

# Technology Metals Report (03.28.2024): China Challenges US EV Plans and the DoE Invests \$6B to Decarbonize Economy

written by Tracy Weslosky | March 28, 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 Chile's attempts to spur lithium sector investments amidst regulatory and environmental concerns, France's Orano exploring the possibility of a uranium enrichment plant in the U.S., and China's challenge to U.S. electric vehicle subsidy policies at the WTO. Additionally, we delve into the EU's potential adjustments to its 2035 EV mandate, President Biden's electric vehicle policies influencing American election outcomes, and Kazakhstan's push to increase uranium exports to the U.S.

This week's TMR Report also highlights U.S. Critical Materials' efforts to publicize its Bitterroot gallium deposits, significant for semiconductors and defense technologies; the Department of Energy's largest-ever investment to decarbonize industry; Brazilian Rare Earths Limited's new rare earth discovery in the Pele Project; challenges in America's lithium laws slowing down the pace of domestic production; and collaborative efforts between Australia's Pilbara Minerals and

China's Ganfeng to study a new lithium chemical plant. Additionally, we explore CATL's discussions with Tesla and other automakers for U.S. licensing of its battery technology, aiming to navigate the tightening U.S. regulations on the battery sector. Through these stories, the TMR provides a comprehensive overview of the latest developments affecting the critical minerals sector, highlighting the challenges and opportunities ahead. To become a CMI member and stay informed on these and other topics, [click here](#)

**Chile needs to finalize more lithium plan details to spur investment, miners say:** (March 27, 2024, [Source](#)) – Chile's attempt to draw private investment into its lithium sector is met with apprehension due to unresolved details and potential regulatory hurdles. The government plans to open 26 salt flats for private mining, excluding some reserved for state control, as part of President Gabriel Boric's strategy to double lithium production by decade's end. However, concerns over how contracts will be allocated, opposition from Indigenous communities, and environmental considerations could deter investors. Industry voices also caution against possible legal conflicts over mining rights and the negative impact of heavy state involvement on Chile's investment appeal. With lithium prices and electric vehicle sales currently in a slump, the attractiveness of new projects is further challenged, making neighboring countries more appealing for lithium investment.

**Chile opens lithium salt flats for investment, saves two for state control:** (March 27, 2024, [Source](#)) – Chile has inaugurated a significant move to open more than two dozen lithium salt flats to private investment, while strategically keeping the prolific Atacama and Maricunga deposits under state majority control. This decision is part of President Gabriel Boric's vision to increase state involvement in the nation's lithium sector, which is the second-largest globally. The initiative

could potentially double Chile's lithium output within ten years, crucial for electric vehicle batteries, according to Finance Minister Mario Marcel. The tender process for 26 salt flats will start in April, aiming for completion in July. State-run enterprises are initiating projects in five other flats, seeking partners. Currently, only Sociedad Química y Minera de Chile S.A. ("SQM") (NYSE: SQM) and U.S.-based Albemarle Corporation (NYSE: ALB) operate in Chile, specifically in the lithium-rich Atacama salt flat. The government, signaling further interest in lithium ventures beyond Atacama and Maricunga, is also contemplating the establishment of a national lithium company and emphasizes environmental protection and indigenous community involvement in new projects.

**China to challenge Biden's electric vehicle plans at the WTO:** (March 27, 2024, [Source](#)) – China has filed a complaint with the World Trade Organization (WTO) against the United States, alleging that U.S. electric vehicle (EV) subsidy policies unfairly discriminate against Chinese products. This action comes in response to the U.S. Inflation Reduction Act, which, from January 1, disqualifies EVs from receiving tax credits if their critical minerals or battery components are sourced from Chinese, Russian, North Korean, or Iranian companies. China argues that these policies distort fair competition and disrupt the global EV supply chain by excluding Chinese products. The outcome of this dispute is uncertain, particularly if the U.S. appeals a ruling against it, due to the current dysfunction of the WTO's Appellate Body. This complaint underscores the growing tensions in the global EV market, where China is a dominant player in battery technology and aims to expand its auto industry globally.

**France's Orano studying plan to build U.S. uranium enrichment plant:** (March 27, 2024, [Source](#)) – French nuclear fuel company Orano, previously known as Areva, is exploring the possibility

of constructing a uranium enrichment plant in the United States, as part of efforts to decrease U.S. dependency on Russian uranium imports. The plan, which had been shelved following the Fukushima disaster due to a surplus in enrichment capacity, is being revisited amidst growing demand and geopolitical tensions. Orano, which is state-owned, aims to support the U.S., the world's largest nuclear power producer, in bolstering its domestic fuel production capabilities. This initiative aligns with recent U.S. legislative moves, including President Biden's approval of significant funding for domestic uranium production. Orano also plans to expand its existing uranium enrichment capacity in France to meet U.S. demand and reduce reliance on Russian supplies.

**EU May Water Down Harsh 2035 EV Mandate And Reprieve Hybrids:** (March 27, 2024, [Source](#)) – The European Union and Britain's ambitious plans to phase out combustion engine vehicles by 2035 in favor of electric vehicles (EVs) are facing scrutiny and potential adjustments. Experts suggest that hybrids may be given more leeway to ensure a smoother transition. The automotive industry is at risk of being dominated by more cost-effective Chinese EVs, prompting concerns over the financial viability of European carmakers in the shift to electric. Stricter CO2 emissions targets are also causing unease among manufacturers. Reports indicate that EV sales growth is slowing, and the current market offerings are deemed too expensive for widespread adoption, with technology and infrastructure not fully meeting consumer needs yet. There's lobbying for regulatory review and more flexible approaches, including a broader acceptance of hybrid models and other technologies to reduce emissions. The upcoming review by the EU, along with potential geopolitical shifts and industry collaborations, could influence the pace and nature of Europe's transition to electric mobility.

**Electric cars will decide the outcome of the American election:** (March 26, 2024, [Source](#)) – President Biden's aggressive promotion of electric vehicles (EVs) may jeopardize his political standing, particularly in critical Midwestern swing states. His administration's focus on EVs, marked by substantial price differences and practicality issues compared to traditional vehicles, risks alienating a significant voter base. This strategy, characterized by stringent mileage requirements and incentives for EV adoption, could undermine the traditional auto industry, a cornerstone of states like Michigan and Wisconsin. Furthermore, the policy may inadvertently bolster China's position in the global EV market, while threatening job losses across America's automotive sector, including sales, maintenance, and after-market services.

**World's Top Uranium Miner Seeks to Boost Exports to US:** (March 26, 2024, [Source](#)) – Kazakhstan, the leading uranium producer globally, is intensifying efforts to increase its uranium exports to the United States. This initiative follows discussions on energy cooperation with U.S. Senator Steve Daines. Kazakhstan already holds contracts for uranium product supply until 2032 with key U.S. energy companies. The push for expanded uranium exports comes at a time when the demand for this critical metal is rising, driven by a global shift towards nuclear power to combat climate change. Furthermore, the U.S. is contemplating a ban on imports of enriched Russian uranium, used in both nuclear reactors and weapons, highlighting the strategic importance of identifying alternative uranium sources.

**Mining company touts Bitterroot gallium deposits:** (March 26, 2024, [Source](#)) – U.S. Critical Materials is stepping up its public outreach concerning its mining claims in the Bitterroot's headwaters, with a focus on valuable gallium deposits over 6,700 acres, essential for semiconductors, 5G, smartphones, satellite systems, and defense technologies. The U.S. government,

recognizing the strategic importance of gallium—especially amidst a Chinese export embargo—is heavily involved in funding and driving the production of REE and other critical minerals, with significant contributions from federal agencies. Preliminary exploration at Sheep Creek has seen support from the DOD and collaboration with academic and geological institutions, utilizing advanced survey techniques. Amidst concerns over national security due to dependency on imported gallium, U.S. Critical Materials boasts high-grade gallium deposits and is exploring environmentally sustainable separation processes. The company's partnership with Idaho National Laboratories aims to develop new processing methods to establish a domestic supply chain, a crucial step given the current lack of processing facilities in North America and the environmental and commercial challenges of existing separation technologies.

**Department of Energy announces largest-ever investment to decarbonize industry:** (March 25, 2024, [Source](#)) – The Department of Energy has announced a substantial \$6 billion funding for 33 projects across the U.S. to reduce emissions in energy-intensive industries. This effort, part of the largest-ever investment to decarbonize industry, leverages the Bipartisan Infrastructure Law and Inflation Reduction Act, aiming for a combined investment of \$20 billion including company contributions. Targeting major sectors like steel, aluminum, cement, and food production, the initiative is expected to cut down 14 million metric tons of CO<sub>2</sub> annually, equivalent to removing 3 million gas-powered cars from the roads. Highlighted projects include Constellium's zero-carbon aluminum plant in West Virginia, with potential federal funding up to \$75 million, and Kraft Heinz's \$170.9 million investment to electrify and decarbonize food production at 10 facilities. Additionally, nearly 80% of the projects are located in disadvantaged communities, emphasizing the investment's broader social and environmental benefits.

