

Brazil lithium projects on a huge bull run, who could be next?

written by InvestorNews | June 29, 2023

Over the past two years, Brazil has come from nowhere in the lithium space to now becoming a significant player. It all started with the tremendous success of Sigma Lithium Corporation (NASDAQ: SGML | TSXV: SGML), followed by Latin Resources Limited (ASX: LRS), and potentially next is Lithium Ionic Corp. (TSXV: LTH | OTCQB: LTHCF).

Lithium Ionic Expands Holdings in Emerging Brazilian Lithium Province and Reports Promising Drill Results

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When I [first wrote](#) about [Lithium Ionic Corp.](#) (TSXV: LTH | OTCQB: LTHCF) in early December, the focus of the story was on closeology (the main project was near [Companhia Brasileira de Lítio's \(CBL\)](#) Cachoeira lithium mine and [Sigma Lithium Corporation](#) (TSXV: SGML | NASDAQ: SGML) construction-stage Grota do Cirilo project) and an active drilling program. All those things are still true but the Company has added another key

aspect to the business over the last few months – expanding its land holdings in the prolific [Araçuaí Pegmatite District](#) in Minas Gerais State, Brazil. In fact, last December this Canadian-based lithium-focused mining company boasted properties covering approximately 2,000 hectares. At least four transactions later, including one announced the day the last article was published, Lithium Ionic now has various working interests in over 14,000 hectares, a 600% increase.

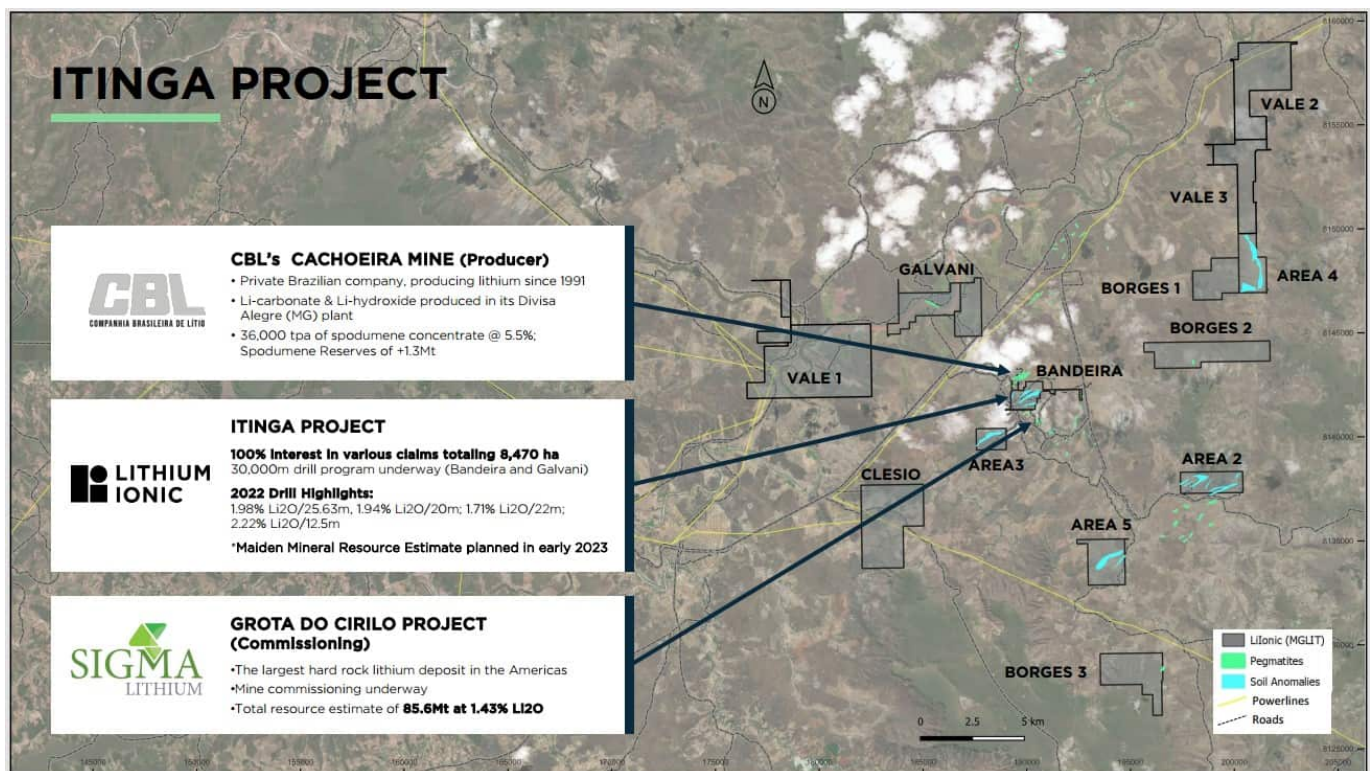
Brazil's Araçuaí Pegmatite District hosts 100% of Brazil's official lithium reserves

