Technology Metals Report (01.05.24): The Intensifying Competition of BYD Surprises Tesla

written by Tracy Hughes | January 5, 2024

Welcome to the latest **Technology Metals Report (TMR)** where we highlight the Top 10 news stories that members of the Critical Minerals Institute (CMI) have forwarded to us over the last 2-weeks.

Key highlights in this **Technology Metals Report** includes Tesla's impressive Q4 delivery record, overshadowed by BYD's surge as the top EV maker, underscoring the intensifying competition in the electric vehicle market. Energy Fuels Inc. has made significant strides, first by entering into an MOU with Astron Corporation to bolster the U.S. rare earths supply, and then by expanding its uranium production in response to favorable market conditions. Nio Inc. has made a technological leap with its innovative EV battery, boasting a 1,000km range, while global trends in the critical minerals and EV market show shifts influenced by economic and political developments. Notably, Codelco and SQM's new lithium venture in Chile represents a strategic move in the lithium market. The impact of China's rare earths export ban stands as a significant moment, compelling the U.S. to foster technological self-reliance. The landmark merger between Allkem and Livent to form Arcadium Lithium marks a major consolidation in the lithium industry. Atomionics' innovative use of AI and gravity in mining exploration showcases a technological breakthrough. The EU's ambitious goals for critical minerals, despite challenges, indicate a strong

commitment to securing essential resources for its green transition. Lastly, KoBold Metals' ambitious global lithium exploration, backed by industry giants, highlights the growing importance of lithium in the clean energy sector.

The 10-stories selected for this edition of the TMR with source links to source stories for this fast-paced sector are listed chronologically for your ease and review.

Tesla delivers record Q4 cars, but China's BYD steals top EV spot (January 3, 2024, Source) – In the fiercely competitive electric vehicle (EV) market, Tesla Inc. (NASDAQ: TSLA) achieved a significant milestone by delivering a record 484,507 vehicles in the fourth quarter of 2023, surpassing market expectations and fulfilling its annual target. Despite this success, Tesla was eclipsed by China's BYD in terms of sales volume, losing its position as the leading EV manufacturer. BYD, backed by Warren Buffett, delivered 526,409 vehicles, primarily in China, indicating a consumer preference for more affordable models in an economy burdened by high interest rates. Although Tesla's aggressive sales strategies led to a notable 11% growth over the previous quarter and a total production of 1.85 million units in 2023, it fell short of CEO Elon Musk's ambitious target of 2 million. The company's stock remained stable amidst a generally declining market. Meanwhile, BYD's strategy of price cuts appears to be paying off, gaining market share despite potential impacts on profit margins. Tesla, in a bid to boost sales, offered discounts and incentives, such as six months of free fast charging for deliveries made by the end of December. This strategy was partly in response to some models of its Model 3 sedan losing U.S. federal tax credits in 2024. Tesla's delivery performance stands out in comparison to domestic U.S. car companies, but it is also facing challenges like regulatory scrutiny over its self-driving technology and the need to adapt to changing tax credit policies.

Energy Fuels' Strategic MOU with Astron: Shaping the Future of the U.S. Rare Earths Supply Chain (December 30, 2023, Source) – Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR) has recently entered into a significant Memorandum of Understanding (MOU) with Astron Corporation Ltd. to jointly develop the Donald Rare Earth and Mineral Sands Project in Victoria, Australia. This collaboration, announced on December 27, 2023, marks a crucial step in establishing a U.S.-focused rare earths supply chain, vital for meeting future national needs. The project will provide Energy Fuels with 7,000 to 14,000 metric tons of rare earth concentrate annually from the Donald deposit, processed at their White Mesa Mill in Utah. This arrangement not only utilizes the mill's capacity to manage radioactive elements but also supports the production of critical minerals like uranium. The project is set to initially produce 800 – 1,000 metric tons of Neodymium-Praseodymium (NdPr) oxide by Q1 2024, with prospects for expansion. This development is strategically important in light of the U.S. government's impending policy to restrict critical minerals sourced from Foreign Entities of Concern, effective from 2025. By fostering a sustainable, competitive, and independent supply chain, Energy Fuels' initiative is poised to significantly impact the electric vehicle and clean energy sectors in the U.S., reducing dependency on foreign sources, especially China, and bolstering national security and technological advancement.

