

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

written by Tracy Weslosky | 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.

Billions-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/4aGv0dQ>
- 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/3RJC00s>
- 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/410C3jB>
- 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>

Two 'monster-sized' lithium projects for high-risk appetites to chew on

written by Matt Bohlsen | January 5, 2024

Many people nowadays are just becoming aware of the lithium boom and the massive lithium demand wave ahead this decade. My models and articles have been forecasting the lithium boom since 2017 and the good news is we are only potentially just at the beginning of a [lithium supercycle](#) as EV's gain market share each year. China lithium carbonate spot prices have already risen almost 12x from US\$7,000/t to ~US\$83,000/t ([CNY 592,500](#)) over the last 3 years. Just last week global lithium expert Joe Lowry was [quoted](#) that he sees lithium prices rising further to US\$97,000/t by 2027 and a base value of just below US\$80,000/t.

Investors are on the search for lithium juniors that have the potential for monster-sized lithium projects, ideally in safe locations. Everyone wants to find the next Pilbara Minerals Limited (ASX: PLS), which has seen its stock price rise from A\$0.15 to A\$4.75 in less than 3 years, a very nice ~32x gain.

Today's two lithium companies have potential to be the next Pilbara Minerals. They both own great lithium projects in Canada with the potential to grow to become monster-sized North American lithium projects. They also come with risks, so some research and due diligence is always required.

The two companies are [Frontier Lithium Inc.](#) and [Patriot Battery Metals Inc.](#)

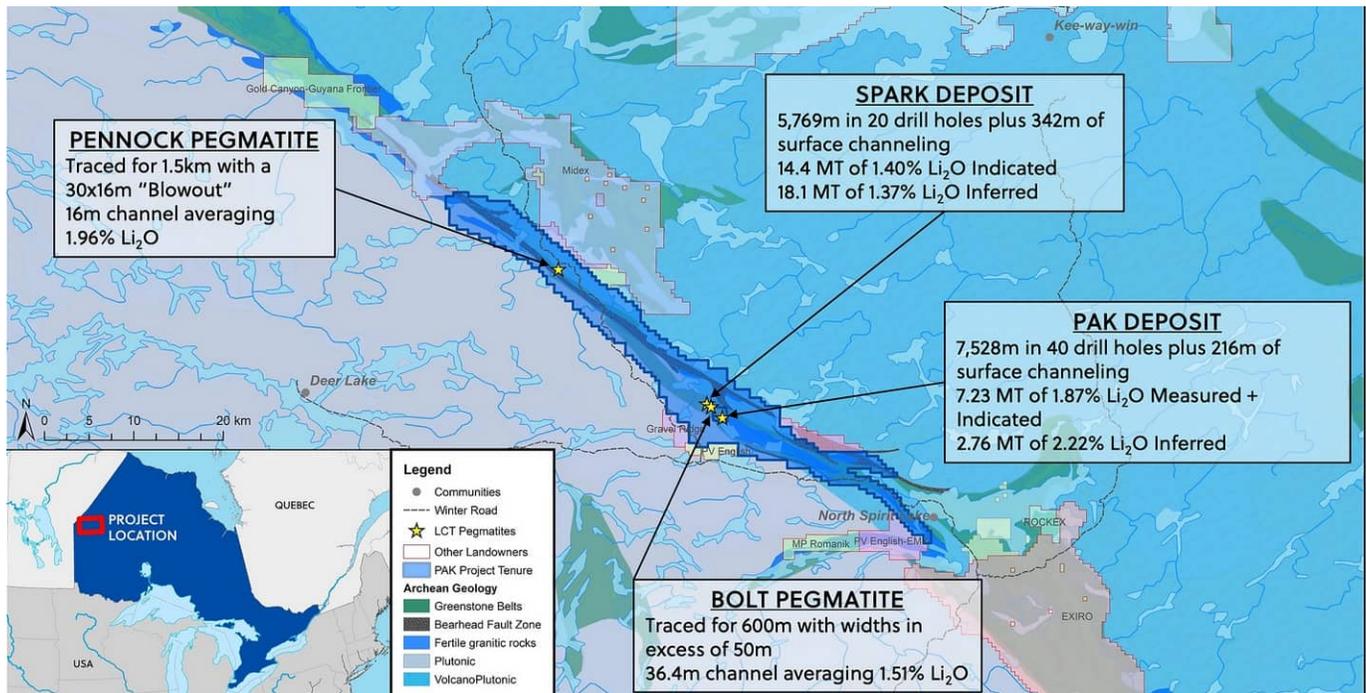
Frontier Lithium Inc. (TSXV: FL | OTCQX: LITOF) ("Frontier")