**Brazilian Rare Earths Limited (ASX:BRE) Announces New Rare Earth Discovery – the Pele Project:** (March 25, 2024, [Source](#)) – Brazilian Rare Earths Limited (ASX:BRE) has unveiled the Pele Project, a significant new rare earth discovery in Bahia, Brazil, positioned 60km southwest of their Monte Alto Project. This district-scale endeavor is set to explore ultra-high grade REE-Nb-Sc mineralization across a target area vastly exceeding that of Monte Alto. Key findings include extensive geophysical anomalies, the largest known hard rock monazite outcrop extending over 30m, and promising high-grade monazite sand intercepts. Initial results suggest a substantial rare earth mineralization potential, mirroring the successful exploration techniques employed at Monte Alto. With comprehensive surveys and an imminent diamond drilling program, CEO Bernardo da Veiga anticipates accelerating exploration to uncover this area's full potential, marking another stride in expanding their rare earth province footprint.

**America's lithium laws fail to keep pace with rapid development:** (March 25, 2024, [Source](#)) – Efforts to make the United States a leading global lithium producer are hindered by a tangled set of state regulations, creating a significant barrier against reducing dependence on foreign lithium supplies, particularly from China. Confusion over ownership, valuation, and processing of lithium resources across states like Texas and Louisiana, combined with fluctuating commodity prices and technical challenges, are major obstacles. This situation complicates the Biden administration's ambitions for electrification and increasing domestic lithium production. Despite the urgent need for regulatory clarity to attract investment and advance projects, states vary widely in their approaches to lithium extraction and regulation. The uncertainty around regulatory frameworks is delaying the development of lithium projects, thus affecting the U.S.'s ability to meet its



lithium production and electrification goals.

**Pilbara Minerals and China's Ganfeng agree to study for lithium chemical plant:** (March 24, 2024, [Source](#)) – Australia's Pilbara Minerals and China's Ganfeng Lithium have agreed to study the feasibility of building a lithium chemical plant capable of producing 32,000 metric tons of lithium carbonate or hydroxide annually, at an undecided location. The study, set to complete by March 2025, explores potential sites, including Australia, aiming for greater supply chain diversification. Pilbara Minerals, which has partnerships in other lithium projects, seeks to reduce transportation volumes and carbon footprint through midstream lithium chemicals production. Preliminary discussions have shown strong international interest in the venture, with incentives such as economic benefits and support for permitting. The venture would be a 50:50 partnership, with Ganfeng considering a stake sale based on U.S. Inflation Reduction Act benefits. Pilbara is increasing spodumene production to 1 million tons annually and may expand further, committing 300,000 tons annually to this project if it proceeds.

**CATL in talks with Tesla, global automakers for US licensing, WSJ reports:** (March 25, 2024, [Source](#)) – Contemporary Amperex Technology Co. Ltd. (CATL), a leading Chinese electric-vehicle battery maker, is currently in discussions with Tesla Inc. (NASDAQ: TSLA) and other automakers to license its battery technology in the U.S. This approach comes as an alternative to establishing its own manufacturing facility in the country. These negotiations, still in the early stages, revolve around the extent of the collaboration and the specifics of the technology Tesla would license, influenced by the EV giant's financial health. CATL's existing partnership with Ford, which recently adjusted its investment strategy for a Michigan battery plant to use CATL's licensed technology amid legislative pushback, serves as a blueprint for potential agreements with



other U.S. car manufacturers. This development is amidst a global downturn in EV demand and tighter U.S. regulations on the battery sector to curb Chinese influence, with CATL also focusing on innovations like faster charging batteries for Tesla.

**CATL Working With Tesla on Fast-Charging Cells, Supplying Nevada:** (March 25, 2024, [Source](#)) – CATL is enhancing fast-charging batteries for Tesla, targeting an electric car under \$25,000. Emphasizing cost-efficiency and longevity, CATL's collaboration extends to supplying Tesla's Nevada factory and innovating in battery technology. Despite global EV market challenges, CATL sustains growth through a diversified clientele including BMW and Mercedes-Benz, and is adapting to U.S. market restrictions by licensing its technology, notably to Ford. With geopolitical tensions affecting trade, CATL values client trust and plans to expand production in Europe and Southeast Asia. The company's strong financial standing allows it to delay further funding rounds, focusing instead on technological advancement and strategic partnerships to navigate the evolving electric vehicle landscape.

## **Investor.News   Critical   Minerals Videos:**

- March 25, 2024 – Western Uranium & Vanadium's George Glasier on Gearing up for SMC to Commence Production in Colorado <https://bit.ly/3ITmUVA>

## **Critical Minerals IN8.Pro Member News**

# Releases:

- March 28, 2024 – American Clean Resources Group Establishes Environmental Sustainability Board <https://bit.ly/43JkN0o>
- March 28, 2024 – Scandium Canada Forms a Strategic Advisory Committee and Confirms its Initial 3 Members <https://bit.ly/3ISuHTM>
- March 28, 2024 – Nano One Reports Q4 2023 Results and Provides Progress Update <https://bit.ly/3IXI2Km>
- March 26, 2024 – Voyageur Pharmaceuticals Files Audited Annual Financial Statements and Grants Stock Options <https://bit.ly/4a0gTFV>
- March 26, 2024 – First Phosphate Reports Published Research Studies for its Lac à l'Original, Mirepoix and Bégin-Lamarche Properties in the Saguenay-Lac-St-Jean region of Quebec, Canada <https://bit.ly/3T0TEWq>
- March 26, 2024 – Kraken Energy Confirms Elevated Radioactivity in Both Initial Drill Holes at Harts Point Property, Utah <https://bit.ly/3VskYem>
- March 25, 2024 – Bechtel contract to support ASM with engineering at the Dubbo Project <https://bit.ly/3Vsx8E3>

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**Technology Metals Report  
(03.22.2024): US pledges**

# \$1.28B for ASX rare earths stocks and Biden takes a major step in tackling climate change

written by Tracy Weslosky | March 28, 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 Director's 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 the US's pledge of \$1.28 billion to ASX-listed rare earths firms to lessen China's dominance in the sector, the looming uncertainty over the future of Flow-Through Financings in Canada as the METC deadline approaches, and Albemarle Corporation's groundbreaking lithium auction aimed at enhancing pricing transparency. Additionally, the Biden administration's ambitious rule to expand electric vehicles (EVs) and the examination of factors behind cooling EV sales growth emphasize the ongoing transformations and challenges within the critical minerals sector.

This week's TMR Report also highlights several significant developments that further shape our understanding and approach to the critical minerals industry. The urging by the US Energy Secretary for Congress to ban uranium imports from Russia supports domestic nuclear fuel development, while China's rebound in graphite exports for batteries signals geopolitical tensions and strategic resource control. The US's efforts to incorporate Central Asia into its critical minerals supply

chains, Indonesia's investment in a new HPAL plant by Vale to boost nickel production for EV batteries, and CATL's enduring ambitions despite a slight dip in quarterly earnings showcase the global landscape's complexity and interconnectedness. Furthermore, Graphjet Technology's innovative approach to producing greener graphite and the push to recognize phosphate and potash as critical minerals in the US underscore the ongoing efforts to secure and diversify supply chains. Lastly, Kazakhstan's emerging potential to rival China in the production of rare-earth metals points to the shifting dynamics of global supply and the continuous search for strategic alternatives to current market dominators.

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**US pledges \$1.28b for ASX rare earths stocks (March 21, 2024, [Source](#))** – The US aims to allocate \$1.28 billion to ASX-listed rare earths firms, Meteoric Resources NL (ASX: MEI) and [Australian Strategic Materials Limited](#) (ASX: ASM) (ASM), to diminish China's dominance in critical minerals necessary for decarbonization and defense. The US Export Import Bank's (US EXIM) potential loans aim to support projects in Brazil and New South Wales, contingent upon US companies obtaining project contracts. This funding is part of wider US and Australian efforts to establish non-Chinese critical mineral supply chains, with additional support from the US Department of Defence and other agencies for various projects. This initiative underscores the strategic importance of diversifying global supply chains and bolsters the credibility and development prospects of companies like Meteoric and ASM in the critical minerals sector.

**Anxiety Rises on the Future of Flow-Through Financings as METC Deadline Looms, Canadian Government Keeps Quiet (March 20, 2024, [Source](#))** – Facing the potential expiration of the Mineral

Exploration Tax Credit (METC) at the end of March, the Canadian mining industry is gripped by uncertainty. This credit, crucial for supporting exploration companies through Flow-Through Share pricing, might not be renewed, threatening to raise capital costs by 15-20%. The federal government's silence on the issue heightens anxiety, affecting planning and investments, especially for junior miners. Provincial credits in Ontario and Saskatchewan face similar fates, though Manitoba and British Columbia have permanent solutions. The industry is anxiously awaiting the federal budget announcement on April 16, hoping for a resolution. The potential loss of METC, combined with recent tax changes, could significantly impact exploration investment in Canada, underscoring the importance of government policy in the sector's financial health.

