news, meaning stories and imagery from front lines. It's tragic and painful to witness, and no doubt you follow events.

But definitely, it's worth discussing the economic impacts of the war. In particular, consider the almost immediate commercial isolation of Russia that's now taking shape with a wide array of sanctions on Russia's government, her banks, businesses and people.

This is an entirely new page for the world economy. And what's happening is not as easy as just saying, "Russia is bad so let's punish her." Sad to say, though, that's where much thinking across the world is focused. Do something. Make it fast. Think about it later.

Another way to say it is that Russia is a major, global-scale source of key energy and industrial resources. These range from

products straight from the well like crude oil and natural gas, to refined hydrocarbons like gasoline, diesel and chemicals. Plus, Russia produces a vast array of industrially critical elements, again ranging from ores and concentrates to highly refined and processed alloys.

For example, as Russian sanctions kicked into play over the past few days the price of oil pulled up into a strong climb, with Brent Crude hitting \$114 per barrel at one point. This reflects market uncertainty over future access to Russian exports. Meanwhile, one sees stories of tanker-loads of Russian oil going “no bid” because traders are uncertain about the legality of even making an offer. It’ll sort out, more or less. But for now, it’s a serious mess.

Other important commodities with a Russia-trade angle are also rising in price. Wheat futures are soaring to two-decade highs, according to market tracking services. And lumber futures are up sharply as well, reflecting concern over diminishing Russian supply.

Other materials rising in price include aerospace-grade aluminum, now at record levels according to a market follower with whom I spoke earlier. Meanwhile, a significant fraction of the world’s aerospace grade titanium – about 60% by some calculations – comes from Russia.

Or consider spot prices for other widely used, critical industrial elements like copper, nickel and uranium. All have a strong Russia supply angle, and all are at 10-year highs, per trading data.

You get the picture, right? Literally, overnight, anti-Russia sanctions have created uncertainty over future supplies of key energy resources and metals.

Meanwhile, share prices for important Russian producers have collapsed. Consider just two key companies in the Russian investment space, gas producer **Gazprom (OTC: OGZPY)** and metals producer **Norilsk Nickel (OTC: NILSY)**. Both companies' share prices have tumbled in recent days, as you can see here:



Is there an investment angle? Well, the possibilities are many and depend on your risk tolerance.

For the truly bold, the collapse of Russian share prices creates a contrarian setup. If you are aggressive, and perhaps a bit crazy, feel free to wade into the selloff and buy shares of Norilsk and Gazprom. Of course, we don't yet know what will happen as events unfold, so the "buy low" idea could also lead to even more losses, of not a complete wipeout. You've been warned.

Or frame it this way: Russia now has a very significant level of what's called "war risk" in everything that has to do with its investment climate. Perhaps there's an upside in the not-too-distant future, but for now the entire space is a very dangerous place to be for most investors.

The safer investment idea is to focus on U.S. and Canadian names that work in the resource space that's affected by Russian sanctions. Of course, there are many names out there ranging from small exploration plays to large and mighty companies.

For example, let's look at nickel. Large nickel producers include Brazilian play **Vale (NYSE: VALE)**, as well as Swiss-based **Glencore (OTC: GLNCY)** and Australia's **BHP Group Ltd. (NYSE: BHP)**. These names have global operations and everything you would want in a major player. If customers need nickel and cannot obtain it from Russia and Norilsk, they can buy it from

these other guys.

On the much smaller, exploration side, though, my strongest play is a Canadian junior operating in Montana, called [Group Ten Metals Inc.](#) (TSXV: PGE | OTCQB: PGEZF). This company is relatively early stage in its efforts, but with significant progress on the books. The play is focused within the well-regarded Stillwater District, where the company holds a massive land package. Exploration has already revealed extensive mineralization in copper, nickel, platinum, palladium, rhodium, gold, silver and even chrome. It's a superb asset (I've visited the site and seen the mineralization), with strong technical and management talent.

It's also worth noting that Group Ten holds lands directly adjacent to Sibanye-Stillwater, Ltd. (NYSE: SBSW), currently producing minerals in the region. This situation makes it more likely that Group Ten can eventually obtain necessary mining permits and move towards development and production.

To sum up, we can't do anything about the tragic war in Ukraine. Meanwhile, the anti-Russia sanctions are a massive, international phenomenon, again out of our hands. But already these dynamics have set up severe supply chain issues, all based on just a few days of history being made. And more disruptions are, no doubt, in the pipeline as events unfold and politics play out.

Finally, looking ahead the world is not simply on a glide path to a new version of the Cold War. No, Western nations are on the path to a "Commodity War" scenario, firmly embedded inside the looming political, economic and perhaps military confrontations. In this sense, holding real assets – including ores in the ground – is critical to your investment future.

On that note, I rest my case.

That's all for now... Thank you for reading.

Best wishes...

Byron W. King