

Technology Metals Report (04.05.2024): Uranium Price Doubles as the Green Economy Charges Forward

written by Tracy Weslosky | April 5, 2024

Welcome to the latest issue of the **Technology Metals Report** (TMR), brought to you by the [Critical Minerals Institute](#) (CMI). In this edition, we compile the most impactful stories shared by our CMI Directors over the past week, reflecting the dynamic and evolving nature of the critical minerals and technology metals industry. Among the key stories featured in this report are Ford Motor's strategic [decision](#) to delay its all-electric SUV and truck productions in favor of expanding its hybrid offerings, signaling a broader trend in the automotive sector towards hybrid technologies. The [resurgence](#) of the uranium market, with prices doubling due to the growing demand for clean energy, underlines the critical role of uranium in achieving 2050 climate targets. Moreover, the DRC's [decision to suspend](#) nine subcontractors at ERG mines due to non-compliance issues highlights the persistent challenges and evolving regulatory landscape in the cobalt industry. This action reflects a commendable direction by the Congo government towards enhancing industry standards and governance. The entry of Aclara Resources Inc. into the U.S. [rare earth processing](#) market was both newsworthy and offered Jack Lifton an opportunity to update readers on the advancements of REE processes in North America today.

This week's TMR Report also highlights significant developments across the global critical minerals landscape, including the

European Union and the United States' [efforts](#) to broaden their reach in securing critical minerals amidst a stalled bilateral agreement, and Ionic Rare Earths Limited's [joint venture](#) with Viridis Mining to establish a rare earth refining and recycling presence in Brazil. The U.S. Department of Energy's \$75 million [investment](#) in a Critical Minerals Supply Chain Research Facility aims to reduce reliance on foreign sources and bolster national security. Furthermore, the [collaboration](#) between NOVONIX Limited and Lithium Energy Limited to form Axon Graphite Limited through a public listing emphasizes the strategic moves within the natural graphite sector. MP Materials' [awarded](#) tax credit to advance U.S. rare earth magnet manufacturing marks a significant step towards reducing dependency on imported critical materials. Lastly, the [extension](#) of Canada's Mineral Exploration Tax Credit (METC) and the Biden-Harris Administration's [announcement](#) of a \$4 billion initiative in tax credits for clean energy supply chain projects underline the ongoing efforts and investments to strengthen the critical minerals sector, underscoring the importance of these developments for our energy security, economic prosperity, and environmental sustainability.

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Ford to delay all-electric SUV, truck to focus on offering hybrid vehicles across its lineup by 2030: (April 04, 2024, [Source](#)) – Ford Motor has announced a strategic shift in its electric vehicle (EV) plans, postponing the production of a new all-electric SUV and pickup truck to focus on expanding its hybrid vehicle offerings across its entire North American lineup by 2030. Despite this delay, Ford remains committed to the EV market, planning to continue its investments in electric technology. The production of a three-row SUV in Canada has been rescheduled from 2025 to 2027, and the launch of a next-generation pickup, codenamed "T3," has been moved from late 2025

to 2026. This decision reflects broader industry trends, with many automakers reassessing their EV strategies amid slower-than-expected adoption rates and high production costs. Additionally, Ford aims to leverage new battery technology to enhance the durability and value of its future EVs, focusing its efforts on newly established plants like the “BlueOval City” in Tennessee, rather than converting existing facilities.

Uranium price creates new ASX boom: (April 04, 2024, [Source](#)) – In 2023, uranium prices doubled from US\$48 to US\$91 per pound, peaking at US\$106 in 2024, highlighting a significant recovery from previous lows. This resurgence, fueled by the demand for clean energy and carbon emission reductions, has revived interest in uranium projects, now seen as viable at around US\$100 per pound. Global initiatives to expand nuclear energy, with significant investments in new reactors in the US, China, and France, underscore uranium’s critical role in meeting 2050 climate targets. Despite temporary price dips, the market outlook remains positive, driven by global nuclear expansion and supply constraints. This bullish sentiment has revitalized the uranium sector, particularly benefiting ASX-listed companies engaged in uranium exploration and mining, reflecting a broader industry optimism and investment in nuclear energy’s future.

Congo Suspends ERG Subcontractors at Major Cobalt Mine: (April 04, 2024, [Source](#)) – The Democratic Republic of Congo has suspended nine subcontractors at Eurasian Resources Group (ERG) mines, citing non-compliance with laws requiring Congolese ownership. This move, announced on March 14, intensifies tensions between ERG and the government, which is pushing for greater domestic benefits from the mining sector. Congo, a major global supplier of cobalt and a significant copper producer, is enforcing regulations to ensure local control of mining operations. The government’s actions also reflect ongoing disputes with ERG over asset development and environmental

concerns. Despite the suspensions, ERG insists it adheres to local laws, emphasizing its support for Congolese suppliers and its commitment to legal compliance. The sanctions target subcontractors at Metalkol and Frontier, two key ERG projects in Congo, but are not expected to affect output due to a transitional period for bringing in compliant firms. The controversy highlights Congo's efforts to secure more benefits from its mineral resources while navigating challenges with international mining companies.

Disruptive Shift to Rare Earth Processing as Aclara Moves into American Market: (April 03, 2024, [Source](#)) – Jack Lifton of the [Critical Minerals Institute](#) (CMI) offered an analysis on [Aclara Resources Inc.](#)'s (TSX: ARA) strategic entry into the U.S. rare earth processing market. Aclara aims to utilize ionic clay deposits from Chile and Brazil for heavy rare earth elements (HREEs) crucial in magnet manufacturing. They've partnered with the Saskatchewan Research Council and Hatch Ltd. for processing facility development. Lifton, however, questioned the project's ambitious timeline and compared Aclara's efforts to established players like [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), which is advancing in light rare earth (LREE) separation. The column highlights the competitive nature of the rare earth market, with Aclara facing challenges from Energy Fuels, [MP Materials](#) (NYSE: MP) and [Ucore Rare Metals Inc.](#) (TSXV: UCU | OTCQX: UURAF). Lifton suggests Aclara needs deeper industry integration and strategic partnerships, indicating a complex journey ahead in a competitive and technological landscape.

EU, US seek broader reach on critical minerals as own deal stalls: (April 03, 2024, [Source](#)) – The European Union (EU) and the United States (US) are not expected to finalize a critical minerals agreement at an upcoming meeting. Despite this, they plan to launch initiatives to partner with resource-rich countries. The EU aims for an accord allowing minerals processed

in Europe to be eligible for US clean vehicle incentives, focusing on cobalt, graphite, lithium, manganese, and nickel. A senior European Commission official cited the absence of an imminent deal but confirmed a joint commitment to future agreements. Difficulties include US demands for labor standards verification at mining sites. Moreover, the EU and US are seeking to differentiate their offerings from China's by emphasizing infrastructure funding, sustainability, and value-added business opportunities for developing countries, with plans to engage with ministers from Namibia, Ukraine, Kazakhstan, and Uzbekistan among others.