**Albemarle Lithium Auction offers a bold move forward in pricing transparency in the critical minerals market (March 20, 2024, [Source](#)) – [Albemarle Corporation](#)** (NYSE: ALB), the largest lithium producer, is initiating a landmark auction on March 26 to enhance transparency and address price discovery issues in the lithium market. This move, highlighted by Jack Lifton of the [Critical Minerals Institute](#) (CMI), aims to mitigate the opacity and volatility that have long plagued the sector, exacerbated by the electric vehicle (EV) boom. Traditionally, lithium prices have been privately negotiated, lacking a clear global benchmark. Albemarle's auction represents an innovative step towards establishing more transparent pricing, inviting competitive bidding for a significant lithium quantity. Although this initiative marks progress towards addressing market challenges, Lifton cautions it may not fully resolve the industry's volatility and unpredictability, signaling a critical evolution in lithium pricing strategies amidst growing global demand.

**Biden Administration Announces Rule Aimed at Expanding Electric**

**Vehicles (March 20, 2024, [Source](#))** – The Biden administration unveiled a pivotal climate regulation, aiming to revolutionize the U.S. auto industry by ensuring a majority of new passenger vehicles sold by 2032 are electric or hybrid. This marks a major step in tackling climate change, given transportation's status as the top carbon emitter in the country. Despite electric vehicles (EVs) constituting only 7.6% of car sales last year, this rule mandates a significant increase to meet a 56% EV sales target, with hybrids contributing an additional 16%. President Biden highlighted the initiative's potential for economic growth, job creation, and significant environmental benefits, including a projected reduction of over seven billion tons of carbon dioxide emissions over three decades. However, the transition faces challenges, including manufacturing and infrastructure overhaul, political opposition, and consumer acceptance. The regulation, which introduces stringent emissions caps, has garnered both support for its environmental impact and criticism for its feasibility and potential economic implications. Critics argue it may impose undue pressure on the auto industry and consumers, while supporters see it as a crucial step toward a more sustainable future.

**The cars, the chargers or the customers? A look at what's behind cooling EV sales growth (March 20, 2024, [Source](#))** – Facing cooling growth in electric vehicle (EV) sales, automakers are adjusting their production strategies amidst increasing model availability. The sector balances optimism with skepticism regarding the shift away from fossil fuels, underlined by challenges like inadequate charging infrastructure impacting consumer choices. Events like CERAWeek by S&P Global highlight EVs' potential to reduce oil demand, emphasizing the transition's significance. Despite slower sales growth, companies like Ford report significant increases, pointing to the essential role of EVs in future automotive competitiveness.

Addressing consumer concerns, particularly around charging reliability and infrastructure, alongside educating an evolving customer base, is pivotal for sustaining the industry's growth momentum.

**US energy secretary encourages Congress to ban uranium supplies from Russia (March 20, 2024, [Source](#))** – U.S. Energy Secretary Jennifer Granholm has urged Congress to ban uranium imports from Russia to support domestic nuclear fuel development. This call comes in light of legislation passed by the U.S. House last December, aimed at halting these imports as part of the response to Russia's invasion of Ukraine. However, the Senate has faced delays due to a hold by Senator Ted Cruz on unrelated issues. Granholm emphasized that passing this ban would release funds for expanding domestic uranium enrichment and producing high assay low enriched uranium (HALEU) for advanced nuclear reactors. She expressed optimism during a House hearing on her department's budget, highlighting the urgency of this action to advance domestic nuclear energy capabilities.

**China's exports of graphite for batteries rise from December low (March 20, 2024, [Source](#))** – China's natural graphite exports, essential for electric vehicle batteries, rebounded after Beijing's December controls aimed at tightening its grip on vital minerals for advanced manufacturing. From a December low of 3,973 tonnes, exports rose to 6,275 tonnes in January and 10,722 tonnes in February, despite previously averaging about 17,000 tonnes monthly. The restrictions, viewed as a response to Western trade barriers, notably impact trade flows. Rising tensions are evident as the U.S. considers blacklisting Chinese semiconductor firms linked to Huawei Technologies, signaling an escalation in the technological rivalry. These developments underscore the strategic importance of graphite in the global tech industry and the geopolitical tensions surrounding access to critical manufacturing resources.



**US Looks to Draw Central Asia Into Critical Minerals Supply Chains (March 18, 2024, [Source](#))** – The United States is actively seeking to integrate Central Asia into its critical minerals supply chains, a move underscored by the February 2024 inauguration of the Critical Minerals Dialogue (CMD) in the C5+1 format. This initiative, bolstered by the collective will of the U.S. and Central Asian nations—Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan—aims to bolster Central Asia’s role in global supply chains, thereby enhancing economic cooperation, facilitating clean energy transitions, and protecting regional ecosystems. Central Asia, rich in critical minerals like nickel, cobalt, palladium, rare earth elements (REEs), and others vital for high-tech, defense, and green technologies, represents a strategic alternative to China’s dominance in these supply chains. The U.S. is particularly keen to mitigate risks associated with China’s control over a significant portion of the world’s critical minerals processing and production. Through the CMD and other partnerships, the U.S. seeks to foster investment in Central Asia’s vast mineral resources, promising a potential shift in global economic and technological power dynamics while confronting strategic vulnerabilities and enhancing national security.

**Indonesia says nickel miner Vale to build another \$2 bln HPAL plant (March 18, 2024, [Source](#))** – Nickel miner PT Vale Indonesia is considering a \$1.91 billion investment in a new high-pressure acid leaching (HPAL) plant on Sulawesi island, announced Indonesia’s Investment Ministry. This plant, named “SOA HPAL,” aims to produce mixed hydroxide precipitate (MHP), essential for electric vehicle batteries, with an expected annual output of 60,000 metric tons of nickel in MHP. Vale Indonesia, which is in the final stage of exploration, plans to collaborate with automakers for this venture. The company already has two HPAL projects underway in Sulawesi, partnering with Zhejiang Huayou

Cobalt, and has Ford's involvement in the \$4.5 billion Pomalaa project. Additionally, Indonesia's state mining company MIND ID recently acquired a 14% stake in Vale Indonesia, bolstering its position as a top shareholder.

**CATL earnings slip masks charged-up ambitions (March 18, 2024, [Source](#))** – Contemporary Amperex Technology (CATL), the world's largest electric car battery manufacturer, experienced a slight 1.2% decline in quarterly earnings, marking its first downturn since early 2022. Despite reduced factory utilization and the broader industry's cooling sales growth, CATL is ambitiously expanding, planning new facilities to increase its production potential significantly. The company dominates the global market, boasting a 36.8% share and leading innovation with a large R&D team focused on advanced battery chemistries. Although facing challenges in the United States, CATL is making strategic moves abroad, including constructing a factory in the European Union. Investors remain optimistic, reflected in a stock price increase, as CATL's scale, innovation, and strategic expansion position it to potentially outpace competition and maintain market leadership, despite potential overcapacity risks.

**Startup Offers EV Firms Greener Graphite in Alternative to China (March 18, 2024, [Source](#))** – Graphjet Technology, an alternative energy startup in Malaysia, is offering electric-vehicle (EV) manufacturers a sustainable source of graphite by converting agricultural waste into this critical battery component. Utilizing palm kernels, the company can produce graphite with an 83% lower carbon footprint and at 80% less cost than traditional methods. Starting in the second quarter, Graphjet aims for an annual production capacity of 3,000 tons from its facility in Malaysia, a leading palm oil producer. This move provides a significant alternative to China's dominance in the synthetic graphite market, responsible for 90% of the global supply. The U.S. is keen on diversifying its EV battery supply chain away

from Chinese control, especially in light of China's recent export restrictions on graphite. Graphjet's initiative is timely, as it plans expansions in Nevada, Korea, Japan, and Europe, aiming to address the growing global demand and the U.S.'s need for a reliable graphite source outside China.

**TFI: Phosphate and Potash are Critical Minerals, Senate Bill to Solidify (March 14, 2024, [Source](#))** – The Fertilizer Institute (TFI) has commended the U.S. Senate's bipartisan effort to classify phosphate and potash as critical minerals, highlighting the move as crucial for securing the nation's agricultural future and food supply. The legislation, backed by Senators from both parties, aims to ensure a resilient and sustainable domestic fertilizer supply for American agriculture by addressing the vulnerabilities in the global supply chain and geopolitical instability. With the majority of the world's phosphate and potash concentrated in a few countries, and the U.S. heavily reliant on imports for its potash needs, this initiative seeks to mitigate supply chain risks. Recognizing these minerals as critical could streamline the permitting process for expanding and opening new mines in the U.S., a necessary step given the extensive time and financial investment required.