Frontier is developing their 100% owned PAK Lithium project in northern Ontario, Canada. The Project already has an M&I&I Resource estimate of [41.9Mt @ 1.54% Li₂O](#) (as of March 2022), with potential to grow to a 100+ million tonne resource. [No other lithium junior](#) has had drill results anywhere near as good as Frontier. Just one example of many great results, was announced in October 2022 and was a stunning [326.6.m of pegmatite averaging 1.92% Li₂O](#).

Frontier is currently still drilling and has plans to announce an updated resource estimate and a PFS by the end of Q1, 2023. The [February 2021 PEA](#) for the PAK Lithium Project resulted in a post-tax NPV8% of US\$974.6 million, using lithium prices of only US\$13,500/t. One can hardly imagine what the PFS result might be. Certainly US\$2 billion+ looks entirely possible, especially if Frontier uses lithium price assumptions closer to US\$20,000/t. Sigma Lithium's updated post tax NPV8% was [US\\$5.1 billion](#), so we would have to assume in time Frontier could potentially head in a similar direction. Frontier does still have some road access issues and permitting and project funding challenges ahead of them, so investors should be aware of the risks and also take a 5 year plus investing time frame.

Frontier Lithium currently trades on a market cap of only [C\\$430 million \(US\\$323 million\)](#).

Frontier Lithium's PAK Project in northern Ontario, Canada (PAK & Spark deposits included in the current 41.9Mt resource)



Source: [Frontier Lithium website](https://www.frontierlithium.com)

Patriot Battery Metals Inc. (TSXV: PMET | OTCQB: PMETF)
("Patriot")

Patriot is focused on their 100% owned Corvette Lithium Project in James Bay, Quebec, Canada. The Project is still at a relatively early stage with no resource announced yet; but has some excellent drill results pointing towards this being potentially a huge lithium resource, in the order of 50-100+ million tonnes. Discovered in September 2021, CV5 is currently the largest outcropping deposit with its first drill result of a 146.8m at 0.93% Li₂O and 114 ppm Ta₂O₅. Since then there have been several other great drill results and there are multiple outcropping pegmatite targets yet to be drilled. The main 2.2km pegmatite strike from CV1-CV6 remains [open along strike at both ends and at depth](#). Spodumene has been encountered down to a vertical depth of approximately 315m. President & CEO Blair Way comments (from 30:45 min mark in the [CEO video](#)):

"With a 2.1km corridor even around 100m thick and 300m deep.....it appears to be well and truly into the three digits.....I think we will easily be over the 1.0, 1.2%...."

This looks to be a massive resource, but it will take the next two years to drill and grow it towards its potential. In late 2023 or early 2024, I would expect a maiden resource to be announced, followed soon after with a PEA or PFS. All weather road access and power are 15kms from the Corvette Project, so a minor challenge. Risks due to the early stage and again lithium juniors require a 5 year plus investing time frame.

Patriot currently trades on a market cap of [C\\$486 million](#) ([US\\$365 million](#)).

Patriot's Corvette Lithium Project showing the CV1 pegmatite outcropping and the CV1 to CV6 pegmatite corridor



Source: [Patriot Battery Metals company presentation](#)

Closing remarks

Early-stage lithium miners come with numerous risks but also potentially huge rewards. In the case of Frontier Lithium and Patriot Battery Metals, they are, in my view, the two most promising earlier-stage lithium juniors in North America.