I will concede that simply adding a whole bunch of prospective mining claims is no guarantee of success but let's have a closer look at what the Company has picked up and the region as a whole to try and gain some perspective. The Araçuaí Pegmatite District (APD) is emerging as one of the largest lithium spodumene provinces in the world. This prolific Eastern Brazilian Pegmatite Province is known for its large and high-grade hard-rock lithium deposits. It is also considered an under-explored region that presently hosts 100% of Brazil's official lithium reserves. The area is also well positioned, hosting excellent infrastructure including highways, access to hydroelectrical grid power, water, and nearby commercial ports. Lastly, Minas Gerais state is considered Brazil's most favorable mining jurisdiction with a highly efficient and expeditious permitting process.

That's all a great starting point, but in itself isn't enough to attract more than the most speculative of investors. Fortunately, there's a lot more meat on this bone. More specifically, Lithium Ionic's most active properties within its [Itinga project](#) – Bandeira and Galvani, which were the focus of last December's [closeology article](#), are already in the heart of

this emerging lithium jurisdiction. Bandeira is situated roughly 500 meters south of CBL's producing Cachoeira lithium mine (36,000 tpa of spodumene concentrate at 5.5% Li₂O), which has been producing lithium for over 30 years. Bandeira is also approximately 700 meters north of Sigma Lithium's Barreiro lithium deposit. Galvani is located approximately 2 km west of Sigma Lithium's large Xuxa lithium deposit and 3 km northwest of CBL's lithium mining operation.

Lithium Ionic's Itinga Project (Bandeira, Galvani, Area 2-5, Borges 1-3, Clesio, and Vale 1-3), and Other Company's Regional Projects (CBL and Sigma Lithium)



Source: Lithium Ionic [Corporate Presentation](#)