**Kazakhstan's Potential to Overtake China in Production of Rare-Earth Metals (March 14, 2024, [Source](#))** – Kazakhstan is on the verge of becoming a significant contender in the global rare-earth elements (REEs) market, challenging China's dominance. With China controlling 70% of the market and facing strained relations with the West, North American and European investors are turning to Kazakhstan's rich reserves as a strategic alternative. This shift is driven by the need to diversify supply chains away from China, given REEs' critical role in technology and manufacturing. The US and EU are prepared to invest in Kazakhstan, aiming to secure a stable, sustainable

supply of these vital materials. However, Kazakhstan must modernize its mining practices and carefully select investors to fully leverage its potential as a global REE supplier.

## **Investor.News Critical Minerals Media Coverage:**

- March 20, 2024 – Anxiety Rises on the Future of Flow-Through Financings as METC Deadline Looms, Canadian Government Keeps Quiet <https://bit.ly/3IKHmI7>
- March 20, 2024 – Albemarle Lithium Auction offers a bold move forward in pricing transparency in the critical minerals market <https://bit.ly/3vkpBwf>
- March 20, 2024 – The Top 5 Reasons Why YouTube Will Transform Marketing for Public Companies <https://bit.ly/3PvPnEC>

## **Investor.News Critical Minerals Videos:**

- March 20, 2024 – CBLT'S Peter Clausi on de-risking exploration projects with M&A <https://bit.ly/3vfU6Uf>
- March 20, 2024 – Chris Buncic on the “shocking” Chrysalis Copper timeline for production <https://bit.ly/49ZGRGm>
- March 19, 2024 – World Renowned Critical Minerals Expert Constantine Karayannopoulos is Bullish on Lithium <https://bit.ly/43m0vbK>
- March 19, 2024 – Peartree's Ron Bernbaum on how Charitable Flow-Through Financings Connects Donors, Investors, and Mining Companies for Canada's Exploration Capital <https://bit.ly/4cj303V>

- March 19, 2024 – Xcite Resources’ Jean-Francois Meilleur on the Athabasca Basin’s untapped potential for significant uranium discoveries <https://bit.ly/49YQ9SK>
- March 19, 2024 – Scandium Canada’s Guy Bourassa on One of the Largest Primary Scandium Projects in the World <https://bit.ly/3TlHeUp>
- March 18, 2024 – Rowena Smith Highlights ASM’s Operational Success at Korean Metals Plant in Rare Earth Metals Production <https://bit.ly/3TH1jWS>
- March 18, 2024 – Jack Lifton Sits Down with ‘Bobby’ Stewart, the Driving Force Behind Geophysx Jamaica’s Charge into the Global Arena with Critical Minerals <https://bit.ly/3vhDtaG>
- March 18, 2024 – WEALTH’s Peter Nicholson on the Added Benefits of Critical Mineral Flow Through Investment Deals in Quebec, Saskatchewan and Manitoba <https://bit.ly/4a37xGk>
- March 17, 2024 – John Passalacqua on First Phosphate’s groundbreaking achievements in the phosphate mining industry <https://bit.ly/3VgRlwt>
- March 17, 2024 – America Rare Earths’ Donald Swartz on the recent increase in in-situ resources at Halleck Creek by 64% to 2.34 billion tonnes <https://bit.ly/3IGgvNv>
- March 17, 2024 – Rowena Smith sits down with Jack Lifton on ASM’s ‘Mines to Metal’ Advantage in Supplying Rare Earths <https://bit.ly/4cmIlMc>

## **Critical Minerals IN8.Pro Member News Releases:**

- March 21, 2024 – Hearty Bay Drilling Suggests Till Sampling May Lead to Source of Radioactive Boulders

<https://bit.ly/3ILHjvL>

- March 21, 2024 – ASM receives US\$600M (A\$923 million) Letter of Interest from US EXIM for Dubbo Project, as US partnerships begin to play a significant role <https://bit.ly/4ahxWQR>
- March 20, 2024 – NEO Battery Materials Announces Change of Auditor to MNP LLP <https://bit.ly/3VrGyQf>
- March 20, 2024 – Power Nickel Continues to Expand its Near Surface High-Grade Cu-Pt-Pd-Au-Ag Zone 5km Northeast of its Main Nisk Deposit <https://bit.ly/3IM5Cd5>
- March 19, 2024 – First Phosphate Drills 9.44% P2O5 Over 89.10 m at Its Begin-Lamarche Project in Saguenay-Lac-St-Jean, Quebec, Canada <https://bit.ly/43wi4qT>
- March 19, 2024 – Defense Metals Appoints HCF International Advisers for Strategic Funding Review of Wicheeda REE Project <https://bit.ly/3IGNMIO>
- March 18, 2024 – American Rare Earths' Scoping Study confirms low-cost, scalable world-class REE project <https://bit.ly/3IJD2l>

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**Technology Metals Report  
(02.23.2024): Yellen to Visit  
Chile for Critical Minerals  
and Biden's EV Dreams Are a**

# Nightmare for Tesla

written by Tracy Weslosky | March 28, 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 members over the past week, reflecting the dynamic and evolving nature of the critical minerals and technology metals industry. From the Inflation Reduction Act's challenges for the American EV industry to China's lithium market developments and Treasury Secretary Janet Yellen's strategic visit to Chile, our report covers a wide array of developments crucial for stakeholders. The unveiling of Tesla Inc.'s (NASDAQ: TSLA) lithium refinery in Texas, alongside CATL's confirmation of its lithium mine's normal operations, paints a picture of the industry's efforts to navigate through pricing volatilities, supply chain complexities, and geopolitical tensions. Moreover, the significant moves by major financial institutions in the uranium market and Gecamines' strategic overhaul in the DRC underline the shifting paradigms in the mining and investment landscapes of technology metals.

This TMR report also highlights the broader implications of these developments on the global stage, including efforts to diminish reliance on China for essential metals, the impact of Tesla's pricing strategies on the used EV market, and the strategic dialogues around rare earths markets. The visit by US Treasury Secretary Janet Yellen to Chile is spotlighted as a key initiative to bolster ties around critical minerals, emphasizing the urgency of diversifying supply chains amid growing demands for green transition materials. Additionally, the narrative around the challenges posed by the Inflation Reduction Act for Tesla and the US car industry, coupled with BHP's cautionary stance on the Australian nickel sector, illustrates the complex



interplay between policy, market dynamics, and strategic resource management. As we delve into these stories, our aim is to provide a comprehensive overview that informs and stimulates discussion among policymakers, industry leaders, and stakeholders, navigating the intricate pathways towards a sustainable and competitive future for critical minerals and technology metals.

**MP Materials swings to quarterly loss on falling rare earths prices (February 22, 2024, [Source](#))** – MP Materials Corp. (NYSE: MP) reported a fourth-quarter loss, attributed to declining rare earths prices and increased production costs, despite expectations of a larger deficit. Amidst unsuccessful merger discussions with Lynas Rare Earths Ltd. (ASX: LYC) and competition from Chinese firms, CEO Jim Litinsky emphasized the potential for mutual learning and cost reduction among companies. Despite a 2.7% drop in shares on Thursday, a slight recovery was observed in after-hours trading. The company experienced a significant shift from previous year's profit to a \$16.3 million loss. Sales of rare earths concentrate to China decreased by 34% due to lower production at its Mountain Pass mine, exacerbated by facility issues. However, MP is advancing in refining rare earths domestically, with ongoing projects in California and Texas, and has initiated production in a new facility in Vietnam.

**Stalling the American EV Industry: The Unintended Consequences of the Inflation Reduction Act's Attempt to Bypass China for Critical Minerals (February 22, 2024, [Source](#))** – The Inflation Reduction Act (IRA), integral to President Joe Biden's environmental strategy, seeks to transition the American automotive industry towards a US-centric electric vehicle (EV) supply chain, reducing reliance on Chinese materials. This shift, exemplified by initiatives like Tesla Inc.'s (NASDAQ: TSLA) lithium refinery in Texas, aims to enhance the

competitiveness of American-made EVs. However, the IRA's stringent requirements for sourcing materials domestically or from approved countries by 2024 pose significant challenges, complicating efforts by major manufacturers to maintain affordability and quality. Jack Lifton, an expert in the field, highlights the complexity of creating a new EV supply infrastructure and the strategic challenges of overtaking China's advanced position in the EV sector. The article emphasizes that realizing the IRA's vision demands innovation, strategic foresight, and time, presenting both obstacles and opportunities for the U.S. automotive industry in its quest for sustainability and energy independence.

**Battery factories: Europe's mechanical engineering companies are lagging behind (February 22, 2024, [Source](#))** – The report “Battery Manufacturing 2030: Collaborating at Warp Speed” by Porsche Consulting and the German Engineering Federation (VDMA) highlights the expansion of battery factories, with around 200 set to be constructed worldwide in the next decade, predominantly in Europe. Despite this growth, European mechanical engineering firms are trailing behind their Asian counterparts, particularly in supplying high-tech equipment for these factories, with only 8% of such technology currently coming from Europe. This low market share limits Europe's influence on technical development in the battery sector. The study suggests that to avoid technological dependency and enhance their market position, European companies must aim for at least a 20% market share, requiring significant growth and collaboration to offer integrated factory solutions competitive with turnkey plants from China. The study emphasizes the potential for growth and the critical need for European firms to innovate and collaborate to secure a substantial stake in the rapidly expanding battery production technology market, estimated at 300 billion euros by 2030.

