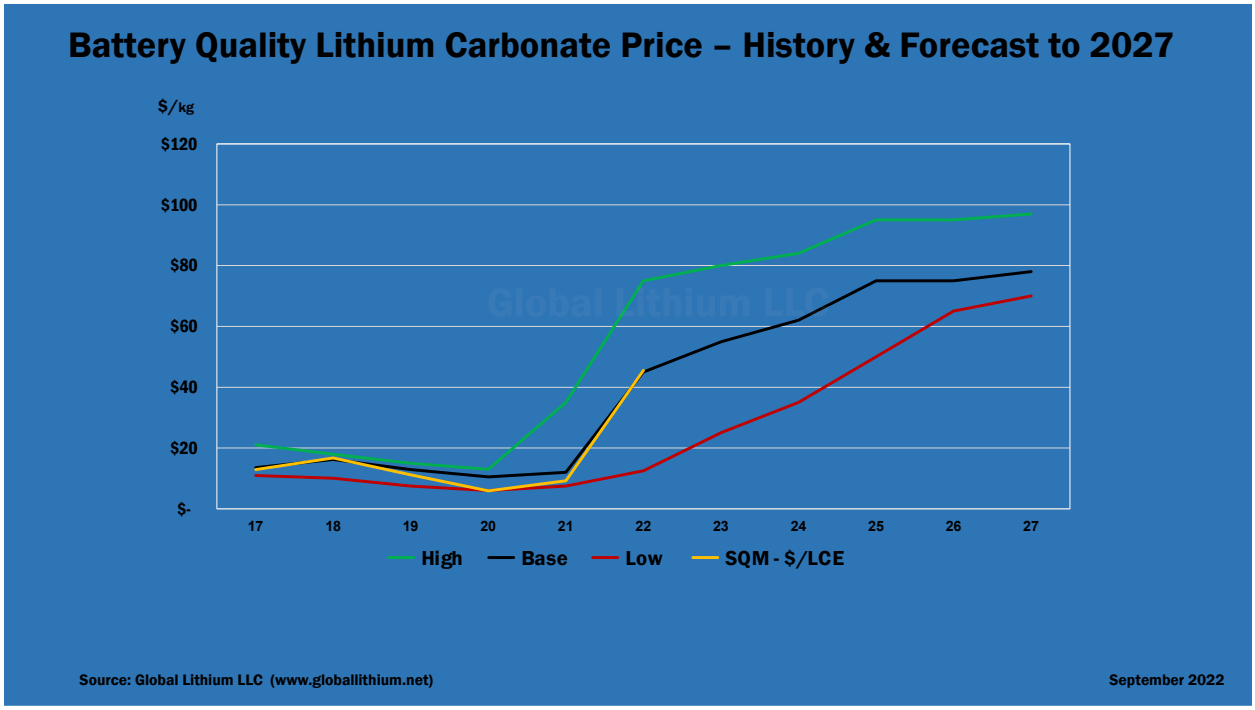
GLOBAL LITHIUM

Forecasting lithium prices has never been more difficult. The Global Lithium supply and demand forecast shows a sustained deficit until 2030. I project increasing prices to 2027. The only certainty in making a price forecast is that it will not be "correct." My focus is on calling the direction of the five-year trend within a +/- 12% band. From my perspective, even that level of "wiggle room" may not be enough. Given the transition to electric transportation has hit critical mass accompanied by consistent positive demand surprises and a lack of near to mid-term replacement technologies to supplant lithium, spot price could potentially top $100/kg in the next 24 months.

Although my price forecast is based on Global Lithium S/D numbers, I have also consulted a variety of other published numbers from Deutsche Bank, Canaccord, Macquarie, Benchmark, and even Goldman Sachs. Of course, Goldman is the extreme outlier from a supply forecasting perspective. Several industry executives have called out Goldman for painting a ridiculous supply picture, so I am not the only one that disagrees with them and their call for a price crash next year.

My forecast includes a high, base, and low price. You can view the high scenario as spot price in a market where EV demand continues unabated with limited positive supply surprises. My high case could be too conservative. OEMs panicking over delayed models could bid up a "security of supply premium" to supplement inadequate contracted volumes. The base case is what I view as average mid to term contract pricing for battery quality with price escalation criteria that still provides the buyer with some cap on periodic escalation. The low case brings in long term contracts that were signed with price adjustments that do not allow suppliers to reset price to reflect market reality for an extended period. In an extended "structural shortage" the low price will move toward convergence with the base and high price over time.



Once I determined the three cases, I decided to add SQM's average LCE price yield from 2017 to mid-year 2022. I have said for the past several years that in an undersupplied market, SQM's reported quarterly price is the best reflection of global (ex-China) pricing. It is interesting how well the SQM price tracks the base case except in the brief period of oversupply beginning in late 2018 that ended in late 2020. I believe SQM's price will exceed my base case in the next couple of years as their price strategy is the most exposed to spot pricing compared with the contracts of the other members of the "Big 4".

It is ironic that most forecasts I mentioned as reference points have supply shortages to 2027 yet show price decreasing. In some cases, very significantly. In my view, these prices are based on not being able to accept a price completely disconnected from the cost curve for an extended period of time. There is no compelling logic as to what drives price down without an adequate supply response. Sometimes it takes the "high prices cure high prices" narrative years to play out.

My question is: what force drives price down in a continuing shortage? The kindness of suppliers? Even Albemarle is slowly learning to "price to the market." Unfortunately, they didn't learn fast enough for Mineral Resources CEO and JV partner Chris Ellison. The recently announced restructure of their Joint Venture demonstrates this point.

I have no doubt that my forecast will be rejected as "too aggressive" by much of my audience and the "Big Banks" that disagree. I may be as much of an outlier as Goldman Sachs – just on the high side.

If I am advising clients what prices to use for a PFS or DFS, my counsel is conservative and based on the high end of the cost curve which will only drop below $30,000/MT if the average spodumene price to independent converters drops below $3,000/MT. In time that will happen, but I don't see it happening before 2027 unless multiple projects in Canada and Africa develop much sooner than expected. A more conservative approach isn't lack of belief in my forecast, it is understanding how investors still fear the lack of lithium price transparency and inability to deal with that risk.

As the world mourns the 25th anniversary of the passing of Princess Diana, I am reminded that was the week the management of FMC sent me to Santiago to meet with SQM and start the process of negotiating a deal to help "manage" their market entry. Although customers theoretically wanted a third supplier, they wanted price leverage more than having to deal with SQM who had no understanding of the market at that time. In 1997, my large customers were paying slightly over $4,000/MT for carbonate which provided a reasonable margin. SQM originally offered customers just under $2,500/MT but when volumes were slow to materialize, they cut the price to ~ $1,500/MT. That got the attention of the likes of Xinjiang Non Ferrous Metals in China and later my customers in the US. FMC couldn't compete with that price so senior management decided to shut down the new Hombre Muerto carbonate plant and produce only chloride in Argentina. SQM toll produced lithium carbonate for FMC. We provided SQM with soda ash (aka sodium carbonate) from our Alkali Division. This went on for three years before market conditions improved enough to restart the Hombre Muerto carbonate plant on a full time basis. As the new century dawned, price was still only about $2250/MT but we survived based on the strength of our other lithium products that SQM didn't produce.

The above bit of context should help you understand why predicting carbonate price approaching $100,000/MT is an odd experience for me. More to come in "Lithium Confidential", a book about my career in the industry. Target date 2023.