Ionic Rare Earths Limited (ASX:IXR) and Viridis Mining to Form REE Refining and Recycling JV in Brazil: (April 03, 2024, [Source](#)) – [Ionic Rare Earths Limited](#) (ASX:IXR) and [Viridis Mining and Minerals Limited](#) (ASX:VMM) have announced a 50:50 joint venture (JV) to establish a dominant position in the global supply chain for Rare Earth Elements (REE) in Brazil. This strategic partnership aims to utilize IonicRE's intellectual property and Viridis' global assets to become a leading supplier of high-quality, reliable rare earths crucial for various industries and energy transition. The JV plans to co-fund a Brazilian production facility, aiming to complete a Scoping Study by the end of 2024 and a preliminary feasibility study within 18 months. IonicRE's recent success in producing rare earth oxides at its Belfast facility and Viridis' promising Colossus Ionic Adsorption Clay REE Project in Brazil highlight the joint venture's potential to accelerate growth and leverage Brazil's rich rare earth resources. This collaboration aligns with Brazil's ambition to become a global leader in rare earth production, offering an exceptional opportunity for both companies to advance their positions in the rare earth supply chain significantly.

DOE Invests \$75 Million to Strengthen Nation's Critical Minerals

Supply Chain: (April 02, 2024, [Source](#)) – The U.S. Department of Energy (DOE), under President Biden’s Investing in America agenda, announced a \$75 million investment for a Critical Minerals Supply Chain Research Facility, aimed at bolstering the nation’s supply chains for critical minerals and materials essential for energy security, economic prosperity, and national security. This initiative, part of the Bipartisan Infrastructure Law, focuses on reducing reliance on foreign sources by accelerating the production of critical minerals from diverse sources. The facility will collaborate with other government initiatives and aims to enhance supply chain efficiencies and support a circular economy. A supply chain assessment highlighted the risks of over-reliance on foreign and adversarial sources for these materials, underscoring the importance of this project for the U.S.’s clean energy transition, manufacturing sector revitalization, and overall competitive edge. The project will involve nine national laboratories, emphasizing community engagement and benefits in line with the Justice40 Initiative. This is in addition to FECM’s commitment of \$58 million since January 2021 to further support critical mineral and material projects across the country.

NOVONIX Limited and Lithium Energy Limited to Combine Natural Graphite Interests with Intention to Take Combined Business Public: (April 02, 2024, [Source](#)) – [NOVONIX Limited](#) (NASDAQ: NVX | ASX: NVX) and [Lithium Energy Limited](#) (ASX: LEL) are combining their natural graphite exploration interests into a newly formed company, Axon Graphite Limited, aiming for a public listing through an initial public offering (IPO) on the Australian Securities Exchange (ASX). Both companies will each retain up to 28.57% ownership post-IPO, intending to create a significant natural flake graphite project. This move is designed to unlock value for shareholders of both NOVONIX and LEL, with eligible

shareholders given priority in the IPO. The combination of NOVONIX's Mt. Dromedary project and LEL's Burke and Corella projects under Axon signifies the development of a major resource aimed at supporting the electric vehicle and energy storage sectors. The IPO seeks to raise between \$15 million to \$25 million, setting the stage for Axon to become a key player in the battery materials sector, benefiting from the anticipated growth in demand for anode materials and high-grade graphite products.

MP Materials Awarded \$58.5 Million to Advance U.S. Rare Earth Magnet Manufacturing: (April 01, 2024, [Source](#)) – [MP Materials](#) (NYSE: MP) has been awarded a \$58.5 million tax credit by the IRS and Treasury, under the Section 48C Advanced Energy Project, to support the construction of the first fully-integrated rare earth magnet manufacturing facility in the United States. This grant was part of a competitive process by the Department of Energy assessing around 250 projects for their viability and environmental impact. The facility will focus on producing neodymium-iron-boron (NdFeB) magnets, essential for various applications including electric vehicles, wind turbines, and defense systems. With global demand for these magnets expected to triple by 2035, MP Materials' initiative aims to commence the commercial production of magnet precursor materials in Fort Worth, Texas, by summer and finished magnets by late 2025, supplying to companies like General Motors. This project addresses the U.S.'s near-total reliance on imports for these critical materials, mainly from China, and aims to establish a sustainable, end-to-end supply chain.

Relief and Renewal: Canada's METC Extension Breathes New Life into Mineral Exploration: (March 31, 2024, [Source](#)) – The Canadian government announced the extension of the Mineral Exploration Tax Credit (METC) until March 31, 2025, addressing concerns in the mining sector over the future of flow-through

financings. This move has been met with relief, particularly as the deadline approached without prior confirmation, sparking anxiety among stakeholders. The METC plays a vital role in supporting exploration companies by enhancing flow-through share pricing, thereby facilitating fundraising. Critics, including Peter Clausi from the [Critical Minerals Institute](#) (CMI), had voiced concerns over the uncertainty caused by the government's silence, which hampered planning and investments. The extension is seen as crucial for continued investment in the sector, particularly benefiting junior mining companies and associated industries, including First Nations communities. Despite debates over the sufficiency of the projected \$65 million support, the decision signifies the government's recognition of mining's importance to Canada's economy and its commitment to sustainable development and Indigenous economic participation.

Central Asia's rising role in global rare earth metal competition: (March 31, 2024, [Source](#)) – Central Asian countries are becoming increasingly significant in the global competition for rare earth metals, crucial for technological and economic development. Eldaniz Gusseinov and Abakhon Sultonazarov highlight this trend against the backdrop of geopolitical shifts, such as the Ukraine conflict, prompting Western countries to seek alternatives to Russian and Chinese supplies. Central Asia, rich in mineral reserves, is eyed by the West to reduce dependencies, particularly as they move towards renewable energy sources. Kazakhstan emerges as a focal point with substantial reserves of rare earth elements like scandium, yttrium, and lanthanides, pivotal for industries ranging from computing to automobile manufacturing. The U.S. and EU are exploring investments in Kazakhstan to diversify their supply chains. Meanwhile, the U.S. and China vie for influence in the region, leveraging their strategic advantages. Central Asia's untapped mineral wealth, including significant rare earth

deposits, positions it as a critical player in global supply chains, with the potential to alter the dynamics of resource control and economic development amidst great power competition.

Biden-Harris Administration Announces \$4 Billion in Tax Credits to Build Clean Energy Supply Chain, Drive Investments, and Lower Costs in Energy Communities: (March 29, 2024, [Source](#)) – The Biden-Harris Administration has announced a groundbreaking \$4 billion initiative in tax credits to foster over 100 projects across 35 states aimed at bolstering clean energy manufacturing, reducing greenhouse gas emissions, and securing the supply chain for critical minerals. This move, part of President Biden's Investing in America agenda and funded by the Inflation Reduction Act, represents a major leap forward in the domestic production of clean energy and the strategic development of critical minerals essential for energy independence and technological advancement. Managed by the Department of Energy (DOE) in partnership with the Treasury and the IRS, the initiative focuses on a diverse range of projects, including significant investment in communities historically dependent on fossil fuels, aiming to create high-quality jobs and promote a transition to a cleaner economy. The Qualifying Advanced Energy Project Tax Credit (48C) program, rejuvenated with a \$10 billion boost from the Inflation Reduction Act, provides up to a 30% investment tax credit for approved projects that meet specific wage and apprenticeship standards. With a particular emphasis on critical minerals recycling, processing, and refining, this program is a key component of the Administration's strategy to ensure a sustainable, secure, and competitive energy future.