“This is a very important article, because it illustrates that the EV battery manufacturing industry has become technologically dependent upon Chinese manufacturing technology for efficient and economical production. Is this the beginning of the end for any attempt by the non-Chinese world to catch up? No, we’ve already reached that point, and what other manufacturing industries in the West are circling the drain?” – Jack Lifton, CMI Co-Chair & Co-Founder

**China’s CATL says its lithium mine operating normally (February 22, 2024, [Source](#))** – Chinese battery giant Contemporary Amperex Technology Co. (CATL) has confirmed that its lithium mine in Jiangxi province is operating normally, amidst market speculation of a halt due to falling lithium prices. The Jianxiawo mine, rich in hard rock lepidolite and a subsidiary of CATL, faced rumors of reduced or stopped production due to economic challenges. However, CATL asserts production is ongoing as planned, despite market rumors suggesting otherwise. After the Lunar New Year holiday, it was noted that only one of two production lines resumed operation. The mine, which began phase-one production recently, aims for a 200,000 tons capacity of lithium carbonate equivalent (LCE) upon completion of all phases. Despite high production costs compared to current market prices, analysts predict significantly lower output this year than initially expected, with potential delays in future expansion due to these costs. The speculation had earlier boosted Australian lithium stocks.

**China’s lithium carbonate futures jump on talk of environmental crackdown (February 21, 2024, [Source](#))** – On Wednesday, China’s lithium carbonate futures prices experienced a significant rally, driven by market speculation regarding potential environmental inspections in a key production area. This speculation raised concerns about possible output restrictions, leading to a 6.35% increase in the most-active July contract on

the Guangzhou Futures Exchange, reaching 99,600 yuan per metric ton. Speculation centered around Yichun, a major lithium production city in Jiangxi province, facing environmental checks that could limit operations for producers failing to properly manage lithium slag. Despite these rumors, major producers in Jiangxi continued their operations as planned, with some undergoing scheduled maintenance. The price surge, reflecting concerns over supply constraints, followed a rally in Australian lithium stocks prompted by rumors that Chinese battery maker CATL had closed its Jianxiawo mine.

### **Yellen to Visit Chile in Push to Boost Ties on Critical Minerals**

**(February 21, 2024, [Source](#))** – US Treasury Secretary Janet Yellen is scheduled to visit Chile next week as part of an effort to strengthen the United States' ties with Chile, focusing on the South American nation's significant role in the green transition through its contribution to renewable energy policies and as a supplier of critical minerals. This visit is a strategic move by the US to diversify its critical minerals supply chain and reduce its dependence on China, which currently leads the market for essential metals necessary for energy transition technologies. Chile, possessing one of the world's largest lithium reserves, is seeking foreign investment to expand its capacity within the global battery supply chain. The visit, which follows Yellen's attendance at a G20 finance ministers' meeting in Sao Paulo, aims to deepen bilateral economic relations, particularly in the context of Chile's potential to benefit from President Biden's green stimulus program due to a free-trade agreement with the US, thereby supporting North American electric vehicle production.

**Tesla's price cuts are driving down car values so much that EV makers are sending checks to leasing firms to compensate them**  
**(February 21, 2024, [Source](#))** – Tesla's price reductions have significantly lowered the resale value of used electric vehicles

(EVs), prompting automakers to issue compensation to leasing companies like Ayvens to cover these losses. This adjustment comes as the industry is pushed to sell more EVs to avoid fines, with leasing firms seeking protections against further depreciation in the \$1.2 trillion second-hand car market. The demand for used EVs fell due to Tesla's price cuts, affecting companies that play a vital role in the corporate car market. To mitigate risks of depreciation, negotiations for buyback agreements and re-leasing options are underway. Regulatory pressures for lower fleet emissions compound the issue, as unstable used-EV pricing challenges the transition to electric mobility by 2035. Corporate shifts, like SAP SE discontinuing Teslas for employees, underscore the broader impacts of volatile EV pricing on the industry.

**Biden's EV Dreams Are a Nightmare for Tesla and the US Car Industry (February 20, 2024, [Source](#))** – The Inflation Reduction Act (IRA), initiated by President Joe Biden to foster a US-centric electric vehicle (EV) supply chain and reduce reliance on Chinese components, poses significant challenges for Tesla and other American car manufacturers. Despite Tesla's initial steps towards compliance, including sourcing batteries from within the US and building a lithium refinery in Texas, the company's substantial procurement of Chinese lithium-ion batteries underscores the complexity of shifting away from China's supply network. The IRA mandates stringent sourcing requirements for battery components and raw materials, aiming to cut China's dominance in the EV sector. However, these measures have compelled carmakers to navigate a difficult transition, risking the affordability and competitiveness of EVs. As Tesla, GM, Ford, and others strive to adapt to these evolving standards and develop alternative supply chains, they face the daunting task of balancing economic, environmental, and strategic objectives in a rapidly changing global market dominated by

geopolitical tensions and the strategic distribution of critical minerals.

**Goldman, hedge funds step up activity in physical uranium as prices spike (February 20, 2024, [Source](#))** – Investment banks Goldman Sachs and Macquarie, along with some hedge funds, are increasingly engaging in the uranium market, driven by a spike in uranium prices to 16-year highs. While many banks remain cautious, these institutions are actively trading physical uranium and, in Goldman's case, its options. This shift is fueled by utilities' need for new supplies amid shortages. The interest in uranium is also growing among hedge funds and financial institutions, a notable change after the sector's stagnation post-Fukushima disaster. Uranium prices have doubled over the past year, reaching \$102 a pound, prompted by production cuts from top producers and a renewed interest in nuclear energy as a means to reduce carbon emissions. Goldman Sachs has also introduced options on physical uranium for hedge funds, marking a significant development in the market. This increased activity reflects a broader appeal of uranium to financial investors, with notable investments in physical uranium as well as equities related to the sector.

**Gecamines plans overhaul of mining JVs in world's top cobalt supplier (February 20, 2024, [Source](#))** – Gecamines, the state miner of the Democratic Republic of Congo, is seeking to renegotiate terms of its copper and cobalt joint ventures to increase its stakes and gain more control. Aiming to leverage global demand for minerals essential for the green energy transition, Gecamines plans to secure better off-take contracts and ensure local representation on venture boards for improved asset management. The strategy addresses past oversights, focusing on rectifying prolonged indebtedness and insufficient investment by some partners. Recent deals, like the one with China's CMOC Group, exemplify Gecamines' efforts towards

securing equitable terms, demonstrating a push for enhanced returns, community benefits, and transparency in the world's top cobalt supplier and a leading copper producer.

**Industry Leaders Lifton and Karayannopoulos China's Influence on Rare Earth Prices and Markets Today (February 19, 2024, [Source](#))**

– In an insightful interview, Jack Lifton and Constantine Karayannopoulos delve into the complexities of the rare earths market. Karayannopoulos, wary of current market trends, notes a decline in prices for key elements like neodymium and praseodymium and maintains a cautious outlook due to the industry's cyclical nature. Lifton points out the impact of China's economic struggles on low rare earth prices, advocating for strategic investments in mining and processing at this juncture. Both experts discuss the discrepancy between market expectations and reality, particularly in the context of China's economic growth and the slower-than-anticipated expansion of its magnet industry, vital for electric vehicle production. They emphasize the significance of investing in raw materials and processing to navigate and leverage China's market dominance effectively, offering a comprehensive view on economic trends, geopolitical strategies, and investment opportunities in the rare earths sector.

**BHP says Australian support for nickel miners 'may not be enough' to save industry (February 19, 2024, [Source](#))** – BHP Group (ASX: BHP | NYSE: BHP) warned that Australian government efforts to support the nickel industry might not suffice amid challenges, as a write-off in its nickel operations led to a nearly 90% drop in first-half net profit. The crisis in Australia's nickel industry is due to a price collapse from a supply glut in Indonesia. Despite government measures like production tax credits and royalty relief, BHP's CEO, Mike Henry, suggested these might be inadequate due to structural market changes. BHP, facing a \$3.5 billion pre-tax impairment



charge on its Nickel West operation, is contemplating suspending its activities there, despite healthy nickel demand from the electric vehicle sector. However, Henry highlighted copper, potash, and iron ore as stronger growth areas for BHP. The company announced a higher-than-expected interim dividend, reflecting robust copper and iron ore performance, and anticipates stability in commodity demand from China and India.

