Lithium demand is poised to create a supercycle of supply deficits and lasting high prices

written by Matt Bohlsen | October 3, 2022

The past two years has seen lithium prices rise about ten times from US$7,000/t to US$70,000/t both for lithium hydroxide and carbonate. Meanwhile, the lithium spodumene price has enjoyed a similar 10 fold increase from US$500/t to US$5,000/t. This has been caused by EV sales booming, resulting in a huge demand wave for lithium that literally swamped the small lithium industry.

The lithium carbonate price has risen as EV demand has taken off – Currently at CNY 510,500/t (~US$70,000/t)

Source: Trading Economics

What's next for the lithium sector?

Conventional commodity booms typically follow a rather fast boom and bust cycle as the cure for deficits is high prices, thereby encouraging new supply. However, every once in a while we get a commodity supercycle. That's where the demand wave is so big that it takes as long as a decade for supply to eventually catch up or for demand to subside. New mines can take 5-10 years to come online, yet a new EV and battery factory can be built in 1-2 years.

In the case of lithium, many EV metals experts agree we have only just entered a lithium supercycle. To better understand the size of the demand wave investors need to get a feel for how much lithium will be needed to feed the electric vehicle boom.

A typical 50kWh battery electric car (roughly the global average size in 2022) requires about 45kgs of lithium carbonate equivalent. In 2022 global plugin electric car sales look set to grow by at least 50%+ year over year. Given 2021 global plugin electric car sales were 6.75 million, 2022 will likely end up at about 10.125 million, or 3.375 million additional new electric cars. This means lithium demand, only from plugin electric cars, will increase by roughly 152,000 tonnes ("t") of lithium carbonate equivalent ("LCE") in 2022 ((45/1000) x 3,375,000)). If we add in other sources of lithium the global lithium market will roughly increase by about 185,000t LCE in 2022, or about a 34% increase on 2021 levels of approximately 540,000t LCE.

Looking at lithium supply a typical new mine or mine expansion could possibly bring on 20,000t LCE in a year. This means the market needs about 9 new mines or expansion of existing mines, just to catch up with demand. This will be needed – and will grow larger – each year.

The scary part is that in a good year electric car demand can grow at 100%pa, as we saw with a 108% increase in 2021, which sent the lithium market into deficit. These days the demand is there but the supply is not, hence the global EV waiting list is now in the order of 3 million vehicles.

A lithium deficit can only mean lithium prices stay 'stronger for longer' this decade

Provided electric car sales growth remains at 30-50%+pa, all of this suggests we are likely to see constant lithium deficits this decade. Strong stationary energy storage sales are also pulling on lithium demand.

A lithium deficit can only mean lithium prices stay ‘stronger for longer’, meaning about US$50,000/t plus for lithium carbonate and lithium hydroxide and above US$5,000/t for spodumene.

Yet despite this, some analysts are forecasting lithium prices to fall over the next 5 years. This completely contradicts forecasts of continual lithium deficits this decade. In a deficit, prices do not fall.

A contradiction: Many analysts currently forecast lithium prices to fall as lithium deficits continue this decade

Source: Morningstar

What can go wrong with this forecast?

EV demand looks strong but in 2022 sales have been relying heavily on China, which has been responsible for 50-60% of global sales. This means any sales collapse in China will be heavily felt. European EV sales growth has weakened in 2022 due to events in Europe weakening their economy. USA EV sales have been growing quite well from a lower base, but the U.S economy is now slowing as interest rates are rapidly rising.

One plus for lithium demand is in the USA in 2023-24 we can expect to see new demand coming on from electric pickup trucks, which typically have a battery almost twice the size of an electric sedan, thereby requiring almost twice as much lithium.

Closing remarks

2022 has seen the West wake up to the need to source critical minerals and establish their own supply chain, or risk being left behind, as China grabs global electric car market share.

The Inflation Reduction Act and the EU Critical Raw Materials Act are designed to address this problem and bring supply chains back home or at least with free trade agreement countries.

Again this is further evidence to suggest that the rest of this decade will see a fight to source critical minerals, none more important than lithium.

We may need to get used to lithium chemical prices at, or north of, US$50,000/t for the foreseeable future. This stronger for longer lithium pricing narrative should also flow through to the lithium miners many of which are currently priced at extremely low 2023 and 2024 earnings multiples, based on lithium prices falling back to US$20,000/t. If analysts become a little braver and use US$40-50,000/t in their models expect some very significant price target increases over the next year or two. Stay tuned.