There are also three other very advanced North American juniors

(Piedmont Lithium Inc., Sayona Mining Limited, Critical Elements Lithium Corporation) that offer lower risk, less patience, but perhaps less reward. These 5 lithium stocks look likely to be the 'fabulous 5' that could become the backbone of the North American lithium industry along with Albemarle Corporation, Livent Corporation, and perhaps Lithium Americas Corp.

Disclosure from the Author: The author is long all the lithium companies mentioned in this article.

A look at the lithium market leaders as EV manufacturers face generational challenge to keep factories running

written by Matt Bohlsen | January 5, 2024

Investors are starting to realize the lithium boom is likely to last the next 1-2 decades. EV manufacturers are now facing a generational challenge to secure enough lithium supply to keep their factories running.

In 2021, the [IEA forecast](#) that the world will need **13-42x more lithium by 2040 (from 2020 levels)**. The 13x increase was based on the stated policies track (as of 2021) and the 42x increase was based on the sustainable development scenario (we move rapidly towards a world of zero emissions). Just this past week [Benchmark Mineral Intelligence forecast](#): "Lithium has to scale **twenty times by 2050** as automakers face generational challenge".

This was **based on 2021 levels**. Our exclusive research at [Trend Investing forecast](#) a **35x increase** in lithium demand from **2020 to 2037**.

As of October 2022, the best positioned EV manufacturers are Tesla & BYD Co, and perhaps Ford & GM. These companies have made good preparations including multiple lithium off-take agreements and investments in the lithium companies or projects. Examples are Ford's July 2022 [off-take and A\\$300 million debt facility agreement](#) with Australian lithium junior Liontown Resources Limited (ASX: LTR), and the August 2022 [GM off-take and US\\$198 million pre-payment](#) deal with Livent. Both these recent deals show the new reality of what it takes to secure future lithium supplies.



Tesla Model 3 – A global leader in electric car sales the past 5 years

Who are the lithium leaders?

The lithium leaders are those lithium companies that are currently the leading producers and who have potential to significantly ramp their lithium production this decade.

Sociedad Quimica y Minera S.A. (NYSE: SQM) – A Chile company with a 51% share of the world's best lithium brine mine at the Atacama Salar in Chile. They also own 50% share of the Mt Holland spodumene project (with Wesfarmers) set to begin production in [Q4, 2023](#). SQM is targeting lithium carbonate equivalent ("LCE") sales in 2022 of [150,000t](#), 210,000t in 2023, and 240,000t in 2024.

Albemarle Corporation (NYSE: ALB) – An American company often seen as the lithium leader. They own 49% of the Atacama Mine (with SQM JV) and 49% of the world's best spodumene mine

Greenbushes in Australia. They also have a 50% JV ownership (with Mineral Resources) of the massive Wodgina Mine in Western Australia, which recently began producing again with plans for a large ramp ahead. The JV also has a recently completed hydroxide conversion plant (60% ALB; 40% MIN) in Kemerton, WA. Albemarle's production is targeted to increase from [~130,000t](#) LCE in 2022 to ~220,000t LCE in 2025.

Ganfeng Lithium Group Co., Ltd. (SHE: 002460 | HK: 1772 | OTC: GNENF) – A Chinese lithium company focused on lithium refining, however now has multiple projects around the world including 49% of Mt Marion in WA and a 50% JV with Lithium Americas at the massive Cauchari-Olaroz project in Argentina due to start production soon. Ganfeng aims to boost production from ~90,000t in 2022 to [200,000tpa](#) by 2025.

The other leaders with large projects include Pilbara Minerals Limited (ASX: PLS) with their massive Pilgangoora Mine in Western Australia (~90,000tpa in 2022/23), Mineral Resources Limited (ASX: MIN), Tianqi Lithium Corporation, Livent Corporation (NYSE: LTHM) and Allkem Limited (ASX: AKE | TSX: AKE).

Together the names above represent the biggest eight lithium producers and they produce most of the world's lithium today.

Some others such as AMG Advanced Metallurgical Group NV and a few smaller Chinese producers make up the balance of global lithium production.