**US Bid to Loosen China's Grip on Key Metals for EVs Is Stalling (February 19, 2024, [Source](#))** – The U.S. is striving to diminish its reliance on China for crucial metals like gallium and germanium, vital for electric vehicles and military technology. Efforts have been hampered by the diminished efficacy of the U.S. National Defense Stockpile and budget cuts, revealing vulnerabilities to supply shocks. Despite the Biden administration's initiatives to diversify metal sources through international deals and domestic projects, China's control over the global metal supply remains strong. Recent legislative reforms aim to enhance strategic stockpiling and procurement flexibility, but challenges in establishing a coherent strategy and securing stable mineral supplies continue. The situation underscores the complex dynamics of global supply chains and the critical nature of these metals for technological and defense applications.

**JPMorgan, State Street quit climate group, BlackRock steps back (February 15, 2024, [Source](#))** – JPMorgan Chase and State Street's investment arms exited the Climate Action 100+ coalition, a global investor group advocating for reduced emissions, withdrawing nearly \$14 trillion in assets from climate change initiatives. BlackRock scaled back its participation by shifting its membership to its international arm. These moves follow the coalition's request for members to intensify actions against companies lagging in emission reductions. Despite political pressure from Republican politicians accusing financial firms of

antitrust and fiduciary duty breaches, none cited politics as a reason for their departure. State Street cited conflicts with the coalition's new priorities, which include engaging policymakers and public emission reduction commitments, as misaligned with its independent approach. BlackRock aims to maintain independence while prioritizing climate goals for its clients.

## **Investor.News Critical Minerals Media Coverage:**

- February 22, 2024 – Stalling the American EV Industry: The Unintended Consequences of the Inflation Reduction Act's Attempt to Bypass China for Critical Minerals <https://bit.ly/3T8IpYE>
- February 22, 2024 – Revolutionizing Energy Storage with NE0 Battery Materials' Strategic Advances in Silicon Anode Technology <https://bit.ly/3T5r080>

## **Investor.News Critical Minerals Videos:**

- Industry Leaders Lifton and Karayannopoulos China's Influence on Rare Earth Prices and Markets Today <https://bit.ly/3SNSuZk>

## **Critical Minerals IN8.Pro Member News**

# Releases:

- February 22, 2024 – American Rare Earths Announces A\$13.5m Placement to advance Halleck Creek Project <https://bit.ly/3wuU1fB>
- February 22, 2024 – First Phosphate Project Receives Letter of Support from Mario Simard, Canadian Parliamentary Deputy for the Riding of Jonquière, Québec <https://bit.ly/3S0AP3i>
- February 21, 2024 – Nano One Adds 4 More Lithium Battery Manufacturing Patents in Asia – Boosts Total to 40 <https://bit.ly/3I6EmFL>
- February 21, 2024 – Power Nickel Expands on High Grade Cu-Pd-Pt-Au-Ag Zone 5km northeast of its Main Nisk Deposit <https://bit.ly/433eJj3>
- February 20, 2024 – American Clean Resources Group Acquires SWIS Community, LLC, an Environmental Water Technology Company <https://bit.ly/3T6iSis>
- February 20, 2024 – First Phosphate Provides Update on Plans for a Purified Phosphoric Acid Plant at Port Saguenay, Quebec <https://bit.ly/4bINV54>
- February 20, 2024 – Western Uranium & Vanadium Receives over \$4.6M from Warrant Exercises <https://bit.ly/3UI3DxH>
- February 20, 2024 – Appia Unveils Significant REE, Cobalt and Scandium Assay Results From 47 RC Drill Holes at the Buriti Target Within Its PCH IAC REE Project, Brazil <https://bit.ly/3ST4GIG>
- February 20, 2024 – Fathom Nickel Announces the Closing of Its Second and Final Tranche of Private Placement <https://bit.ly/3wjSSr7>
- February 20, 2024 – Canadian GoldCamps to Earn 50% of Murphy Lake for \$10M Exploration Spend <https://bit.ly/4bBbtz0>

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# **The Critical Minerals Institute Report for September 2023**

written by Matt Bohlsen | March 28, 2024

Welcome to the mid-September 2023 Critical Minerals Institute (“CMI”) report, designed to keep you up to date on all the latest major news across the critical minerals markets.

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## **What’s this about Johnson-Matthey exiting the EV battery cathode business?**

written by Jack Lifton | March 28, 2024

The legacy carmakers and their supply base both face bankruptcy if they make the wrong decisions on entering the “transition to EVs” markets. This is because the OEM automotive industry is, along with semiconductor manufacturing, one of the most capital-intensive industries in the world. Just like with a 200,000 ton DWT ship, inertia being the problem on the one hand and prior deployment of massive amounts of capital being the issue on the

other, the OEM automotive industry cannot change course in a short time, and so must be careful to choose the right path (allocation of capital) before starting the voyage.

The battery materials' *processing* markets were surprised yesterday by an unexpected announcement from the UK's most prominent technology metals' processor, Johnson-Matthey Ltd. (JM), that it was [withdrawing from the battery materials' processing market](#) due to its estimation that the return on capital from manufacturing lithium-ion battery cathodes would be too low to justify the allocation of capital required to do so. JM's stated reason for this decision was that the battery materials' business is becoming "commoditized," so that JM's hoped for competitive advantage based on its specialized cathode manufacturing technology would either not materialize or not be good enough to be competitive.

But, even if so, It is the timing of this announcement that seems puzzling.

Both CATL, China's largest integrated battery manufacturer and Umicore, Europe's largest battery materials *processor* have poor returns on capital in their respective battery business sectors, and this has been going on since both entered the battery business, so JM cannot have been surprised by this factor, and, in fact, should have taken it into account on day one of its foray into the battery materials' business.

So, what's it all about?

Large companies with either diversified products or vertical integration can distribute costs. Legacy OEM automotive EV makers, for example, like Germany's Volkswagen, which had a 5 billion Euro profit last year, can afford to lose some money introducing its EVs to the market at a loss per vehicle, while it tests both market acceptance and the lowering of

manufacturing costs due to scaling up production.

Let's set aside my continuing accounting of [battery raw materials](#)' resources as woefully insufficient to support a transition to EVs, and concentrate on the OEM automotive industry's costs of bringing a new vehicle with any type of power train to market.

It is always multi-faceted crap shoot, and the history of government intervention in the car market is not one to inspire confidence.

Designing a new car and preparing to produce it costs billions of dollars and takes 3 to 6 years.

Government intervention in this market is always a compendium of what you can't do, not what you can. The U.S. and EU government's favorite regulatory intervention in the OEM automotive industry is the required "average miles-per-gallon" range for an OEM's output. This "standard" was first introduced to reduce the emissions of hazardous gases and then added the reduction of the emission of particulates to its mandate. The current EV craze was actually the result of California's 1990's experimental legislation requiring the slow phase in of zero-emission vehicles. General Motors brought out a battery electric vehicle, the EV in the late 1990s, and Toyota introduced its "hybrid" Prius into the US (mainly California) market in 1997 to meet that mandate. The Prius, a hybrid, using, at first, a nickel-metal-hydride (the metal being a mix of rare earths) battery prospered. The EV with its lead-acid batteries and short range, 90 miles before needing a recharge, did not (It helped that GM lobbyists got California to suspend enforcement of the zero emissions mandate). GM had only leased its EVs; they were recalled and scrapped.

BEVs as a type went into hibernation until 2005 when Elon Musk

decided that lithium-ion batteries were ready for prime time. Global Cooling became Global Warming and then Climate Change, and Musk's struggling, capital devouring, OEM automotive venture, Tesla, kickstarted a revival of a serious EV industry, something last seen by the great grandfathers of Detroit's, Wolfsburg's, Paris', and Tokyo's car industry leaders when they decided that Thomas Edison's Nickel-iron batteries were not practical for even their then short range motor cars. They knew that Rockefeller's gasoline and kerosene distribution system in "filling stations" was far more practical than Edison's expensive and hard to maintain DC generating stations except for trolley cars.

So, what's this got to do with JM's decision to pull out of the battery cathode business?

The answer is that JM has (correctly) concluded that the market, though large, is limited, and that very large profitable multi-product and/or vertically integrated or (whisper) state-supported companies are already driving prices down by competition to get market share.

JM has concluded, again correctly, that most of the cars and trucks manufactured for the next generation will use internal combustion engines and that its core automotive exhaust emission catalytic converter business based on its dominance in the processing and use of platinum group metals is where it has the best competitive advantage and sunk costs.

The reputed costs to JM associated with building a Poland sited cathode plant were twice the industry average.

JM was once also in the rare earth processing business, and it exited that in the 1980s when the first Molycorp was losing its dominance to Chinese low-cost competitors. That was a wise decision then, and getting out of the lithium-ion battery



cathode business before getting into massive non-recoverable debt is also a wise decision.

Finally, I would like to repeat my prediction that since the OEM automotive assemblers do not understand or want to understand that the manufacturing of EVs using lithium-ion batteries is limited by the availability of lithium, there will be a cull. The survivors will be those OEMs that can balance the production of their allocation of (raw materials' supply limited) EVs with ICE production profitably. BMW is my choice for the most likely survivor, because it has already announced that it will continue to produce a mix of powertrain choices in its vehicles. The rest, so far, are either going "all-electric" or eliminating ICE production and development. They chose poorly.

