Lithium Prices Soar as Demand Surges Amid EV Boom, But Is the Bull Run Sustainable?

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Most commodities are cyclical in nature. The ebb and flow of demand, potentially from a new application or general growth, which in turn makes the supply of that commodity scarce can cause prices to rise, sometimes dramatically. This is followed by a supply response that typically is too effective (because everyone wants to partake in the high commodity price) and eventually, the demand is outstripped by supply, commodity prices in turn fall or outright collapse and the cycle repeats.

In the case of lithium, we've been seeing demand surge as the electric vehicle (EV) revolution accelerates while the ever-increasing supply is failing to keep pace. There are lithium headlines in the news all the time now, with the likes of General Motors Co. (NYSE: GM) and Tesla, Inc. (NASDAQ: TSLA) inking supply deals with producers or the speculation of deals. It would appear we are in the heart of a bull market for lithium….or are we?

Lithium Boom – 1950s

This isn't the first lithium boom the world has seen. You may be surprised to learn that the first one began in the 1950s when the world's primary source of lithium came from North Carolina. Lithium was extracted from spodumene (hard rock) and was a key component of the military's H-bomb program. As a reference point, by the mid-1970s U.S. lithium production was roughly 2,900 tons per year. (1 US ton = 0.97 metric tonne)

Lithium Boom – 1990s

Lithium's next rally occurred in the early 1990s when Sony first began production of the lithium-ion battery used in consumer electronics. By the end of 1991, Sony had ramped up production to 100,000 batteries a month. Enter Sociedad Química y Minera de Chile S.A., or SQM, the Chilean fertilizer and mining company which began selling lithium (from brine) in late 1996, almost immediately lithium carbonate prices fell by a third, to US$2,000 a ton. This marked the end of the existing American lithium industry.

Current Lithium Production By Country (2021)

Rank	Country	2021 Production (tonnes)	% of Total
#1	Australia	55,416	52%
#2	Chile	26,000	25%
#3	China	14,000	13%
#4	Argentina	5,967	6%
#5	Brazil	1,500	1%
#6	Zimbabwe	1,200	1%
#7	Portugal	900	1%
#8	United States	900	1%
	Rest of World	102	0.1%
	Total	**105,984**	**100%**

Source: World Economic Forum

Lithium Boom – Today!

Fast forward to today and in November we saw lithium prices surge above US$80,000/tonne in a sign that supply was definitely not keeping pace with the huge increase in demand sparked by

EVs. You have wildly bullish forecasts suggesting supply needs to grow somewhere between 150,000 to 200,000 tonnes every single year.

For more perspective, consider that Tesla is targeting the manufacture of 20 million EVs per year by 2030. In order to produce those vehicles in a year, Tesla will need more lithium than was produced in the world last year, which could explain why the market was all excited when Bloomberg reported Tesla has been discussing a possible bid for Sigma Lithium Corporation (TSXV: SGML | NASDAQ: SGML).

And speaking of Sigma Lithium, have a look at their 2 year chart!

Source: StockCharts.com

Investors should be very happy with a 10x move in just under 2 years. There have also been some pretty good runs for some of the Canadian hard rock lithium names. A quick look at the one-year chart for Critical Elements Lithium Corporation (TSXV: CRE | OTCQX: CRECF) and Patriot Battery Metals (TSXV: PMET | OTCQX: PMETF) and you'll see a double and another 10 bagger. It suggests that we may not be in the early innings of this game.

When all this starts to become prevalent in the news cycle, I start to get a little concerned. It’s almost like fanatic optimism is a harbinger that the cycle is about to end. I know that isn’t very scientific, but let’s look a little closer at what I’m getting at. Capital solves problems. With the lithium price at current levels, lithium mines are some of the most profitable in the whole mining sector. One could surmise that supply might respond more rapidly than currently forecast with lots of capital being thrown at exploration and development at present. I wouldn’t be surprised if Investment Bankers are cold-calling anyone involved with lithium right now to see if they would like to raise capital. On top of that, when you have the likes of Tesla, GM, etc. buying into producers it tends to stretch valuations beyond anything that would otherwise seem reasonable. M&A, especially by companies not actually in the mining business, can often be considered a sign that we are getting close to a top. Again, not scientific by any stretch of the imagination but it also typically isn’t sustainable behaviour.

Is this a Market Top?

I’m not suggesting lithium is going back to US$2,000/ton but we have seen the price retreat to just over US$60,000/tonne largely due to the Chinese market seeing lower subsidies for electrified vehicles and weak consumer confidence. With that said, lithium is still worth eight times more than it was before 2021 and still wildly profitable for both hard rock and brine producers. Is this a sign that the current bull run for lithium prices is over or just taking a breather before it settles into a new price range or perhaps starts to climb again? I guess it depends on your time frame. Traders may want to look at taking a little profit off the table for now, long term buy and hold investors may not even be paying attention to the day-to-day noise in the

market and be comfortable holding lithium equities for the foreseeable future.

My caution to anyone wildly bullish on lithium prices and the corresponding mining companies is this – there are a lot of smart capitalists out there and if a component becomes the most expensive part of your product, a lot of effort will be spent to try and find a replacement or an alternative. I also have a nagging concern that at some point in time, the rapid adoption of EVs may overwhelm the electric grid and put a hard stop to EV growth (at least temporarily). Either of these scenarios could have a sudden and very negative impact on lithium prices but not likely in the near future. So when it comes to investing in lithium, make sure your risk tolerance matches your investment exposure.

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

written by Matt Bohlsen | February 24, 2023

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: CXO), – 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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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.