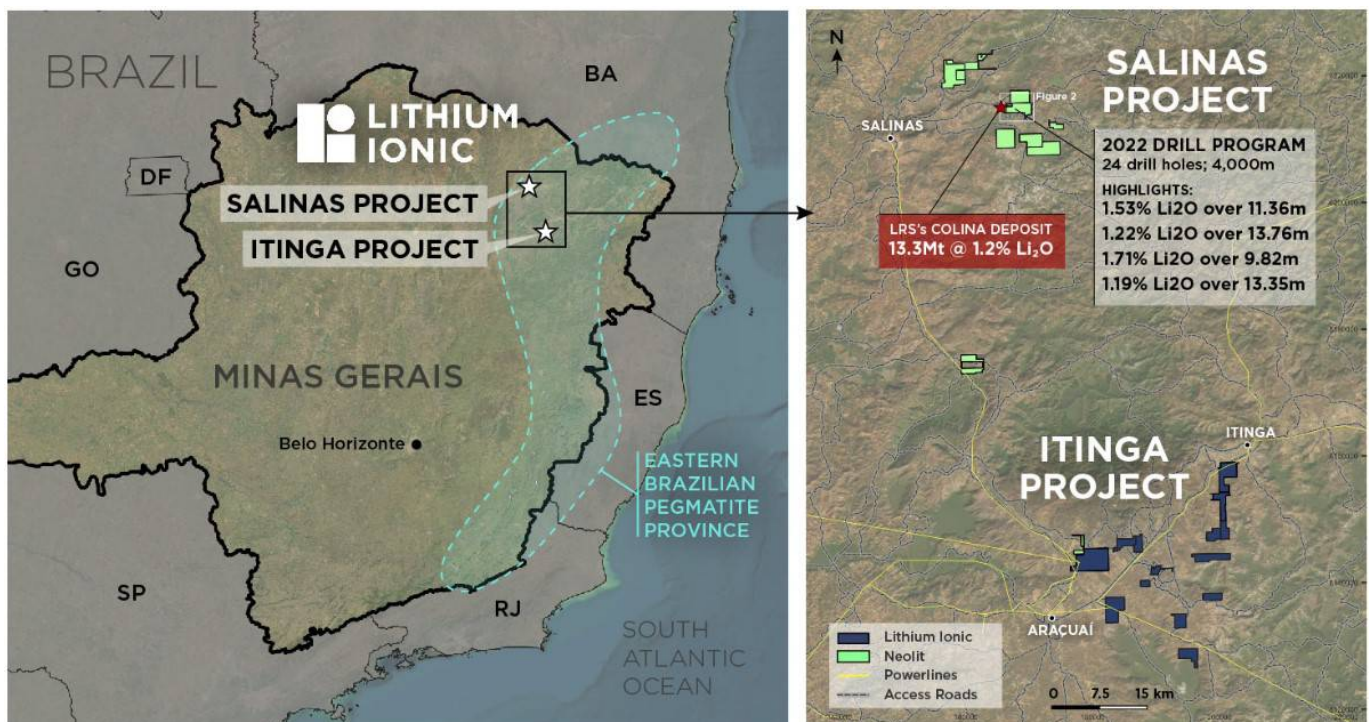
The picture above also shows most of the new acquisitions the Company has made since December including [Borges](#), [Clesio](#), and [Vale](#) and their proximity to existing known resources. However, the latest deal also has some closeology of its own and comes with its own drilling results. On March 13th, Lithium Ionic

[announced](#) that it had acquired Neolit Minerals Participações Ltda., a Brazilian company that owns a 40% interest in the Salinas Project with the right to acquire up to an 85% ownership in the Project. The Salinas Project, located approximately 100 km north of Lithium Ionic's Itinga Project, includes nine exploration tenements totaling 5,713 hectares and is located directly adjacent to Latin Resources' Colina lithium deposit, which contains an estimated 13.3Mt @ 1.2% Li₂O.

Neolit's 4,000-meter, 24-hole maiden drill program from August 2022 yielded the following highlights:

- 1.53% Li₂O over 11.36m from 43.84m (SL0E-D014)
- 1.22% Li₂O over 13.76m from 36.60m (SL0E-D015)
- 1.71% Li₂O over 9.82m from 97.70m (SL0E-D013)
- 1.19% Li₂O over 13.35m from 239.65m (SL0E-D018)

Lithium Ionic's Recently Acquired Salanis Project: ~100 km north of the Itinga Project



With Healthy Balance Sheet, Drill Results Continue to Flow

But let's not forget what typically gets investors in exploration companies excited – drill results. Late December Lithium Ionic [reported drilling highlights](#) of 1.71% Li₂O over 5.7m, 1.49% Li₂O over 6.7m, and 2.22% Li₂O over 3.7m, at its Bandeira Deposit.

Additional drill results from the Company's ongoing 30,000-meter drill program at Bandeira were press released on January 24th and included:

- 1.69% Li₂O over 9.6m,
- 1.27% Li₂O over 10m, and
- 1.61% Li₂O over 4.7m.

And then literally as this article was about to be posted, the [latest drill results](#) from Bandeira came out, highlighted by:

- 1.43% Li₂O over 17.1m,
- 1.73% Li₂O over 13.6m, and
- 1.47% Li₂O over 15m.

This brings the total drilled to date to 20,000 meters and identifies the discovery of multiple thicker and higher-grade intercepts that have extended several well-mineralized pegmatite veins to over 400 metres down dip. These latest results represent the widest and strongest lithium intercepts encountered at Bandeira to date.