A Chinese EV company developed a battery with a 1,000km range – and its CEO tested it out on a 14-hour livestream (December 29, 2023, Source) – Chinese electric vehicle (EV) company Nio Inc., often compared to Tesla, recently showcased a groundbreaking development in EV technology by introducing a battery with an impressive 1,000km range. The company's CEO, William Li, widely regarded as China's answer to Elon Musk, embarked on a 14-hour live-streamed journey covering 1,044km from Shanghai to Xiamen

to demonstrate the battery's capabilities. Despite challenging weather conditions, Li's Nio ET7, powered by the company's new 150 kWh battery with the highest energy density for a mass-produced EV battery, completed the trip with 3% charge remaining. Scheduled for mass production in April 2024, these batteries, though costly at around $42,100, represent a significant advancement in EV technology. Nio's unique business model allows customers to buy cars without a battery, offering a subscription for battery swaps at over 2,000 stations across China. Despite financial challenges and each car resulting in a $12,000 loss for Nio, this strategy has elevated Li's stature, drawing parallels with Tesla's Elon Musk. Li further showcased Nio's technological prowess at the annual "Nio Day," revealing the new ET9 flagship to thousands of Nio enthusiasts.

The Critical Minerals Institute Report (12.27.2023): Politics Driving Marketable Commodities into 2024 (December 27, 2023, Source) – The December 2023 Critical Minerals Institute report highlights key global economic and political developments influencing the critical minerals and electric vehicle (EV) markets. U.S. inflation decreases and potential interest rate cuts in 2024 have positively impacted equity markets, while China's anticipated economic recovery bodes well for commodity sectors. The EV market is experiencing significant growth, particularly in China, despite challenges from U.S. and EU policies aiming to reduce dependency on foreign entities. The U.S. Department of Energy's proposed FEOC guidelines and the EU's Critical Raw Materials Act reflect a strategic shift towards stabilizing and localizing critical minerals supply chains. The report also notes significant fluctuations in the lithium market, with expectations of a bottom forming soon, and discusses the broader market dynamics of other critical minerals like cobalt, graphite, nickel, and manganese, in the context of a global economic slowdown. The performance of uranium in 2023

and the potential impact of lower interest rates in 2024 on the global economy and critical minerals demand are key areas of focus.

Chile's Codelco to control new lithium venture with miner SQM (December 27, 2023, Source) – Chile's state-owned copper miner, Codelco, has entered into a significant partnership with mining company Sociedad Química y Minera de Chile S.A. ("SQM") (NYSE: SQM), gaining majority control in a new lithium venture. This move aligns with President Gabriel Boric's directive for greater government involvement in lithium production. Chile, holding the title of the world's second-largest lithium producer, aims to revitalize its market share, which is at risk of declining due to aging mining projects and increasing global competition. The deal, marking a pivotal step in Boric's national lithium strategy, mandates public-private partnerships for all lithium projects. Set to start in January 2025, Codelco will take over SQM's existing contracts and collaborate on increasing lithium production in the Atacama Desert. This partnership is not only a strategic move to stabilize SQM's market position but also sets a precedent for future lithium contracts in Chile, potentially reshaping the country's role in the global lithium market.

Global Rare Earths Market Heats Up as China Implements Export Ban (December 21, 2023, Source) – The recent ban by China on the export of rare earth processing technology represents a pivotal moment in the global rare earths market, particularly impacting the strategic metals sector. This ban, covering technology for extracting, separating, and producing rare earth metals and alloys, along with some magnet production technologies, has significant implications for industries like electronics, clean energy, and defense. Experts from the Critical Minerals Institute, including Melissa Sanderson and Peyton Jackson, highlight the necessity for the United States to proactively respond by investing in both green technologies, such as bio-

extraction, and traditional processing methods. They emphasize the risks of over-dependence on other nations and the importance of developing technological self-reliance. The U.S. government's funding of Lynas Rare Earths Ltd. (ASX: LYC) and Energy Fuels Inc.'s (NYSE American: UUUU | TSX: EFR) advanced solvent extraction system exemplifies a shift towards addressing these challenges through domestic initiatives. This strategic move is not only a reaction to China's export ban but also a step towards ensuring a more sustainable and secure future in the critical minerals sector.

Allkem shareholders approve $10.6 billion Livent lithium merger (December 19, 2023, Source) – Australian lithium producer Allkem Limited (ASX: AKE | TSX: AKE) and U.S. company Livent Corporation (NYSE: LTHM) have agreed on a significant $10.6 billion merger, marking a major move in the lithium industry. This decision, approved by 72% of Allkem's voting shareholders, will result in the formation of Arcadian Lithium PLC (NYSE: ALTM | ASX: LTM), a formidable entity in the global lithium market. The merger, which has received all necessary regulatory approvals, positions Arcadium Lithium as one of the world's largest lithium companies, with operations spanning Australia, Argentina, and Canada. The new company will be integral in supplying lithium, a critical component for electric vehicle batteries, to various battery manufacturers. Under the terms of the deal, Allkem shareholders will exchange their shares on a one-for-one basis for shares in Arcadium Lithium, owning 56% of the new company, while Livent shareholders will receive 2.406 shares in Arcadium for each of their shares. Livent CEO Paul Graves is set to lead the new company, which will be the world's third-largest lithium producer. The merger comes amidst a surge in dealmaking activity in the lithium sector and is recommended by independent financial advisors and proxy firms. Additionally, Livent plans to expand its operations in Western Australia's

prominent lithium districts.