The next or near term producers set to come online include (in rough order) Argosy Minerals Limited (ASX: AGY), Lithium Americas Corp. (NYSE: LAC | TSX: LAC), Core Lithium Ltd (ASX: CX0), – SIGMA Lithium Corporation (NASDAQ: SGML | TSXV: SGML), Sayona Mining Limited (ASX: SYA | OTCQB: SYAXF)/Piedmont Lithium (Nasdaq: PLL | ASX: PLL) (NAL Project in Canada), and Liontown

Resources Limited (ASX: LTR).

There are also a bunch of other very promising lithium junior miners with potential to become new lithium producers after 2025. Three of the biggest projects could be in Canada with Critical Elements Lithium Corporation (TSXV: CRE | OTCQX: CRECF), Patriot Battery Metals Inc. (TSXV: PMET | OTCQB: PMETF) and Frontier Lithium Inc. (TSXV: FL | OTCQX: LITOF).

Closing remarks

It may seem like there is a lot of lithium supply coming online in the next few years, but of course demand is rising faster than supply, assuming EV sales growth continues at a 50%+ growth rate as expected.

Could there be some periods of short term oversupply? Yes, but only likely if EV sales falter. Either way the decade or two ahead looks set to be a very exciting time for lithium investors and the lithium leaders discussed in this article.

Disclosure: The author is long Tesla, BYD Co and most of the lithium stocks mentioned in the article.

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Why have lithium miner stock prices fallen when lithium prices have surged higher?

written by InvestorNews | January 5, 2024

Investing in the stockmarket is part science and part art. The science part refers to the fundamental analysis and the art refers more to the instinct/understanding and timing of investments. What truly sets great investors apart from the average are two things – Spotting a winning trend early and investing when there is a market disconnect caused by negative sentiment.

Today's article is about just that. The winning trend is the EV and lithium boom, and the disconnect is the recent lithium price gains while the lithium miners stock prices fell. Did you know that in the past 3 months lithium carbonate spot prices in China have more than doubled ([up ~125%](#)), yet lithium miners stocks have fallen in many cases by 25% or more in the same time period?

China lithium spot prices are up ~125% in the past 3 months and 10x the past 14 months



[Source](#): Trading Economics

The chart below shows the stock price falls of several lithium producers and one highly promising junior. In the past 3 months (as lithium prices more than doubled) Albemarle Corporation

(NYSE: ALB) has fallen 32.40%, Livent Corporation (NYSE: LTHM) has fallen 28.43%, SQM (NYSE: SQM) is down 6.20%, Ganfeng Lithium (HK: 1772) is down 9.53%, and Lithium South Development Corp. (TSXV: LIS) is down 35.35%.

Leading lithium miners' stock prices the past 3 months have fallen significantly



Source: [Yahoo Finance](#)

Why have lithium miner stock prices fallen when lithium prices have surged higher?

The answer as to why is as follows:

- Several lithium miners sell their lithium on contract prices which are yet to properly reflect the market spot price for lithium. As these contracts expire they will be replaced with much higher contract prices or spot prices.
- Macro events and market sentiment – The general market has been selling off with the S&P500 down about 10% from its peak due to U.S. interest rates soon to rise and more recently the Russia-Ukraine crisis. Of course, this will pass and has almost zero impact on EV sales and/or lithium prices. In fact, current very high oil prices are helping EV sales. In my situation my new electric car costs me \$17 to drive 420kms compared to \$75 for my old gasoline car, that's about 4.5x less. Servicing costs are almost zero, with the main cost being tire replacements.

The recent disconnect between the more than doubling of lithium prices and lithium miners stock prices falling would only make sense if the sector was in trouble, yet EV sales are setting new records, up [108%](#) in 2021, and look set to grow well above 50%

each year this decade. Lithium demand is forecast to grow [11x](#) this decade with most analysts forecasting growing lithium deficits. So we have a winning trend and a huge disconnect caused by macro factors (Russia-Ukraine conflict, rising US interest rates). Great investors can see this huge disconnect and will move now to profit from it.