Upcoming Catalysts

There are plenty of catalysts going forward. Lithium Ionic entered 2023 with a strong balance sheet of approximately C\$30 million. Exploration activities are planned to continue throughout the year, including intentions to initiate a 20,000-meter drill program at the newly acquired Salinas project in the coming months.

As well, the Company has mobilized a sixth drill rig with four rigs at Bandeira and two at Galvani as it works towards completing a maiden NI 43-101 compliant mineral resource estimate by the end of June, which will form the basis for a feasibility study in the second half of the year.

And you can bet that the Company will likely continue to review prospective strategic acquisitions given how busy they've been over the last 4 months.

Lithium Ionic trades at a market cap of approximately C\$250 million.

Vertical Integration is all the Rage in the EV Industry, is Musk the New Ford?

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Last week, Bloomberg news [reported](#) that [Tesla, Inc.](#) (NASDAQ: TSLA) was in talks to buy [Sigma Lithium Corporation](#) (TSXV: SGML | NASDAQ: SGML), a company that is focused its 100%-owned Grota

do Cirilo project, a large hard-rock lithium deposit in Brazil with lithium production aiming for 2024.

The stock price of Sigma Lithium was up 16% after the news was released and is up almost 250% over the past year in lockstep with other lithium miners. Electric vehicle (“EV”) manufacturers want to lock up lithium supplies as the metal increases since it is a key component in EV batteries and there are worries that demand will soon outstrip supply.

Neither Telsa nor Sigma Lithium released any news release on the subject nor provided any comment to the media. Tesla, led by Elon Musk, is looking at various options to secure its lithium sources, including potentially its own mining and refining.

Previously to fund its exploration and development, Sigma Lithium had signed a funding and 6-year offtake agreement with [Mitsui & Co., Ltd.](#) (TSE: 8031) of Japan and also signed a six-year lithium offtake agreement with Korean-based [LG Energy Solution](#) (KOSE: A373220).

In the past, Tesla signed [contracts for lithium](#) with Ganfeng Lithium Group Co. (SZSE: 002460), one of the largest lithium suppliers in the world, and [more recently](#), [Liontown Resources Limited](#) (ASX: LTR), an Australian miner.

Is Elon Musk the New Henry Ford?

The reappearance of Henry Ford-style vertical integration in car manufacturing marks a big 180-degree turn from the late 1990s when outsourcing to sub-contractors began.

In the early 1900s (over 100 years ago!), Henry Ford had a keen interest in acquiring and controlling the sources of raw materials for his company to achieve manufacturing self-sufficiency for his automobile operations. By achieving vertical

integration, a business strategy in which a company controls all aspects of production, from raw materials to finished products, Henry Ford believed he would ensure a reliable supply chain and potentially reduce costs.

To achieve this desire, Henry Ford bought vast tracts of timberland and built sawmills in Michigan to control the wood required in his vehicles but also used to create shipping containers and for heating his factories. Henry Ford had a strong interest in controlling other sources of raw materials for his company, such as iron ore for steel production, a key component of automobiles, and also coal for his factories.

But Henry Ford also went further afield as he sought to secure a reliable source of rubber for his company. In the mid-1920s, he purchased a large tract of land in the Brazilian Amazon rainforest and established a rubber plantation and community called Fordlandia. Unfortunately, it was abandoned in the late 1930s due to challenges with the workers and the physical environment.

The New Vertical Integration Trend Continues...

Not to be outdone by Tesla, earlier this month, [General Motors Co.](#) (NYSE: GM) announced the closing of the initial tranche, [a \\$320 million investment](#), of a previously announced \$650 million investment and offtake agreement with [Lithium Americas Corp.](#) (TSX: LAC | NYSE: LAC). Lithium Americas is advancing the Caucharí-Olaroz lithium project in Argentina towards first production and is also developing the Thacker Pass lithium project in Nevada which is advancing towards construction.

Last year, [Rio Tinto Group](#) (NYSE: RIO | LSE: RIO) and the [Ford](#)

[Motor Company](#) (NYSE: F) signed [an agreement](#) whereby Rio Tinto would supply Ford with materials including lithium, low-carbon aluminum, and copper and Ford would become the initial customer for Rio Tinto's Rincon lithium project in Argentina.