Singapore's Atomionics taps gravity, AI in hunt for critical minerals (December 19, 2023, Source) – Singapore-based startup Atomionics is transforming the mineral exploration industry with its innovative technology, Gravio, which combines gravity detection and artificial intelligence. This "virtual drill" technique offers a more precise and efficient method for locating ore bodies of critical minerals like copper, nickel, and zinc. Atomionics has already engaged with three major mining companies and is implementing its technology in Australia and the U.S. The technology's real-time data processing significantly accelerates the task of defining ore bodies, offering a cost-effective alternative to traditional exploration methods. The ability to build an accurate virtual picture of mineral deposits before physical drilling can greatly reduce costs, as exploratory drilling is expensive and often misses the target. Atomionics aims to decrease these unsuccessful attempts by at least half. This innovative approach holds the potential to be a game-changer in the mineral exploration sector, presenting a low-cost alternative to traditional methods and contributing to the energy transition.

EU sets critical mineral goals, but faces struggle to hit them (December 18, 2023, Source) – The European Union (EU) has ambitious targets for securing critical minerals essential for its green transition, as outlined in the Critical Raw Materials Act (CRMA), which aims to mine, recycle, and process significant portions of its annual needs for key materials like lithium and cobalt by 2030. These efforts are crucial for manufacturing clean technology products and reducing dependence on China, the dominant player in global mineral processing. However, the EU faces considerable challenges, including funding shortages, high energy costs, local opposition, and the need to expedite project permits. Additionally, the EU's efforts are comparatively

underfunded compared to massive investments in green subsidies by countries like the U.S. The situation is further complicated by higher EU energy costs leading to reduced metal production and delays in mining projects in Portugal and Serbia. Despite these hurdles, there are positive signs, such as potential projects meeting EU supply needs and innovations to minimize material use. The EU also seeks to diversify imports and forge global partnerships, aiming to position itself as a clean tech leader by focusing on high-value manufacturing and relying on reliable allies for mineral sourcing.

Billionaire-backed KoBold Metals widens lithium hunt across four continents (December 14, 2023, Source) – KoBold Metals, a California-based startup financially backed by prominent billionaires including Bill Gates and Jeff Bezos, is broadening its search for lithium, a crucial component in the clean energy and electric vehicle sectors, across four continents. Utilizing advanced artificial intelligence technology, CEO Kurt House announced plans to explore for lithium in regions such as South Korea, Quebec, the United States, Australia, and Africa, with specific emphasis on Namibia and the Democratic Republic of Congo. Previously focused on nickel and copper, with successful ventures in Quebec and Zambia, KoBold is now transitioning to include lithium in its mining portfolio. This strategic move aligns with their long-term goal to become the leading supplier of critical metals within 10 to 15 years. The startup, supported by Breakthrough Energy Ventures, collaborates with major players like BHP Group and Rio Tinto on projects in Australia and Canada. This expansion reflects KoBold's ambition to fill the exploration void left by larger mining firms, which have recently prioritized operational efficiency and shareholder returns over new mineral discoveries.

InvestorNews Critical Minerals Media Coverage:

- January 3, 2024 – Rare earths company stock price has had a ‘meteoric’ rise of over 21x the past 15 months https://bit.ly/3vo6Xn3
- December 29, 2023 – Energy Fuels announces an MOU for a $122M investment in Astron that will supply a “new U.S.-based supply chain for decades” https://bit.ly/3tzBfm9
- December 29, 2023 – Hallgarten Initiates Coverage of Edison Lithium: Pivoting to Sodium-Ion Battery Technology https://bit.ly/3tG08wq
- December 27, 2023 – The Critical Minerals Institute Report (12.27.2023): Politics Driving Marketable Commodities into 2024 https://bit.ly/48sqnVU
- December 21, 2023 – Global Rare Earths Market Heats Up as China Implements Export Ban https://bit.ly/3TAClsv
- December 21, 2023 – Setback for U.S. Rare Earth Industry: China Tightens Export Laws on Key Technologies, Impeding American Efforts to Gain Independence Despite Financial Incentives https://bit.ly/4aGvQdQ
- December 20, 2023 – An update on the graphite sector and what to expect in 2024 and beyond https://bit.ly/3v8xLHG
- December 19, 2023 – Australia updates their Critical Minerals List and Adds a second, introducing the Australian Strategic Materials List https://bit.ly/3RQx7aG