Investor.News Critical Minerals Media

Coverage:

- April 03, 2024 – Ecclestone Takes Critical Mineral Hit Lists to Task in the Hallgarten + Co Resource Monthly “Debasing Criticality’s Currency” <https://bit.ly/3IZLkwV>
- April 03, 2024 – Disruptive Shift to Rare Earth Processing as Aclara Moves into American Market <https://bit.ly/43J4C2V>
- March 31, 2024 – Relief and Renewal: Canada’s METC Extension Breathes New Life into Mineral Exploration <https://bit.ly/4cFr1lI>
- March 29, 2024 – Boosting Market Interest Through the Strategic Advantage of a Stellar Advisory Board <https://bit.ly/3vlAWwk>

Investor.News Critical Minerals Videos:

- April 04, 2024 – Danny Huh on Neo Battery Materials’ Process Innovation, 9th Patent and Position in NBM Korea <https://bit.ly/3VL2V2X>

Critical Minerals IN8.Pro Member News Releases:

- April 04, 2024 – Power Nickel Announces C\$2 Million Private Placement <https://bit.ly/49meqkQ>
- April 03, 2024 – Voyageur Pharmaceuticals Ltd Grants Deferred Share Units Compensation to Independent Directors <https://bit.ly/3U3sDyH>

- April 03, 2024 – Zentek Announces U.S. Distribution Agreement for ZenGUARD™-Enhanced Surgical Masks with Medwell Solutions <https://bit.ly/4cKM4U3>
 - April 03, 2024 – Defense Metals Appoints Guy de Selliers de Moranville to the Board of Directors <https://bit.ly/3vzlxsj>
 - April 03, 2024 – Panther Metals PLC – Fulcrum Metals Announce Potential Disposal of Uranium Projects <https://bit.ly/44012BX>
 - April 02, 2024 – First Phosphate Drills a 2 m Vein of Massive Apatite at Its Begin-Lamarche Project in Saguenay-Lac-St-Jean, Quebec, Canada <https://bit.ly/3VIAGCb>
 - April 02, 2024 – Fathom Continues to Expand the Historic Gochager Lake Deposit to Depth with Intersections of Semi-Massive to Massive Sulphide Mineralization <https://bit.ly/3TKm07I>
 - April 02, 2024 – CBLT Announces Program at Past Producer Falcon Gold and Revisits Historical High Gold Values <https://bit.ly/49jcVnl>
 - April 02, 2024 – Panther Metals PLC – Obonga Graphite: Awkward East Exploration Permit Application <https://bit.ly/4atD3gm>
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Technology Metals Report (03.15.2024): U.S. Makes a

\$2.6B Lithium Loan while Australia Invests \$840M into Rare Earths

written by Tracy Weslosky | April 5, 2024

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This week's TMR Report also highlights several other important developments in the critical minerals sector. Notable stories include the criticism from the Canadian Automobile Dealers Association regarding Quebec's decision to phase out electric vehicle purchase incentives, adjustments in electric vehicle strategies by major automakers amid shifting market dynamics, and the UK's trade pact with Texas aimed at boosting the green industry. Additionally, the report covers POSCO International's significant deals to supply rare earth permanent magnets to

North American and European automakers, signs of recovery in the global lithium market after a massive downturn, geopolitical competition for the Democratic Republic of the Congo's mineral wealth, Greece's emergence as a significant source of critical minerals, the U.S. Department of Defense's initiative to establish a "mine-to-magnet" supply chain, challenges and opportunities in Canada's mining industry, and the call by global miners for the London Metal Exchange to introduce a green premium for nickel. These stories provide a comprehensive overview of the current state and future prospects of the critical minerals and technology metals industry, reflecting its importance to technological advancement, national security, and the global transition to green energy. To become a CMI member, click here (<https://criticalmineralsinstitute.com/join>)

Biden Jump-Starts Electric-Vehicle Push With Massive Lithium Loan (March 14, 2024, [Source](#)) – The Biden administration is energizing the U.S. electric vehicle (EV) sector with a \$2.26 billion loan to [Lithium Americas Corp.](#) (TSX: LAC | NYSE: LAC) for its Thacker Pass mine in Nevada, aiming to fortify domestic lithium production for EV batteries. This investment, part of a broader initiative to secure half of new vehicle sales as EVs by 2030, will fund a refining plant critical for producing battery-grade lithium. Despite a recent slowdown in EV sales and a plunge in lithium prices, the project seeks to reduce U.S. dependence on foreign battery minerals, notably from China. Expected to start in 2027, the Thacker Pass mine will significantly contribute to the domestic EV industry, promising to supply lithium for up to 800,000 EVs annually. This move aligns with efforts to transition towards cleaner energy and reduce reliance on international sources.

The Australian Government Steps into the Critical Minerals Supply Chain Ring (March 14, 2024, [Source](#)) – The Australian government's backing of Arafura Rare Earths Limited (ASX: ARU)

with A\$840 million underscores a strategic push to lessen reliance on Chinese critical mineral sources, aiming to secure a sovereign supply of rare earth elements vital for electric vehicles and renewable technologies. This investment signals Australia's intent to lead in the global rare earth market, enhancing private sector confidence as evidenced by rising values in related investments, including those by Gina Rinehart's Hancock Prospecting. The move highlights Australia's ambition to not only overcome immediate financial challenges in the mining sector but also to establish itself as a crucial player in renewable energy technology, fostering global supply chain resilience and advancing the green energy transition.

Ottawa invests \$6M in Saskatoon rare earth processing facility (March 14, 2024, [Source](#)) – The Canadian federal government is investing \$6 million in Saskatoon's Saskatchewan Research Council to boost its Rare Earth Processing Facility, marking a significant step in processing critical minerals for high-tech uses like electric vehicle batteries and wind turbines. This funding will commercialize a process for extracting rare earth oxides from waste and develop an automated smelting process for commercial-quality metals, aiming to enhance sustainable and efficient production. The investment reflects a collaboration between federal and provincial governments, highlighting the national importance of establishing a domestic rare earth supply chain. It promises economic growth and job creation, positioning Saskatoon as a key player in meeting global demand for critical minerals and supporting the transition towards a greener economy.