Two popular ETFs that track the stocks of EVs, batteries, lithium and EV metal companies also tell a similar story, having both fallen the past 3 months. The Global X Lithium & Battery Tech ETF (LIT) is now trading on a PE of just [26](#) and the Amplify Lithium & Battery Technology ETF (BATT) trades on a PE of only [21](#). Considering the sector's growth rate of well above 50%pa, this is plain crazy.

A final example could be Tesla (NASDAQ: TSLA). The stock is [down 26%](#) over the past 3 months despite reporting its best ever results in Q4, 2021 and smashing the competition. Tesla had an outstanding 2021 [growing revenues 71% YoY](#) and GAAP earnings by 665% YoY. Total vehicle production grew 83% YoY. 2022 looks to be even better for Tesla with 2 new gigafactories set to open and production likely to grow from ~936,000 electric cars in 2021 to somewhere near 1.7 million in 2022. One more key factor highlighting global EV demand, Tesla has an estimated [1.3 million pre-orders](#) for their Cybertruck. In total Tesla's pre-orders are so high that they don't even accept orders for Model Y in many countries as they cannot meet demand for some years.

Tesla's electric cars have huge waiting lists and well over 1.5 million pre-orders



Closing remarks

All forms of lithium prices (spodumene, Li hydroxide, Li carbonate) have been surging higher the past 14 months. In particular, the China lithium carbonate price has surged **125% higher** the past 3 months, while leading lithium miners and others fell between 6% and 35%. Albemarle, the leading lithium miner, has **fallen 32%** in the past 3 months. This is a huge disconnect, and frankly what great investors dream of. I will be topping up my positions in the EV companies and lithium miners as the EV and lithium boom has only just begun and current macro events have opened up a huge buying opportunity for investors. The last time I saw this happen was in the March 2020 Covid-19 low, with many lithium stocks surging higher once market sentiment improved.

My view is that the lithium miners are currently like a tightly sprung coil. As soon as the market sentiment and macro issues improve that coil should spring open propelling lithium miners stock prices higher and closing the current huge disconnect.

Don't miss this opportunity to buy into 'white gold' as lithium becomes the most critical element of the modern era.

Disclosure: The author is long all the stocks and ETFs mentioned in this article.

Argentina, the new Saudi Arabia of Lithium

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Former Chinese leader, Deng Xiao Ping, is most famous in mining

circles for his oft-repeated aside from the 1980s that whereas “Saudi Arabia has oil, China has Rare Earths”. It didn’t grab much attention at the time because Rare Earths were largely a mystery to most listeners and, moreover, were not worth all that much and did not have many day-to-day applications then besides bringing red colors to one’s cathode ray tube television. The rest is history with the final wake-up call in 2009-10 as to what Deng was actually referring to in strategic terms.

Now we can add a third leg to the mantra because Argentina has lithium and oh, potentially, how much lithium it does have! In theory, Chile was the place to source lithium from brine lake lithium deposits (salares), but in a curious own-goal situation, Chile has squandered that advantage by trying to keep a tight control on the number of players and advantaging the two incumbents. Predictions are that Argentina will overhaul Chile in terms of lithium production by 2030. The result of the Chilean torpor at welcoming new entrants is that the surprisingly more laissez-faire attitude in Argentina has made it the go-to place for those wishing to stake positions in salares. Argentina has become something like, to paraphrase Deng, the Saudi Arabia of Lithium.

The Fluctuating Fortunes of Salares

One of the paradoxes of the middle of the decade was the “talking down” of salares as being in some way “too difficult” or too “long term”. Having said that though, several of the highest-flying stories in the First Lithium Boom such as Orocobre Limited, Galaxy Resources Ltd., and Lithium Americas Corp. were salar-based. Back in that boom, and its current revival, there was/is a staking boom in the Argentine part of the Lithium Triangle of Chile, Argentina, and Bolivia that makes the California gold rush in the 1850s pale into insignificance. Explorers, quite literally, cannot get enough of Argentine

lithium territory.

The caution relating to salares exploitation was powered by the mishaps that befell Orocobre and Rincon. However, in both these cases, the lessons learned meant that others will have the benefit of their difficult experiences. The argument that there is a longer lead time for salar development (due to the need to kickstart the evaporation process) does not hold much water (pardon the bad pun) due to the much longer (and more expensive) drilling and resource estimation phase at a hard rock deposit and the much higher development costs at underground mines.