It's also happening with the smaller technology components in EV batteries. In June 2022, [Nano One Materials Corp.](#) (TSX: NANO), a company with patented processes for the low-cost, low-environmental footprint production of high-performance cathode materials used in lithium-ion batteries, [announced](#) a strategic US\$10 million equity investment and collaboration agreement with Rio Tinto. The two companies entered into an agreement under which they would work together to support the acceleration of the commercialization of Nano One's patented cathode technology.

Also in June of last year, [NEO Battery Materials Ltd.](#) (TSXV: NBM | OTCQB: NBMFF) announced a [C\\$3 million strategic investment](#) from Automobile & PCB Inc. (KOSE: A015260) into its Korean subsidiary for the first phase of its commercial plant project. NEO focuses on producing silicon anode materials for lithium-ion batteries through its proprietary single-step nanocoating process.

Final Thoughts

Ford's attempts to control raw materials were not always successful, and he faced challenges such as labor disputes, market fluctuations, and supply chain issues.

Nonetheless, his focus on vertical integration and self-sufficiency had an impact on the American manufacturing industry.

Perhaps what is old is new again.

ACME Lithium targets the fuel of the new, green economy – lithium

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In today's volatile market, one commodity is performing quite well, the fuel of the new, green economy – lithium. Lithium appears to have the greatest leverage for hard rock mining investors right now, likely due to current sentiment, as well as, its long term supply/demand picture. [SIGMA Lithium Corporation](#) (NASDAQ: SGML | TSXV: SGML) is the poster child for lithium explorers having gone from a market cap of next to nothing to roughly US\$4 billion in a little over two years. Lithium prices are high enough now that a small amount of drilling can create a valuable resource fairly quickly. Tack on [security of supply issues](#) and President Biden's [Inflation Reduction Act](#) and one needs to start looking even closer to home than the current sources of the majority of lithium resources like the Salar's of Chile, Argentina and Bolivia (the Lithium Triangle) or Brazil (home of SIGMA's deposit). Even Australia's large hard rock reserves aren't exactly convenient for the burgeoning North American EV market.

It's time to find a legitimate, home grown solution if there is any hope of economically meeting the growth projections for lithium demand. Fortunately, there is no shortage of North American explorers out there trying to fill this need and perhaps [ACME Lithium Inc.](#) (CSE: ACME | OTCQX: ACLHF) could fit the bill. Led by an experienced team, ACME Lithium is a mineral

exploration company focused on acquiring, exploring, and developing battery metal projects in partnership with leading technology and commodity companies. The Company has multiple North American projects in areas known for lithium development and exploration. Two are found in a highly prospective region for lithium production in [Clayton Valley](#) and [Fish Lake Valley](#), Esmeralda County, Nevada, USA, and another three are in the pegmatite fields of the Bird River Greenstone Belt in southeastern Manitoba, Canada.

Today we'll have a quick look at the two most advanced projects for ACME – Clayton Valley and Fish Lake Valley. The Clayton Valley project claims are located directly north of the only lithium brine production operation in North America, Albemarle Corporation's (NYSE: ALB) Silver Peak Lithium mine, which has been in production since 1966. Clayton Valley has the potential to host lithium brines similar to Silver Peak, where samples analyzed up to 228 ppm lithium and concentrations up to +1,000 ppm have been found to occur within specific horizons of fine sediments. In June 2022, ACME commenced its Phase 1 Drill Program in Clayton Valley where the first drill hole (DH-1) was completed at 1,400 feet depth below ground surface to assess lithology, permeability features, clay, sand and gravel content, and lithium brine potential. Results [announced August 17th](#) reported lithium was detected from all brine samples at concentrations ranging between 38 and 130 mg/L with the highest concentrations from samples collected in the deep gravels at 1,350 feet and at 1,400 feet. The results strongly indicate the existence of a bicarbonate rich groundwater quality affinity which is typical in the Clayton Valley lithium brine aquifers.