A Step Backwards for Quebec's Automotive Electric Transition (March 13, 2024, [Source](#)) – The Canadian Automobile Dealers Association (CADA) criticizes the Quebec government's 2024 Budget decision to phase out electric vehicle (EV) purchase incentives amid an affordability crisis. This move is seen as

detrimental to Quebec's leading position in EV adoption, fueled by an effective incentive program. CADA refutes the government's claim of a narrowing price gap between EVs and traditional vehicles, highlighting that price parity is not expected until 2033. The association warns that removing incentives could slow EV adoption, contrasting with the successful examples of Quebec and British Columbia, which offer substantial financial incentives. CADA urges the government to reconsider, emphasizing the importance of incentives in achieving environmental goals and maintaining affordability for Quebecers.

EV euphoria is dead. Automakers are scaling back or delaying their electric vehicle plans (March 13, 2024, [Source](#)) – Automakers are adjusting their electric vehicle (EV) strategies amid fading EV euphoria, scaling back or delaying plans despite initial optimism. Industry giants like Ford, General Motors, Mercedes-Benz, Volkswagen, Jaguar Land Rover, and Aston Martin are shifting towards a more balanced vehicle offering, incorporating gas-powered, hybrid, and electric vehicles. This approach reflects a slower transition to an all-electric future, diverging from previous ambitious EV growth targets. Despite a reduction in growth expectations, the demand for EVs continues to rise, albeit at a slower pace, with sales still predicted to increase significantly. The industry acknowledges the necessity of hybrid models to bridge the transition to electrification and meet emission standards. This recalibration underscores the automotive sector's response to less-than-expected consumer uptake of EVs and the reality of current market conditions, suggesting a more gradual shift towards electrification.

UK Signs Trade Pact With Texas in Effort to Boost Green Industry (March 12, 2024, [Source](#)) – The UK has signed a trade pact with Texas to enhance cooperation in green energy, aerospace, and advanced technologies, marking the eighth non-binding memorandum of understanding (MoU) with a US state since Brexit. This

agreement aims to boost the collective GDP of these states to \$6.8 trillion, a quarter of the US economy. It includes mutual recognition of engineering qualifications to facilitate talent exchange for infrastructure projects. The pact also focuses on making business easier in sectors like hydrogen and carbon capture. Despite not being the comprehensive Free Trade Agreement that Brexit supporters hoped for, this deal reflects the UK's strategy of forming state-level agreements in the US. Texas, the UK's ninth largest trade partner, exchanged £14.7 billion in goods with the UK in 2023. However, some critics argue these MoUs do little to reduce tariffs and aren't sufficiently promoted.

POSCO International signs deal for permanent magnet supply with US, European automakers (March 12, 2024, [Source](#)) – POSCO International has inked deals worth 1.16 trillion won (\$885 million) to supply rare earth permanent magnets, essential for electric vehicle (EV) motors, to North American and European automakers. These contracts aim to diversify the supply chain away from China, utilizing materials from the US, Australia, and Vietnam. The company's U.S. subsidiary will supply a North American carmaker with magnets worth 900 billion won from 2026 to 2031, while its German subsidiary will provide a European brand with magnets valued at 260 billion won from 2025 to 2034. Star Group, Korea's exclusive rare earth magnet producer, will handle production. This marks a strategic entry into markets dominated by China, reflecting POSCO's efforts to expand its global footprint and secure additional orders with car and motor manufacturers.

After Massive Bust, Global Lithium Market Shows Signs of Life (March 12, 2024, [Source](#)) – The global lithium market, vital for electric vehicle batteries, is witnessing a cautious revival after a drastic downturn. Prices for lithium carbonate in China have surged to a post-December high following an over 80% fall

in 2023, with futures contracts also seeing significant gains. This rebound is amidst a global supply glut that previously tanked prices. Leading producers remain hopeful, with giants like Albemarle Corporation (NYSE: ALB) and Sociedad Química y Minera de Chile S.A. ("SQM") (NYSE: SQM) continuing expansions despite the market's volatility. Efforts to rebalance include production cutbacks by some firms. However, analysts warn that the recovery could be fragile, with environmental regulations in China and a persistent supply surplus posing challenges to a sustained rally. Skepticism remains regarding the end of the bear market amidst these tentative gains.

The (Bidding?) War For the DRC (March 12, 2024, [Source](#)) – The Democratic Republic of the Congo (DRC) is a focal point for global powers due to its rich deposits of critical minerals essential for modern technologies and green economies. China, Saudi Arabia, the United Arab Emirates, and Russia are the main players, each with distinct strategies and impacts. China has a controversial history in DRC's mining sector, while Saudi Arabia's investment approach fosters a positive development model. The UAE's agreement aims to enhance artisanal mining, and Russia's involvement hints at a Cold War-style influence game. In contrast, US and European engagement in securing these vital resources has been relatively minimal. These dynamics underscore the geopolitical competition over the DRC's mineral wealth, pivotal for technological advancement and climate change mitigation.

Critically important metals are found (March 11, 2024, [Source](#)) – Greece is emerging as a significant potential source of critical minerals essential for the clean energy transition, attracting investor interest. The Ministry of Environment and Energy, bolstered by Rockfire Resources PLC's positive findings in Molaoi, southern Greece, indicates substantial deposits of germanium, gallium, lead, silver, and zinc. Germanium's uses

span fiber-optics to solar panels, while gallium, extractable from Greece's abundant bauxite, is vital for electronics. The EU has noted Mytilineos' pilot project for gallium extraction from bauxite, potentially satisfying European demand. Additionally, Mytilineos explores scandium production, beneficial in aerospace and electric vehicles, forecasting a significant demand increase. Rockfire Resources plans further exploration and a viability study post-summer. Greece's untapped resources, including antimonite in Chios and bismuth near Xanthi, underscore its strategic position in supporting Europe's energy transition and reducing reliance on imports, especially from China.

DOD Looks to Establish 'Mine-to-Magnet' Supply Chain for Rare Earth Materials (March 11, 2024, [Source](#)) – The Defense Department is actively pursuing the establishment of a domestic "mine-to-magnet" supply chain for rare earth materials, crucial for manufacturing permanent magnets used in significant U.S. military systems and commercial applications. Recognizing the vulnerability of relying on foreign sources, notably China, for these materials, the DOD aims to enhance national security through self-reliance. It has allocated over \$439 million since 2020 to develop this supply chain, covering mining, separation, refining, and manufacturing processes within the U.S. This initiative is guided by the National Defense Industrial Strategy and seeks to achieve a resilient, domestic supply chain capable of meeting all U.S. defense requirements by 2027. Critical defense systems, such as the F-35 Lightning II aircraft, Virginia and Columbia class submarines, and various missile and radar systems, depend heavily on these rare earth materials. The DOD's strategy includes significant investments in U.S.-based companies and technologies to ensure the country's self-sufficiency in rare earth element production and magnet manufacturing, aiming to eliminate dependency on foreign sources

and secure the future needs of both defense and commercial sectors.