InvestorNews Critical Minerals Videos:

- December 30, 2023 – Jack Lifton with Mark Chalmers on Energy Fuels Rare Earth Deal and Increasing US Uranium Production https://bit.ly/3TM5wsK
- December 30, 2023 – Mark Chalmers of Energy Fuels Discusses Increasing Uranium Production in the United States https://bit.ly/3TDPH7k
- December 30, 2023 – Energy Fuels’ Strategic MOU with Astron: Shaping the Future of the U.S. Rare Earths Supply

Chain https://bit.ly/41PPujp

- December 18, 2023 – Ucore's Strategic Leap: Pat Ryan Discusses the First Mover Advantage in Rare Earths Processing at Louisiana's Strategic Metals Complex https://bit.ly/3GKa2jL

Critical Minerals IN8.Pro Member News Releases:

- January 4, 2024 – Ucore Acquires Alexandria, Louisiana, Facility for Rare Earth Element Processing Plant https://bit.ly/3RJCQOs
- January 2, 2024 – Panther Metals PLC Corporate Summary: Positioned to Succeed https://bit.ly/3tDKSQI
- January 2, 2024 – First Phosphate Closes Second Tranche of Oversubscribed Private Placement for Total Current Financing of $7.5 Million https://bit.ly/48jDCbP
- December 29, 2023 – Panther Metals PLC: Obonga Project Awkward East Claim Purchase Agreement https://bit.ly/3NKBeTr
- December 28, 2023 – Appia Rare Earths & Uranium – A Year in Review https://bit.ly/48xo3gh
- December 28, 2023 – Kraken Energy Receives Permit to Resume Phase I Drill Program at Harts Point and Provides Corporate Update https://bit.ly/48pALxM
- December 27, 2023 – Energy Fuels Enters into MOU to Secure Near-Term, Large-Scale Australian Source of Rare Earth Minerals to Supply New U.S.-Based Supply Chain for Decades https://bit.ly/47lDF5v
- December 27, 2023 – Ucore Comments on China's Ban on the Export of Rare Earth Technology https://bit.ly/3RYiimD
- December 27, 2023 – Appia Announces Closing of Non-Brokered Flow-Through Private Placement https://bit.ly/41EDIbJ
- December 27, 2023 – Defense Metals Completes Geotechnical

Field Data Collection for Wicheeda Rare Earth Element Project Preliminary Feasibility Study https://bit.ly/3RGLehB

- December 27, 2023 – F3 to Spend $16 Million on Drilling at PLN https://bit.ly/4aCQwDc
- December 22, 2023 – First Phosphate Announces Closing of Initial Tranche of Private Placement Financing Along with Date of Second Tranche Closing https://bit.ly/48LgHWR
- December 22, 2023 – Ucore Announces Extension of Debt https://bit.ly/3S7KAev
- December 22, 2023 – Fathom Nickel Announces the Closing of the First Tranche of Private Placement https://bit.ly/3S6aCyF
- December 21, 2023 – Imperial Mining Closes $1M Critical Minerals Flow-Through Private Placement https://bit.ly/4aEEsSh
- December 21, 2023 – Western Uranium & Vanadium Provides Market and Company Updates https://bit.ly/3tyzFAP
- December 21, 2023 – Ucore Completes RapidSX(TM) Demo Plant Commissioning – Begins US Department of Defense Demonstration Program https://bit.ly/3tjI4Iz
- December 21, 2023 – In Response to Surging Prices, Supportive Government Policies, and a Domestic Focus on Security of Supply, Energy Fuels Has Commenced Production at Three of its U.S. Uranium Mines https://bit.ly/3Ru3Lxv
- December 20, 2023 – Panther Metals PLC: Financing Update https://bit.ly/41OC3jB
- December 20, 2023 – Critical Metals PLC advances the Molulu Copper-Cobalt Project in DRC https://bit.ly/3ts5TxH
- December 19, 2023 – Auxico Announces Board Decisions on Key Assets and Filing of Technical Reports https://bit.ly/3TyNxFY
- December 19, 2023 – Automotive OEM Validates Nano One LFP and Kicks Off Tonne-Scale Evaluations

https://bit.ly/48g4KZ6