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## **Biden, the Chinese raw material hunt and the 'massive' monazite results of Appia Rare Earths & Uranium**

written by InvestorNews | March 28, 2024

While the Biden Administration fixates on solving the port problem in the United States, China continues to dominate the Western world's supplies of, when it comes to the bigger picture, critical metals and materials. Literally, at the same time the US government is trying to focus on the issues right in front of it that may disrupt Christmas (*heaven forbid*), Chinese companies continue to seek out and lock up more of the raw

materials that will [drive the future](#). In just the last few days, Zijin Mining Group Co., Ltd. launched a [C\\$960 million takeover bid](#) for Canadian domiciled [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF), while Contemporary Amperex Technology Co. Limited (CATL), the world's largest battery supplier and ironically already part owner of Neo Lithium, signed a battery supply deal with U.S. commercial EV maker, Electric Last Mile Solutions Inc. (NASDAQ: ELMS). Three weeks ago CATL made a C\$377 million takeover bid for Canada's Millennial Lithium Corp. (TSXV: ML). Zijin is no stranger to taking out Canadian mining companies having previously acquired Nevsun Resources (C\$1.86 billion), Guyana Goldfields (C\$323 million), and Continental Gold (C\$1.4 billion), and those were just some of its Canadian targets.

From an investor's perspective, I guess this takeover activity can be viewed as a good thing given that these Chinese entities are [paying full value for their acquisitions](#). So you get your liquidity event and hopefully have made money to go off and find the next possible target. But it is disappointing to see the West talk the talk about our greener future but not walk the walk as our leaders appear to be completely oblivious as to how we'll get there if we let China control all the raw materials. I will save that rant for another day. In the meantime let's have a look at a company that could tick the boxes for a potential acquisition by the Chinese.

Of late it seems the flavour of the day is lithium but that isn't the only critical material out there. The Chinese have long since cornered the market for rare earths but if no one is willing to stop them, or even slow them down, then why wouldn't they continue to acquire everything the world will let them. One Canadian junior mining company that could fit the bill is [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQB: APAAF), or perhaps you know it by its [former name Appia Energy Corp.](#) but that was so yesterday (today is literally the first day trading

under its new name). Appia is a Canadian publicly-listed company in the uranium and rare earth element sectors and is currently in its largest exploration and diamond drilling program in the Company's history, focusing on delineating high grade critical rare earth elements, gallium, and uranium on its 100% owned [Alces Lake property](#), as well as exploring for high-grade uranium, in the prolific Athabasca Basin, on its [Loranger](#), [North Wollaston](#), and [Eastside](#) properties. Appia has found some of the highest grade samples of neodymium rich monazite on its properties in Saskatchewan.

The Alces Lake discovery of an accessible extensive hard rock deposit of monazite is very important to the world's demand for magnet rare earths. This is because Appia's monazite is neodymium rich, which is the most desirable for the production of rare earth permanent magnets. Not only is it rich in neodymium (Nd) and praseodymium (Pr), but also contains 1% of xenotime, the best heavy rare earth bearing hard rock mineral. The good news is that yesterday the Company [announced](#) it has discovered new and previously unknown occurrences of massive and semi-massive monazite in the Wilson North area of Alces Lake. A total of 27 drill holes (2,460 m) have been completed at the Wilson-Richard-Charles-Bell zones (WRCB), with at least 27 holes (2,360 m) remaining. In total the Company has completed 61 drill holes (4,575 m) including drilling at Biotite Lake (13 holes – 685 m), Danny (7 holes – 430 m) and Sweet Chili Heat (14 holes – 995 m) with monazite occurrences identified in each area. One drill continues to test the continuity and depth extent of the WRCB zones, while the other moves across the property, exploring new drill targets, named Diablo and Oldman River.



## [Source](#)

With assays pending for all 61 holes drilled to date in the 2021

program, it's certainly exciting times for Appia. The Wilson North 21-WRC-015 drill hole showed monazite mineralization over 8.85 m from 15.74 m – 24.59 m. As noted above, three other locations also saw monazite occurrences. If the grades in this season's drill holes match the world class grades previously announced things could get very interesting very quickly. The Company is well funded to complete this season's drilling with plans to [prepare an NI 43-101 report](#) following the conclusion of the current exploration program later this year. With 107.6 million shares outstanding, the current market cap for Appia stands at roughly \$82 million. That's chump change given what some of these Chinese companies are throwing around for quality assets.

Keep in mind that for the last few years China has been buying monazite concentrates, thrown off as residues from heavy mineral sands' mining, from all over the world including, until recently, from the USA! China bought 30,000 tonnes last year from Rio Tinto in Southern Africa; and up to another 20,000 tons from Indonesia, Brazil. It is logical to assume that China would have a great interest in a higher grade neodymium rich monazite deposit than Lynas' Mt Weld especially since the Appia material has 1 percent xenotime, which is a higher grade of heavy rare earth rich, xenotime, than Lynas' deposits at Mt Weld.

Appia may be on the cusp of an exciting future.

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## China pays full value for Neo

# Lithium. Here comes the bull market.

written by Tracy Weslosky | March 28, 2024

Friday post-market we had significant news in the critical materials market. Zijin Mining Group Co., Ltd. and [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF) (FSE: NE2) [announced](#) that they have entered into a definitive agreement pursuant to which Zijin has agreed to acquire all of the outstanding shares of Neo Lithium at a price of per share of C\$6.50 in cash.

The offer price represents a premium of approximately 36% over Neo Lithium's 20-day volume-weighted average price. The total cash consideration for all of the outstanding equity of Neo Lithium is approximately C\$960 million.

That is a phenomenal deal for shareholders as just one year ago, the company was trading at a mere C\$0.60 per share and this offer is double the share price in June 2021. In May 2019, the company released a [374-page Pre-Feasibility Study](#) for the company's flagship Tres Quebradas (3Q) lithium brine project in Catamarca, Argentina, valuing the project at \$1.14 billion with a post-tax 49.9% IRR. Full value recognized and received.

The Neo Lithium project, which is located in the so-called "Lithium Triangle", is where an estimated 40% of global lithium production originates in an area that holds more than 90% of the world's lithium brine resources. Neo Lithium owns 100% of the project.

In a recent column on InvestorIntel, Neo Lithium was identified as one of the [top five lithium development and exploration companies for 2021](#). The 3Q project is outstanding globally as it has the highest grade lithium deposit in Argentina (3rd-4th

highest in the world) with the lowest critical impurity content in the world. The company established pilot plant production in September 2019 and saw battery-grade lithium carbonate (99.6% pure) in March 2020 and produced 99.9% pure lithium carbonate in June 2021, which contributed to the share price increasing from the \$2.50-3.00 range to current levels.

Recall that in [September 2020](#), the company welcomed a leading Chinese battery manufacturer and technology company, Contemporary Amperex Technology (CATL) as an 8% shareholder and strategic partner. This allowed Neo Lithium to strengthen the company balance sheet and provided industry expertise as the project was moving towards a Definitive Feasibility Study and planning for full-project construction and financing.

Is this the right time to sell for Neo Lithium? In the news release announcing the transaction, Neo Lithium's President and CEO revealed that the company had conducted a thorough strategic process and selected Zijin Mining for (among other things) their track record of developing assets in a responsible manner respecting the interests of local employees, communities and authorities. With an estimated \$247.7 million of start-up capital required, this is the next logical step.

The transaction is subject to the receipt of certain government, regulatory, court and stock exchange approvals, including approval by relevant authorities in China and Investment Canada Act approval, and other closing conditions customary in transactions of this nature. Notwithstanding recent Sino-Canada tensions, this transaction should be swiftly approved.

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# Jack Lifton with Neo Lithium's Gabriel Pindar, says "the lithium market is a permanent bull market at this time"

written by InvestorNews | March 28, 2024

In a recent InvestorIntel interview, Jack Lifton speaks with Gabriel Pindar, COO and Director of [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF) about Neo Lithium's latest updated [results](#) that "...confirm that 3Q Project is one of the most significant lithium brine discoveries in recent history" ([source](#)).

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Gabriel went on to say that further to the [125% increase in resource](#) at their 3Q Project located in the Lithium Triangle: "The company expects to begin commercial production of lithium carbonate in the last quarter of 2023 reaching full production of 20,000 tons per year in 2025." Jack then comments on the Neo Lithium deal with CATL. CATL, which is the largest EV battery producer in the world, is a strategic partner with Neo Lithium. Gabriel draws Jack's attention to the competitive cost for extraction, Jack adds "the lithium market is a permanent bull market at this time".