Attracting attention through drill results, Kodiak Copper is positioned well for the green energy supercycle

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The copper sector is widely regarded as being one of the possible future winners from the green energy and electric vehicle (EV) revolution this decade. Just recently Goldman Sachs “proclaimed the dawn of a new commodity supercycle“, with copper as their number one commodity pick. A supercycle is not just a short upswing it is a decade or more long upswing caused usually by a significant demand surge. In the case of copper, the demand surge will come from solar energy, wind energy, and EVs.

For example, BHP says that one wind turbine uses 4 tonnes of copper (video link), which certainly is a lot of copper especially given copper currently trades at US$7,396/tonne.

Copper is essential for the green energy revolution, used in solar, wind, and EVs

Source: Kodiak Copper investor presentation

Kodiak Copper Corp. (TSXV: KDK) 100% own the very large (9,733-hectare land package) MPD copper-gold porphyry property in a proven, mineral producing belt, in British Columbia (BC), Canada. For those that are new to Kodiak Copper, the Company amalgamated 3 projects into one – Man, Prime, Dillard – hence the name MPD. Management is top tier with a great track record of success. What’s most exciting is their safe location and potential for a large scale copper-gold project, just as we enter the decade of renewables (solar, wind) and EVs taking massive market share.

The MPD Property has road access and is close to nearby power, towns, and other mines

Source: Kodiak Copper investor presentation

The MPD Property has numerous showings of copper and gold confirmed across a large, 10km2 area. Drill results point toward the potential for a large copper-gold porphyry system. There is mineralization from at or near surface to as deep as ~800 meters with huge potential exploration upside across the property.

Last September 3rd, 2020 Kodiak Copper announced drill/assay results which were 'spectacular' in my opinion. The results included a massive **282 m of 0.70% copper and 0.49 g/t gold** (1.16% CuEq). Due to this, the stock raced up from C$0.50 on August 24th to C$2.80 as of September 28th for a 460% increase. The good news for new investors is the hype in the stock price has since settled down, with the price now back at C$1.64 and trading on a market cap of just C$66 million, despite plenty of further good news since then.

Kodiak Copper has continued to produce very strong drill results such as:

- MPD-20-004: **535.1 m of 0.49% Copper and 0.29 g/t Gold** (0.76% CuEq*) between 201.9 and 737.0 metres down hole, with a higher grade core (282 metres of 0.70% copper, 0.49 g/t gold).
- MPD-20-005: **515.8 m of 0.41% Copper, 0.22 g/t Gold and 1.50 g/t silver** (0.63% CuEq*) from 223.5 to 739.3 metres

down hole, with a higher grade core (192 metres of 0.74% Copper and 0.48 g/t Gold).

Cross-sectional summary of drill results at the MPD Project – Gate Zone

Source

Looking ahead Kodiak Copper states: “The Company has just completed a successful 2020 drill campaign that resulted in **a transformative discovery of a high-grade central core within a broader, well-developed copper-gold porphyry system** at the Gate Zone. Kodiak will continue exploring at MPD in early 2021 with a fully funded, significantly larger program. Plans include up to 30,000 meters of drilling in several target areas, as well as further geophysical and geochemical surveying, prospecting and geotechnical studies.”

It should also be mentioned that in the next few weeks the final assay results from the 2020 drill program are due which will be most interesting to see.

Closing remarks

I agree with Goldman Sachs that we are likely entering a green energy and EV commodities supercycle this decade. Battery metals (lithium, cobalt, graphite, nickel), key rare earths, and copper are likely to be the big winners.

Investors can look to position themselves ahead of the supercycle by buying into quality and promising junior miners now. Kodiak Copper is still a junior but they have plenty of potential with a possible large sized copper-gold porphyry deposit in BC Canada and the right management to deliver. They also have two other promising projects – The Mohave Copper-

Molybdenum-Silver Porphyry Project in Arizona USA, and the Kahuna Diamond Project in Canada. One to follow for sure.

Further reading and viewing:

- Kodiak Copper – Annual Investor Letter
- Claudia Tornquist on Kodiak's MPD Copper-Gold Porphyry Project and new shareholder (video)