Critical minerals mining industry requires more of everything if Canada to be a global player (March 11, 2024, [Source](#)) – The KPMG in Canada survey reveals optimism among Canadian mining leaders regarding the potential for Canada to be a global leader in critical minerals. However, they acknowledge significant obstacles, including the need for more investment, government support, and favorable tax policies. Challenges like decarbonization, lack of domestic refining capacity, raising capital, environmental, social, and governance risks, cost reduction, and regulatory hurdles are highlighted. The survey indicates that only a minority of companies have committed to comprehensive carbon emission reductions by 2050, with many still planning or not having a strategy for emission reduction. Furthermore, the Critical Mineral Exploration Tax Credit (CMETC) has boosted exploration activities but is seen as complex and limited in scope. Respondents call for broader and more innovative tax policies to encourage investment and development in the sector.

Global miners call on LME to introduce green premium for nickel (March 5, 2024, [Source](#)) – Global mining giants, including BHP Group (ASX: BHP | NYSE: BHP) and Wyloo Metals, have urged the London Metal Exchange (LME) to create a green premium for sustainably produced nickel amidst concerns over environmental damage caused by “dirty” nickel, particularly from Indonesia. Indonesia, a major player in the nickel industry, has been criticized for deforestation, pollution, and high carbon emissions due to its reliance on coal-fired power. The LME, however, responded that the market for green nickel isn’t yet large enough to support a dedicated futures contract. BHP and others argue for differentiating between green and dirty nickel, highlighting the environmental impact differences. The LME

supports trading low carbon nickel but cites the need for more development in identifying a credible green premium. Meanwhile, Indonesia's low-cost nickel production is poised to dominate the global market, raising concerns over environmental standards and the need for responsible sourcing guidelines that include emissions metrics.

Investor.News Critical Minerals Media Coverage:

- March 14, 2024 – The Australian Government Steps into the Critical Minerals Supply Chain Ring <https://bit.ly/3Vm9NDR>
- March 12, 2024 – The (Bidding?) War For the DRC <https://bit.ly/4aaKMz0>

Investor.News Critical Minerals Videos:

- March 14, 2024 – Neo Performance's Rahim Suleman on being 'the most vertically integrated rare earth magnetics company in the world.' <https://bit.ly/3PkS8IY>
- March 14, 2024 – Darren Hazelwood on Panther Metals' VMS Project Scale and the Graphite Potential Near Thunder Bay <https://bit.ly/4920z0M>
- March 14, 2024 – Codemge's CEO on Leveraging Minas Gerais' Position as Brazil's Niobium Mining Powerhouse <https://bit.ly/48Pfo8U>
- March 13, 2024 – Chris Berlet on the benefit of MineralPrices' real-time pricing information <https://bit.ly/3TA1i6Q>
- March 11, 2024 – Power Nickel's Terry Lynch on "the least expensive high-grade nickel sulfide exploration play in the world" <https://bit.ly/3VgWdBF>
- March 11, 2024 – Tom Drivas Explores the Initial Rare Earth Mineral Resource Estimate from Appia's PCH Ionic Adsorption Clay Project in Brazil <https://bit.ly/3VdU9KL>

- March 11, 2024 – Chad Clovis on Real Environmental Benefits through the Karbon-X Carbon Credit App <https://bit.ly/3Tt6jy6>
- March 11, 2024 – Stephen Burega on Romios Gold's Recent Strides Forward in High-Grade Copper Exploration in Nevada <https://bit.ly/4a9HA7E>
- March 11, 2024 – Sean Cleary on Strategic's plans to revitalize former producer of 10% of the world's vanadium <https://bit.ly/3IwVZP9>

Critical Minerals IN8.Pro Member News Releases:

- March 14, 2024 – Technology Advancement: NEO Battery Expands Production Yield and Capacity with Manufacturing Innovation <https://bit.ly/43f7Efj>
- March 13, 2024 – Voyageur Achieves Milestone with Rain Cage Royalty Agreement for Sustainable Carbon Drug Development <https://bit.ly/3TzarN0>
- March 13, 2024 – First Phosphate and Groupe Goyette Sign MOU for Logistics Footprint at the Hebertville-Station Intermodal Facility in the Saguenay-Lac-St-Jean Region of Quebec, Canada <https://bit.ly/3PlqXxL>
- March 13, 2024 – Fathom Announces Completion of Drilling at Albert Lake Project and Commencement of Drilling at the Gochager Lake Project <https://bit.ly/3wPQFnA>
- March 12, 2024 – American Clean Resources Group Enters Well Water Purchase Agreement with Road and Highway Builders LLC <https://bit.ly/3w0X2aT>
- March 11, 2024 – Critical Metals PLC Appointment of Non-Executive Director <https://bit.ly/43cATiI>

A Landmark Moment: U.S. Dept. of Defense Makes Bold Moves in Rare Earth Magnet Manufacturing

written by Jack Lifton | April 5, 2024

The world of rare earth permanent magnet manufacturing just received a jolt of excitement. A new announcement from the Department of Defense has revealed a significant investment in a domestic manufacturing plant, a move that holds implications not just for defense, but also for the wider commercial sphere.

Lynas gearing up to strengthen its rare earths foothold in the USA

written by InvestorNews | April 5, 2024

Australia's Lynas Rare Earths Limited (ASX: LYC), the premier producer of rare earths outside China, finds itself at a crossroads as it navigates geopolitical and industry shifts. The company's future in Malaysia remains uncertain as Kuala Lumpur reviews its stance on operations resulting in radioactive by-products. Notably, Malaysia's operational advantages lie in its

strategic location and lowered production costs, offering a competitive edge over alternatives in Texas. The latter location, although attractive, poses challenges like potential “rare earth tourism.”

Rare Earths, “The War Metals?”

written by Jack Lifton | April 5, 2024

Sometime after 2007, I was invited to participate in a meeting called by the Office of Net Threat (Assessment) in the inner ring of the Pentagon in Washington, DC. The topic was the impact of the lack of critical materials on the security of the United States. I was asked to discuss the necessity of rare earths for the military. Around that same time, the US Dept of Energy put out its now well-known chart of [critical materials](#). The current version of that chart is now given as a set of bullet points

- Rare earth elements, used in offshore wind turbine generators and electric vehicle motors;
- Lithium, cobalt, and high-purity nickel, used in energy storage technologies;
- Platinum group metals used in catalysts for automotive, chemical, fuel cell, and green hydrogen products; and
- Gallium and germanium used in semiconductors.

Note well that there is no mention of specific military demands for any of the critical materials in the DoE bullet points. This doesn’t mean that these critical materials are not important to the Department of Defense; it means that the US cabinet departments have separate agendas.

Even though the Pentagon released a report in 2013 that stated that the demand for rare earth permanent magnets by the US military was "about" 1000 tons per year, the current demand figure is "classified,"

Returning to 2007 or thereabouts I well remember that the leading market cap player at the time, sometime around 2010, started using a picture of a US jet fighter plane in its advertising and claiming that "rare earths" were critical to its (the plane's) flying and combat operations and implying that without rare earths the US would be defenseless. This quickly became "received wisdom."

This was, as with so many pronouncements made by many companies in the bull market not true, but it became embedded in all rare earth related advertising from then on.