The downfall firstly of Canada Lithium, after the end of the First Lithium Boom, and then the travails of Nemaska, at the beginning of the latest recovery, have cast a pall in many investors' minds over large-cap underground spodumene mines.

The Road Most Taken

Despite perennial concerns about Argentina's political direction, the metaphorical road to the Argentine salares opportunity has become more like a Los Angeles expressway in peak hour, of late. Argentina has been in the Lithium game for decades, so is no newbie, but was always perceived as playing second fiddle to Chile. With opportunities to enter and develop new projects in Chile finding constant stones in the road, several of Argentina's Andean provinces have become veritable boomtowns for the Great & Good of the global EV revolution.

The long-established Livent (formerly FMC) was joined by Orocobre and Galaxy Resources (which then merged), and then a stampede of the elephants in the Lithium space occurred with Posco, Ganfeng, Tianqi and most recently Zijin Mining Group resetting the bar higher with its [stunning move](#) on [Neo Lithium Corp.](#) (TSXV: NLC | OTCQX: NTTHF).

Then in November of 2021 TSX-listed miner Lithium Americas

offered \$400 million in shares and cash for Vancouver-listed Millennial Lithium Corp., the third offer for the company this year following one by China's largest battery maker CATL and another one by Chinese lithium producer Ganfeng Lithium. A feeding frenzy has begun.

Beyond these majors, there is an array of junior players hoping to replicate the Neo Lithium success story. One of these stocks that has come to attention lately is [Edison Lithium Corp.](#) (TSXV: EDDY | OTCQB: EDDYF).



Into the Fray

In mid-June 2021, Edison Cobalt Corp. as the company was then known, announced that it had entered into a Definitive Purchase & Sale Agreement to acquire Resource Ventures S.A. (ReVe), an Argentine corporation that owns or controls the rights to over 148,000 hectares (365,708 acres) of prospective Lithium brine claims in the province of Catamarca, Argentina. The claims are principally located in the two geologic basins known as the Antofalla Salar and the Pipanaco Salar in the famed Lithium Triangle.

The Transaction

To effect the purchase Edison inked an agreement to acquire ReVe and a 100% interest in its properties for a purchase price of \$1.85 million paid by the issuance of ten million common shares of the company at a deemed price of \$0.185 per share. All securities issued pursuant were subject to a hold period of four months from the date of closing.

The Political Scene

For most of the last two decades, Argentina has been ruled by

irregular iconoclastic governments, most recently by the dynasts of the Kirchner family and before that the Duhalde regime the country with a brief interlude of fiscal conservatism under Mauricio Macri, elected President in the last quarter of 2016.

The major bugbears of foreign miners operating in the country have been:

- Currency controls – though the devalued Peso results (in theory) in lower costs for project development
- Export taxes on concentrates
- Import restrictions on equipment

The Macri regime reverted these and this coincided with the Second Battery Metal Boom of 2017. Though that boom proved to be fleeting, it reenergized players in the Argentine space.

The Macri regime fizzled after three years and the Kirchnerites were back in power, but mining (and particularly Lithium) scarcely missed a beat with the surge of development of salares (and increasingly large copper projects) at the current time.

There is a good case to be made that the relative lack of salares moving to production pre-2019 was due to the double negatives of the low lithium price between 2011 and 2016 and the death throes of the first Kirchnerite period making Argentina an unattractive place to advance projects. Pricing has resolved itself and the Argentine government is welcoming Lithium players with open arms.

Edison Lithium's pivot from Cobalt to Lithium looks like a prescient move. While Cobalt is much sought after it is seldom found. Unicorn hunting can be a long and expensive sport. With Argentina's rapid evolution as the "Saudi Arabia of Lithium" who could fault the company moving into the territory and building up a substantial position?

It's still early days of course with exploration, resource definition (and presumably more territorial expansion) still lying ahead. However, in elephant country, one is more likely to find elephants than gerbils. The hunt is on at Edison Lithium.