The Company's Fish Lake Valley (FLV) Project is located about four miles west-northwest of Australia-based Pioneer Ltd.'s Rhyolite Ridge Project where a 2020 resource of 146.5 million

metric tons at 1,600 ppm lithium and 14,200 ppm boron was reported. On October 11th [ACME announced](#) it had mobilized a crew and equipment for a geophysical profile across a newly recognized conceptual target for mineralized tuff at the property. Field work is expected to be complete in two weeks, with data collected to test the graben concept and to be used to locate drilling test holes. The FLV geology and geomorphology are interpreted as a possible gravel covered graben while scattered outcrop samples assaying up to 600 ppm lithium and 1,270 ppm boron suggesting a mineral system is present.

It's still early days for ACME Lithium but they are well funded to pursue their lithium dreams with approximately C\$12 million in working capital which includes strategic investor Lithium Royalty Corporation and Waratah Capital Advisors Ltd. After all, we've seen what SIGMA was able to convert approximately US\$19 million in exploration expenditures into.

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The Top 5 Lithium Development and Exploration Companies for 2021

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The electric vehicle boom continues to accelerate in 2021. Global electric car sales for May 2021 were up 199% YoY reaching [6.6% share](#). Europe sales rose 158% YoY reaching 16% share, China sales rose 146% YoY reaching 12% share. Global electric car sales are forecast to grow as much as 10x this decade, a statistic that is been helped by Europe's recent announcement to effectively [ban emission producing cars from 2035](#), and strictly limit the allowable emissions from 2030.

As a result of the EV and energy storage boom, lithium demand is forecast to grow [11x](#) this decade. More recently the International Energy Agency (IEA) [forecast](#) lithium demand to increase between 13x (low scenario) and 42x (high scenario) from 2020 to 2040. While existing lithium producers can expand supply new lithium miners will potentially be needed to fill the supply gap, particularly from 2025 onward.

Here are five lithium development and exploration plays to consider buying now and holding this decade.

1. Sigma Lithium Resources Corp. (TSXV: SGMA | OTCQB: SGMLF)
2. Neo Lithium Corp. (TSXV: NLC | OTCQX: NTTHF)
3. Critical Elements Lithium Corporation (TSXV: CRE | OTCQX: CRECF)
4. Global Lithium Resources Limited (ASX: GL1)
5. Lithium Energy Limited (ASX: LEL)

Sigma Lithium Resources Corp.

Sigma Lithium 100% owns the advanced stage lithium spodumene Grota do Cirilo Project in Brazil. The [January 2019 Resource update](#) for the Grota do Cirilo Project resulted in a resource estimate of Measured and Indicated 45.7 million tonnes @ 1.38% Li₂O and Inferred of 6.6 million tonnes @1.34% Li₂O. Sigma Lithium's Stage 1 Xuxa deposit (part of Grota do Cirilo Project) has a mining permit, pilot plant, and has [sold all Stage 1 off-take \(220ktpa\) to Mitsui](#). Sigma Lithium is currently working to finalize the Xuxa production complex design and EPC for construction. Sigma has produced a PEA for both Stage 1 and Stage 2, and when combined resulted in a [pre-tax NPV8% of US\\$844M](#). Stage 1 funding has been arranged and is expected to close soon, subject to due diligence.

Stage 1 lithium production is forecast to begin in H2 2022, Stage 2 to follow about 1-2 years thereafter, then potentially a Stage 3 after that. Sigma Lithium trades on a market cap of C\$598 million (~US\$472 million). One of the very best near term lithium producers.

Sigma Lithium's proposed layout for Stage 1 and 2 mine planned to produce 440,000 tpa spodumene (66,000 LCE)



Source: [Sigma Lithium](#)

Neo Lithium Corp.

Neo Lithium 100% owns the entire salar with their Tres Quebradas (the "3Q Project") lithium brine project in Argentina, covering 160Km². The 3Q Project has high grade lithium brine (3rd-4th highest globally) with extremely low impurities (lowest globally). The 3Q Project is [advanced with pilot ponds already constructed](#) and a lot of infrastructure in place.

The updated PFS resulted in a post-tax NPV8% of [US\\$1.14 billion](#) and post-tax IRR of 49.9%, with a 35 year mine life. The PFS was based on an initial 20,000t pa lithium carbonate production and has a CapEx of US\$319 million and OpEx of US\$2,914/t lithium carbonate. The EIS is currently under assessment with results due out soon. The FS is underway and is due out in [Q3, 2021](#).