The purpose and value of rare earth permanent magnets in vehicles of any type is to reduce weight and the need for space. Their value is that they can be miniaturized. In planes, trains and automobiles this allows more payload (for the military) or more range due to less power necessary to carry the weight of the magnets and less volume allowing tiny, but powerful, magnets to be used in power accessories, such as power windows and seats or, as one example of a military use, weapons bay (formerly called bomb bay) doors.

Similar stories were that then began to say that an F35 fighter/bomber needed 935 pounds of rare earth permanent magnets in its construction and operation. This misinformation has also become, today, received wisdom.

In 2017 while working on a plan to recycle rare earth permanent magnets for the Defense Logistics Agency, I, of course, asked from where the scrap magnets were to come. The answer was that the DLA didn't have a firm grasp on that, since

compartmentalization and “need to know” and classification of end uses made it impossible for any one agency of the Pentagon to know that.

I guessed that the DoD needed 3000 tons per annum of rare earth permanent magnets. I based my estimate on data about the uses in F35s from an unclassified report published by the Pentagon in 2013, and my own guesses as to the need for rare earth permanent magnets in main battle tanks, man-carried missiles, drones, and the Navy’s adoption of electric propulsion.

Rare earth permanent magnets are important to the military for exactly the same reason they are important to the OEM automotive industry; they save weight and volume, and thus increase range and payload.

Vehicles and weapons can be made without rare earth permanent magnets; they will just be less efficient.

The Hellfire missile, made famous by being carried and launched from drones, uses Alnico (aluminum-nickel-cobalt) magnets made in the USA by a magnet maker in business now for 120 years. It could use rare earth permanent magnets, if they were available and made from domestic raw materials processed in the United States.

The F35 could use Alnico magnets in place of its current rare earth permanent magnets, but it would require special cooling to avoid curie-point failure and the additional weight and volume would reduce range and payload. The same for automobiles and trucks except that it wouldn’t be so much the payload that is sacrificed it would be convenience accessories such as power windows, seats, and doors in all cars and range in EVs.

Rare earth permanent magnet motors are the most efficient electric motors known. They are thus the best and most robust

solution to engineering issues of weight and volume for both military and consumer products.

But, they are not indispensable. And, if the US requires that any such magnets be made domestically from domestic materials then we are going to need to make between 10,000 and 15,000 tons of them per year at current usage.

Even if only the military gets to use them, we would need at least 3,000 tons per year.

Today NO rare earth permanent magnets are manufactured in the USA from domestic materials.

The time to change that is NOW.

Note from the Publisher: Jack Lifton is the co-founder and the Chairman of the [Critical Minerals Institute](#), which maintains lists of the critical minerals as identified by the US, Canada, the UK, Australia and Europe.

The Department of Defense starts the Invest in Critical Minerals Strategy with the Letter “A”

written by InvestorNews | April 5, 2024

What's old is new again. How many times have we seen an old, either abandoned or suspended mining operation, all of a sudden

come back into relevance? This seems to be happening more often as supply chains and global political maneuvering have sparked a race to “onshore” as many things as possible. However, today was a new one for me – antimony. It’s not necessarily at the top of the list of critical materials, as everyone seems to be focusing on the big five (lithium, manganese, nickel, cobalt, graphite) for EV batteries along with copper.

But here are some little known facts that may change your mind about antimony, which is on the U.S. Department of the Interior’s critical minerals list. Antimony trisulfide is essential to national defense as a key component for munitions and primers used in every branch of the armed services. Additionally, every military uniform is coated with antimony to provide fire protection and minimize infrared detection. It is also a useful material for the energy transition as a glass clarifier in solar panels or as a metal strengthener to wind turbine components. More recently, antimony is gaining recognition as a battery metal for its role in liquid metal battery technology. Yet, the U.S. has no domestic antimony production at present. Even more challenging, roughly 90% of global antimony production is controlled by China, Russia, and Tajikistan. Not exactly, the names you want at the top of your list of a “must have” commodity.

This explains why a domestic mining company was just [awarded a Technology Investment Agreement](#) of up to US\$24.8 million under Title III of the Defense Production Act (“DPA”). That’s right, the Department of Defense has stepped up to the plate to work with [Perpetua Resources Corp.](#) (NASDAQ: PPTA | TSX: PPTA) to complete environmental and engineering studies necessary to obtain a Final Environmental Impact Statement, a Final Record of Decision, and other ancillary permits to sustain the domestic production of antimony trisulfide capability for defense energetic materials. All of this would be for the [Stibnite Gold](#)

[Project](#) where Perpetua Resources is focused on the exploration, site restoration and redevelopment of gold-antimony-silver deposits in the Stibnite-Yellow Pine district of central Idaho.

The Stibnite Project is one of the highest-grade, open pit gold deposits in the United States and is designed to apply a modern, responsible mining approach to restore an abandoned mine site and produce both gold and the only mined source of antimony in the United States. Further advancing Perpetua Resources' ESG and sustainable mining goals, the Project will be powered by the lowest carbon emissions grid in the nation and a portion of the antimony produced from the Project will be supplied to Ambri, a US-based company commercializing a low-cost liquid metal battery essential for the low-carbon energy transition.

There's a lot of interesting things at play here but before you get too excited about this project, it should be noted that there is a lot of work to be done because of all the work that wasn't done back in the 1930's and 1940's. In the absence of modern environmental knowledge and regulation, and later to meet wartime demands, the first generation of miners at Stibnite placed mill tailings wherever they could in the Meadow Creek Valley. By the time mining operations ceased in the 1950's, more than four million cubic yards of tailings had been placed in the upper valley. In 1959, government officials ordered the mine to breach the tailings containment and Meadow Creek flowed through, rather than around, the tailings. Over the next 20 years, an estimated 10,000 cubic yards of tailings were eroded by wind and water and washed downstream into the East Fork of the South Fork of the Salmon River system.

Not surprisingly, the proposed Stibnite Gold Project is in the sixth year of review under the National Environmental Policy Act. However, Perpetua expects that current cash resources, combined with the full DPA agreement, would provide the Company

with sufficient liquidity to complete permitting and early restoration activities on the current timeline as well as additional liquidity to begin advancing construction readiness. Once back in production, Stibnite is expected to average ~35% of U.S. antimony demand. Plus, the gold component of the mine has pretty appealing economics as well with a 2020 feasibility study suggesting an NPV (5%) of US\$1.3 billion using US\$1,600/oz gold price, average annual gold production of ~465,000 ounces at a very impressive AISC of <US\$450/oz leading to average annual EBITDA >US\$550 million.

I harken back to a saying used by Tom Hanks' character in "A League of Their Own" (although that isn't the original source, it's just one of the more notable ones) "If it were easy, everyone would do it". Reclaiming and resuscitating the Stibnite Gold project is not an easy task. But Perpetua definitely has momentum on its side and a very influential supporter in the form of the Department of Defense. It would appear they have as good a chance as any to restore commercial operations at what is arguably a very important (and potentially lucrative) asset.

