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.

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