Contemporary Amperex Technology Ltd (CATL) (China's largest battery manufacturer) is a strategic 8% equity partner with board representation and pre-emptive rights. This bodes well for funding the project.

Neo Lithium trades on a current market cap of C\$421 million (US\$332 million). I rate them as one of the best lithium near term producers, with a potential 2023 start-up for production. You can read more in my article [here](#).

Critical Elements Lithium Corporation

Critical Elements is developing their 100% owned Rose lithium spodumene project in Quebec, Canada. Critical Elements also own several other projects with potential for lithium, copper, nickel, zinc, lead, gold, silver, rare earths, and platinum group elements (PGE) as you can read [here](#).

The November 2017 Rose Project Stage 1 [Phase 1 Feasibility Study](#) (based on an average production of 186,327t pa of chemical grade lithium concentrate and 50,205t pa of technical grade lithium concentrate) resulted in a post-tax NPV8% of C\$726 million with a post-tax IRR of 34.9%, and a CapEx of C\$341 million, over a 17 year mine life. Total operating costs net of tantalum by-product credit are forecast to be US\$337/t spodumene.

All in all, Critical Elements has a great asset at Rose, and just needs to achieve financing. Possible 2023 or 2024 producer. Critical Elements trades on a current market cap of C\$231

million (US\$182 million).

Global Lithium Resources Limited

Global Lithium 100% owns the Marble Bar Lithium Project (“MBLP”) in the Pilbara region of Western Australia. Global Lithium is a new ASX listing raising A\$10 million on May 6, 2021 at A\$0.20 per share. The MBLP Archer deposit has a maiden Inferred Mineral Resource of [10.5Mt @ 1.0% Li₂O](#). The Archer deposit comprises a swarm of spodumene bearing pegmatites over a 3km by 1km zone.

What’s quite interesting is that Global Lithium’s MBLP is located in the very same Pilbara region as lithium producer Pilbara Minerals (market cap A\$4.2 billion) and the Wodgina deposit (Mineral Resources (ASX: MIN)/Albemarle (NYSE: ALB) JV).

It is still very early days with a resource update planned for Q4, 2021. Global Lithium trades on a market cap of just A\$35 million (US\$25.5 million). High risk/high reward.

Global Lithium 100% owns the early stage lithium spodumene exploration project at Marble Bar, Pilbara region, Western Australia



Source: [Company presentation](#)

Lithium Energy Limited

Lithium Energy majority owns two projects – The Solaroz Lithium Project, Argentina (90% owned) and the Burke Graphite Project, Australia (76.5% owned, potential for 100%).

Lithium Energy is a new ASX listing from May 2021, having been spun out from Strike Resources. The Solaroz Lithium Project is spread over 12,000 hectares of very well located lithium

tenements within the Salar de Olaroz Basin in Argentina. The Solaroz Project is directly adjacent to the tenements of both Orocobre's project and Lithium Americas (NYSE: LAC)/ Ganfeng Lithium project. This is prime real estate in Argentina.

Lithium Energy is just at the very beginning of their exploration stage and will spend the next two years (assuming the EIA Report is approved) exploring their tenements.

Lithium Energy trades on a market cap of just A\$30 million (US\$22 million). High risk/high reward. Patience required.

Lithium Energy tenements [red] adjacent to Orocobre [yellow] and adjacent and near LAC/Ganfeng Lithium [blue]



Source: [Lithium Energy](#)

Closing remarks

If the forecasts are correct and we see a massive demand wave for lithium the next 10-20 years then there will be a need for a lot more new lithium miners. The five in this article include three potential near term lithium producers (Sigma Lithium, Neo Lithium, Critical Elements Lithium) and two very low market cap early stage lithium explorers (Global Lithium Resources, Lithium Energy Limited).

Be sure to diversify and not to miss one of the biggest trends this decade.

Disclosure: The author is long Sigma Lithium, Neo Lithium, Global Lithium Resources, Lithium Energy Limited