DoD awards Australia's Lynas \$120 million to build a heavy rare earths facility in the USA: I have questions

written by Jack Lifton | April 5, 2024

Updated June 28, 2022: Lynas' Managing Director Amanda Lacaze provides answers below

I was intrigued last week when the U.S. Department of Defense (DoD) made [the announcement](#) that it had awarded US\$120 million to [Lynas Rare Earths Ltd.](#) (ASX: LYC) to build a 3-5 kta heavy rare earth separation system in the USA. This is in addition to the \$30 million the DoD awarded to Lynas (to be matched by Lynas) in February 2021, for the same thing. My guess is that since Lynas built and operates the world's largest light rare earth separation system in Malaysia where it processes ore from its Mt. Weld Australia monazite mine (the world's largest worked deposit of monazite), it seemed like an easy decision for the DoD, provided it was prepared to overlook the skills of the domestic American market and the mandate to buy American and reshore.

But, since the DoD had already agreed to provide US\$30 million of an estimated (by Lynas) US\$60 million to build such a facility in Texas, why, I asked myself was an additional US\$120 million necessary?

So, I drafted a set of questions for Lynas, the answers to which would be particularly important in a due diligence study for the project, in case the DoD either did not do a due diligence (my guess) or would not publicly answer the same questions citing national security concerns, or some such nonsense.

Here are the questions I sent to Lynas at the beginning of this week:

1. What is the project's location?

2. What is the detailed CAPEX and the estimated OPEX for the system?
3. When will the permitting be finished?
4. Is the plant design finished (It would have to be for the permitting to be finalized)?
5. What is the timeline for construction and first output?
6. What exactly will be the composition of the plant's output in individual rare earths and tonnages of each, and when will the (nameplate) target capacities be reached?
7. Will the costs per KG of each individual rare earth and blend be competitive with the Chinese costs?
8. Will the US DoD be the only customer?
9. Will any of the heavy rare earths be consigned to specific metal/alloy/magnet makers? and,
10. From where, exactly, will the feedstocks be sourced?

Question number 10 is extremely important since there is today no commercial production of heavy rare earths outside of China. Also of note is the fact that Lynas has never commercially produced any separated individual heavy rare earths, nor is its Malaysian plant equipped to do so.

I am awaiting a reply to these questions from Lynas, but I will let you know when I get them.

Publisher's Update:

In response to the above questions InvestorIntel editor Jack Lifton received the following answers by email from Amanda Lacaze, Managing Director of Lynas on June 27, 2022:

1. What is the project's location?

Following a detailed site selection process, the facility is expected to be located within an existing industrial area on the Gulf Coast of the State of Texas.

Texas is an excellent location from which to serve our U.S. customers and support the U.S. government's moves to strengthen its industrial base and make supply chains more resilient through a diversified supply.

2. When will the permitting be finished? / Is the plant design finished? / What is the timeline for construction and first output?

The design of the Heavy Rare Earths plant was completed as part of the Phase 1 contract. The construction timeline will be confirmed following the completion of detailed engineering and planning. The plant is targeted to be operational in financial year 2025.

3. What exactly will be the composition of the plant's output in individual rare earths and tonnages of each?

A typical Heavy Rare Earths separation facility of this type would produce between 2500-3000 tonnes of heavy rare earths per year. We would expect our Heavy Rare Earths production to be in this range.

We have publicly stated our expectation that the Light Rare Earths plant will produce approximately 5,000 tonnes per year of Rare Earths products, including approximately 1,250 tonnes per year of NdPr.

4. Will the US Department of Defense be the only customer?

This will be a commercial facility and will be designed to serve both the U.S Defense Industrial Base and commercial manufacturers.

5. Will any of the heavy rare earths be consigned to specific metal/alloy/magnet makers?

This facility is a positive step towards reinvigorating the domestic Rare Earths market, and we will work to encourage investment in value-added downstream processes including metal and magnet making.

6. From where, exactly, will the feedstocks be sourced?

Feedstock for the facility will be a mixed Rare Earths carbonate produced from material sourced at the Lynas mine in Mt Weld, Western Australia. Lynas is building a new Rare Earths Processing Facility in Kalgoorlie to process the Rare Earth concentrate from Mt Weld. The material produced in Kalgoorlie will be further processed at the new Rare Earths separation facility in the United States. Lynas will also work with potential 3rd party providers to source other suitable feedstocks as they become available.

Before we can climb out from the Chinese control of rare earths and battery materials – we must understand our past.

written by Jack Lifton | April 5, 2024

Technology is the engineering of science, and manufacturing engineering is the scaling up of engineering to enable the efficient and economical mass production of finished goods.

The scientific development of the rare earth permanent magnet and of the [lithium-ion battery](#) both occurred primarily in the

United States in the greatest period of consumer technology development in American history; from 1945 until the end of the twentieth century.

Until the moon landing in 1969 the [US Department of Defense](#) (DoD), from the beginning of World War II, and NASA, from 1961-69, was the majority funding entities for both science and technology. Since then private corporations have provided the majority of funding for consumer product development.

The current awakening of government to a critical materials' supply crisis as a security issue has highlighted the failure of American manufacturing to pay any attention to the dangers of just-in-time supply chains, made fashionable beginning in the 1980s as a technique to free up the capital required by inventories of raw materials and semi-finished goods. For the capital-intensive OEM automotive, aerospace, and allied industries this was a "no brainer."

Overlooked completely at that time was the end of corporate subsidies for and thus the demise of stand-alone in-house education in specialty manufacturing engineering (now called "automotive engineering in the OEM automotive industry). The General Motors Institute, GMI, in Flint, Michigan, for example, was a company-owned engineering college the students of which were typically GM employees in what is now called work-study programs. This ensured **continuity** as older engineers both taught and worked alongside the "students" in any one of the many parts plants and assembly plants in Flint and nearby Saginaw, Michigan, where foundries and the world's largest steering gear manufacturing operations operated.

One of GM's parts operations in Indiana was called the Magnequench Division; it was the world's largest manufacturer of rare earth permanent magnets.

GM and Ford were heavily invested in science. The General Motors Technical Center and the Ford Scientific Laboratory were outstanding, but the managers of the corporations were losing focus on the long term and entering the long decline in their fortunes due to just-in-time outsourcing and the emphasis on share price, not corporate citizenship, aka, "financialization."

Hugely expensive attempts at automation in the late 1970s and early 1980s had convinced American OEM automotive that it wasn't going to work, so instead of profit growth through technological productivity increases the managers turned to cheap overseas labor. At first American engineers were sent to organize and manage operations in "developing" countries like China. It was assumed, as a matter of faith, that the Chinese in particular would never learn how to develop "native" industries to compete with American ones in producing goods for the American home market. Poorly made Japanese cars were just then the source of much derision in Detroit's toniest suburbs. Korean cars were non-existent.

In the last 20 years of the twentieth century, the American Big Three car makers disassembled their [vertically integrated](#) operations, their in-house engineering continuity "colleges", and any long-term planning they might have looked at in favor of just-in-time outsourcing and management by the metric of share price only.