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

## About Neo Lithium Corp.

Neo Lithium Corp. has quickly become a prominent new name in lithium brine development by virtue of its high quality 3Q Project and experienced team. Neo Lithium is rapidly advancing



its 100% owned 3Q Project – a unique high-grade lithium brine lake and salar complex in Latin America’s “Lithium Triangle”. The 3Q Project is located in the Catamarca Province, the largest lithium producing area in Argentina covering approximately 35,000 ha including a salar complex of approximately 16,000 ha.

To learn more about Neo Lithium Corp., [click here](#)

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

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## Neo Lithium reaches nirvana with 125% increase in resources

written by InvestorNews | March 28, 2024

Whenever someone mentions lithium to me, the first thing that pops into my head is Kurt Cobain and Dave Grohl. Obviously, I'm still stuck in the 90's thinking about great songs like [this Nirvana offering](#). The recording of which is arguably responsible for Dave Grohl joining the iconic band. But when I drag my head out of the clouds and back to today the most important lithium going is the commodity that is vital to the build out of electric vehicles, consumer electronics and various energy storage applications involving rechargeable batteries. You've heard us go on and on at InvestorIntel about the importance of lithium, perhaps no more clearly than [this article](#) by Jack Lifton (a must read). So I won't pound the table anymore on that topic as long as you read Jack's article.

So what if there was a junior miner that just announced a 125%

increase of measured and indicated resources in their lithium brine project in Catamarca Province, Argentina. I bet that would get you pretty excited. Well, you are in luck. [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF) just [announced exactly that](#) at their [Tres Quebradas \(3Q\) project](#).

The Company's 3Q project is located in the southern end of the "Lithium Triangle" in the Puna Plateau, where over 40% of global lithium is produced. The area is characterized by high altitude salt flats, many of which contain elevated lithium concentrations. The largest lithium brine mines and projects in the world are located in salars (a salt-encrusted depression that may or may not be the basin of an evaporated lake) in the Lithium Triangle including Atacama Salar (SQM and Albermarle), Cauchari-Olaroz Salar (Orocobre and Lithium Americas) and Hombre Muerto Salar (Livent and Galaxy). Neo Lithium is in the same neighborhood as all the big names in lithium.



Source: [Corporate Website](#)

This resource increase was a function of the latest drilling results [announced by Neo Lithium on May 27<sup>th</sup>](#) where the company intercepted a new deep brine aquifer, located outside the area which resulted in the Company's previous Mineral Resource Estimate prepared by Groundwater Insight Inc. with an effective date of August 14, 2018. So they gave Groundwater a call and asked them to work on a new resource estimate using the results from the new wells. Those results are summarized as follows (lower right of the table is the impressive 125% increase):



Source: [Corporate Press Release](#)

As an investor trying to make a decision on whether this is a good stock to buy or not, let's have a look at some of the other important facts about Neo Lithium. Notwithstanding the overall outlook for lithium, which I promised not to keep droning on about, there are several corporate specific items that are key. The Company has a lot of money to begin the commercial development of this project, \$59 million at the end of March. They have the world's largest battery manufacturer Contemporary Amperex Technology Co. Limited (CATL) – a global leader in the development and manufacturing of lithium-ion batteries and the world's No. 1 ranked EV battery producer – as a strategic investor (8% equity interest), [including a seat on the board](#). A pre-feasibility study, done prior to the latest resource increase, had a 50% IRR, \$1.1 billion after tax NPV (8% discount rate), and a 1 year 8 month payback period.

Additionally, the 3Q project is 100% owned and Neo Lithium controls the entire salar which still has exploration upside. The high-grade core of the 3Q project is 3<sup>rd</sup> highest grade lithium project in the world, 4<sup>th</sup> best on overall average grade. The low impurities contribute to this project being estimated to be in the lowest quartile OPEX in the industry at US\$2,900/t. Pilot plant operations have run for over a year achieving battery grade quality (99.797% lithium carbonate) and pleasing CATL with the results. Similar processing operations have run in the area for over 20 years, so it's not like this project is reinventing the wheel, perhaps just advancing a better way to power the wheel.

All of this make 3Q one of the best undeveloped lithium projects worldwide. But there's the key – undeveloped. So what's next for Neo Lithium? The Company plans to complete the final feasibility study in Q3/21 at which point it will finalize financing discussions with CATL, assuming they've obtained the

Environmental Impact Assessment. At that point, they can start executing a construction plan and get this impressive project making all that money that the PFS indicated was there for the taking, assuming lithium prices remain strong but we've already covered that!

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## With lithium demand forecast to increase 10x's this decade, Neo Lithium steps up to the mark

written by InvestorNews | March 28, 2024

2021 Electric vehicle (EV) sales continue to smash records, notably in China and Europe. Global electric car sales for March 2021 were [up 173% YoY](#), reaching 8.2% share, and the second best month ever. Europe sales [rose 169% YoY](#), reaching 16% share, while China sales [rose 244% YoY](#), reaching 11% share. In April China EV sales jumped [173% YoY](#) and reached 10% market share. Booming EV sales means booming demand for EV metals, such as lithium, cobalt, graphite, nickel, manganese, copper, and neodymium and praseodymium (NdPr).

As a result of the impending decade long EV boom analysts continue to increase their EV metals demand forecasts. [UBS](#) and [others](#) are **forecasting lithium demand to surge 10-11x this decade**. To meet the surging demand new lithium mines will be needed, especially from 2023 onwards as the market potentially heads into deficit. One lithium junior, with the world's largest

battery manufacturer CATL as a strategic investor, looks poised to potentially fill this supply gap and become a 2023/24 lithium producer.

The company is [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF).

Neo Lithium 100% own, and has fully paid, their 3Q lithium brine project in Argentina. The 3Q Project is very large in size and has the 4th highest lithium grade globally, or the 3rd highest if counting only their high grade core. Proven & Probable reserves are [1.3 million tonnes of Lithium Carbonate Equivalent \(LCE\)](#). The M&I Resource is 4.0 million tonnes of LCE. The mine life is forecast at [35 years](#) taking into account only 1/3 of the known resource. The 3Q Project has the lowest level of impurities globally which should result in industry low operating expenses. The 3Q Project has an [outstanding PFS](#), including a post-tax NPV8% of US\$1.144 billion, post-tax IRR of 49.9%, and CapEx of US\$319 million, based on 20,000t pa LCE production, and assuming a life of mine lithium carbonate average price of US\$11,882/t. Current lithium carbonate prices are at [US\\$13,000/t](#). Payback on the 3Q project is just 1 year and 8 months. The 3Q project is at a quite advanced stage with pilot ponds and established infrastructure.

[Final Environmental permit](#) for construction has been presented to the government and is in the process of approval. CATL now has [board representation](#) (Mr. Tang Honghui) and input into the current Feasibility Study (FS) due for completion in Q3 2021. CATL has a board nomination right pursuant to the strategic investment and investors rights agreement signed with the Company that closed on December 16, 2020. After the FS is released and assuming the environmental permit is granted, it would be fairly reasonable (not guaranteed) to expect some major moves forward towards project partner/project funding, most likely from CATL or affiliated funding groups.

In Neo Lithium's most recent news the Company [announced](#) that they are expanding and optimizing the Pilot Ponds at the 3Q Project. Neo Lithium [stated](#):

"The Company completed five years of pilot pond evaporation and design to be able to bring the latest technology to the new pilot pond system. Results confirm less than one year of evaporation from in-situ brine to final ~3.6% lithium brine concentration prior to shipment to the carbonation plant. The new pilot pond system will test different technologies to lower total cost of industrial scale ponds by making ponds smaller and more efficient."

Neo Lithium COO, Gabriel Pindar, [stated](#):

"As we get closer to completing the Definitive Feasibility Study, we move our pilot system to a final piloting system that is efficient, lower cost, consumes no fresh water or reagents and requires less capital cost to produce than other comparable projects."

**Neo Lithium look set to be the next major lithium brine producer after LAC/Ganfeng**



Source: [Neo Lithium website](#)

For lithium brine producers the two main aspects are the brine evaporation using evaporation ponds, then the final processing plant where impurities are removed. Neo Lithium is advancing very well on the ponds and once funded for project construction can build the processing plant. Neo Lithium has already proven they [can produce battery grade lithium carbonate at 99.599% purity](#).

**Closing remarks**



It looks like all the pieces of the puzzle are now coming together very nicely for Neo Lithium. Successful pilot ponds achieving fast brine evaporation (pilot scale), low impurities and ability to produce battery grade lithium carbonate, rising lithium demand and prices, abundant cash reserves (as of April 1, 2021 cash was C\$59 million) and the world's largest battery manufacturer CATL as a strategic investor and taking a seat on the board.

[CATL recently increased their initial investment](#) to maintain its 8% ownership in Neo Lithium with a C\$2.6 million investment at C\$3.05/share. When the world's largest lithium-ion battery manufacturer chooses you there can be no greater endorsement.

Neo Lithium trades on a market cap of just C\$348 million and remains one of the very best potential near term lithium producers for investors to consider. 2021 should be a landmark year for Neo Lithium.

*Disclosure: The author is long Neo Lithium Corp. (TSXV: NLC).*