As I recall rare earth permanent magnets were first studied by the Russians in the late 1960s, by the 1970s both Japan's Sumitomo and General Motors had developed and begun manufacturing and using samarium cobalt types. In the late 1970s, cobalt pricing spiked (take note of this well those who look for big increases in rare earth, lithium, and cobalt prices as a supply or demand driver!) and this caused General Motors to switch over to neodymium iron boron magnets for its

[miniaturization](#) of electric motors needs. The capacity for the production of the separated rare earths needed soon overwhelmed the then Molycorp's mine and separation capacity (7,000 tpa), and it (Molycorp) sought to outsource. The Chinese, eager for investment, and jobs, and having the large accessible deposits (as byproducts of mining the iron ore, magnetite) of light rare earths in the Bayan Obo region of Inner Mongolia, where health, safety, and the environment were of no interest soon became the biggest miners and separators of light rare earths using the chloride based solvent extraction technology proved out and gifted to them for that purpose by Molycorp.

Most commentators say that, after the above transfer of technology, the rest is history. But that means overlooking something. The Chinese did not just take over a technology and keep it static. They did at first, but soon, it was noticed by their leader, Deng Xiaoping, and soon thereafter the state underwrote a massive rare earth use and production research and development program while such programs in the west withered and died.

Rare earth mining and separating in North America ceased in 1998, the manufacture of rare earth metals, alloys, and magnets in North America ceased shortly thereafter, and the large-scale company set up originally by Sumitomo and GM for that purpose, Magnequench, which had dominated the production of rare earth permanent magnets for many years, was, after many years during which it was unable to compete with Chinese rivals, ultimately sold to a Canadian concern that moved it to China in 2004.

It is not possible to ignore the fact that competence erosion in the extraction, separation, making of metals and alloys from, and making magnets based on rare earths did not occur as these technologies left North America. It is also foolish to not consider China's massive intellectual property developments in

all of those rare earth sourcing, refining, and in the development of and manufacturing of rare earth enabled product technologies can be just ignored by those who think that throwing money and university research at a problem can miraculously overcome a generation of neglect and a criminal discontinuity of engineering skills.

Whether or not the US can re-create a total domestic rare earth enabled products supply chain will depend on whether or not the management of such attempts has enough perspective to find engineers, still alive who created the rare earth refining, metal and alloy making, and permanent magnet industry and entice them to train a new generation. I personally think we can still do this and be globally competitive, but I am skeptical of financiers who know nothing of how technologies are commercialized.

And until there is a focus for this work in the form of a commitment by, for example, the US DoD to take or pay for enough tonnage of rare earth permanent magnets and to pay for the tooling to produce the more than 500 different specifications of rare earth permanent magnets used in weapons systems, nothing will happen.

European manufacturers of products using rare earth permanent magnets still have a small domestic supply chain that has maintained continuity for 45 years. But Europe has no rare earth mines. America has such a mine, and North America has many such deposits in development. America also has the only licensed and capable processor of purchased monazite in the Western World. That project is up and running. It will deliver the first multi-ton lot of radiation-free mixed rare earth carbonate to a European customer next month. That customer will separate the rare earths and deliver the magnet ones to a British company that will turn the delivered oxides into metals and alloys,

which in turn will go to a German company to be made into magnets for a German OEM automotive company's EV powertrains.

The question now is will the US government wake up to the fact that it must use Title 7 of the Defense Production Act to assemble an industrial panel to address this issue.

The Chinese are watching intently.

Jack Lifton on Defense Department's \$2 billion spending budget for rare earths

written by InvestorNews | April 5, 2024

"The US Defense Department has announced last week that it will seek \$1.7 billion for rare earths purchases in the 2021 National Defense Authorization Act that means the budget for fiscal 2021. In addition they will ask for another \$300 million, a total of \$2 billion, for rare earths for specialized weapons which they name as hypersonic missiles...This I believe explains some of the mystery of the last month where everybody had been speculating on why the Defense Department made a couple of awards to study the building of rare earths separation plants and then put those awards on hold." States critical materials expert Jack Lifton, in an interview with the Technology Metals Show hostess Tracy Weslosky.

Jack continued, "Based on my experience on Washington DC I think

that announcements such as we are going to use \$2 billion to purchase rare earths related materials are not necessarily discussed with the same people who issue small awards... Such decisions for billion of dollars are made in the White House, they are not made at the local level.”

To access the complete interview [subscribe](#) to the [Technology Metals Show](#) and get exclusive access to member only content through this exclusive site! Or [Log-In Here](#) for the latest conversations, debates, updates and interviews with the leaders, thought leaders and investors focused on issues relating to sustainability in the critical materials sector.

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Mark Chalmers on Section 232 for uranium

written by InvestorNews | April 5, 2024

March 16, 2018 – “We think it is in the United States best interest to have a frontend in the nuclear fuel cycle of uranium mining in this country, certainly above the 4%-5% that it currently is.” states states Mark Chalmers, President & CEO of [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), in an interview with InvestorIntel’s Jeff Wareham.

Jeff Wareham: Mark is both the CEO of Energy Fuels, but also widely regarded as a resource and as a person with a great deal

of knowledge in the uranium and vanadium industries in the U.S. Mark there has been a lot of attention to uranium production. Uranium prices have been depressed for a very long time, but there has been a lot of noise around Section 232 in the last few days. Can you talk to me about that and about your role in it?

Mark Chalmers: Yes there has been a lot of discussion about Section 232 in the recent media over steel and aluminum with the review that was done by the Department of Commerce and with the President. They were looking at imposing tariffs on making sure that the aluminum steel industry would remain strong in the United States and survive the current low prices. Now with our case, with the Section 232 for uranium, the United States is the largest consumer of uranium in the world yet we only produce about 5% of our requirements. With these current low prices, if there is not some relief— and relief could be in the form of higher uranium prices, just global world uranium prices or some sort of action that helps keep the prices up in the United States because we do not think it is in the nation's best interest, both from the Department of Defense and from the nuclear generation capacity, which nuclear provides 20% of our electricity in the United States, to be only producing 5%, less than 5% of our requirements and securing a majority of our uranium or large portion of it, about 40% from Russia, Kazakhstan and Uzbekistan. Our company joined Ur-Energy, the two of us jointly put in a petition to the Department of Commerce. We have not heard that they have initiated the process. We expect them to initiate the process. We think it is in the United States best interest to have a frontend in the nuclear fuel cycle of uranium mining in this country, certainly above the 4%-5% that it currently is.

Jeff Wareham: Now with the steel situation they have looked to impose tariffs. My understanding is you guys have suggested going in a different direction, correct?

Mark Chalmers: Yeah, we looked at a quota of up to 25% of U.S. requirements. We also put in a provision for a Buy American or preference to Buy American uranium. I want to emphasize that the objective of the petition is to make sure that this front end of the nuclear fuel cycle survives. We are very challenged right now, but we also understand that a number of the steps in the nuclear fuel cycle, including the nuclear generation is challenged as well too. We want an outcome that is going to allow us to survive, but also make sure that the nuclear industry in the United States stays healthy and robust going forward...to access the complete interview, [click here](#)

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