

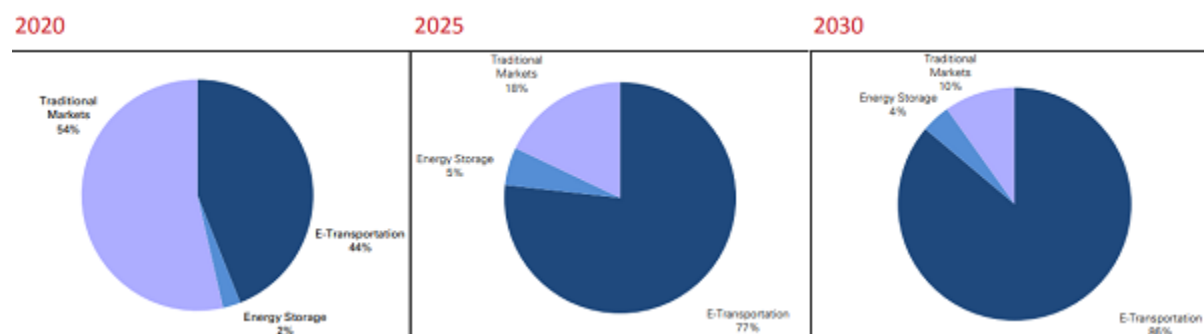
Sector report: Lithium

June 7, 2022 FAT-AUS-1072

Lithium; short-term noise long-term poise

The debate on global warming has now just about passed, with the verdict that the use of carbon based energy sources to generate the worlds' current and future energy needs is causing harm. As a result, the emergence of winners and losers in the energy complex is slowly starting to take shape, which will see the more traditional energy sources moving away from centre stage and be replaced by new age energy sources. **Right throughout this period and beyond one thing is certain, the world will still need to generate energy.**

One commodity in lithium, has stepped into the energy complex mix in a major way over the past six years. This early step up by lithium has been driven by the auto industry, as it now moves away from carbon powerplants to carbonless powerplants for mainstream production lines. The following pie charts shows the forecast impact of this swing on the demand for lithium out to 2030:

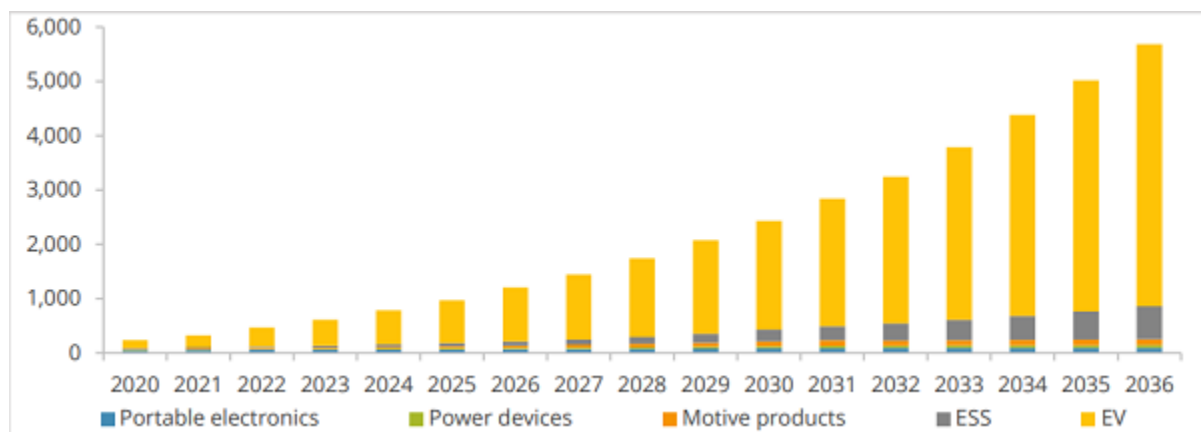


Source: Bloomberg

The demands on lithium from E-transportation, primarily, reached 306,000 tonnes in 2020, with the electric vehicle (EV) sector making up just 44%, of the demand for

lithium. As Members can see from the above charts, E-transportation in just nine years is forecast to expand to 86% of lithium demand and push traditional markets back to just 10%. **In lithium tonnage terms, the forecast for 2030 stands at 2.4 million tonnes, and equates to a compound annual growth rate of 23.6%. Under this growth scenario, by 2030 there will have to be some 39 Allkem size producers spitting out lithium.**

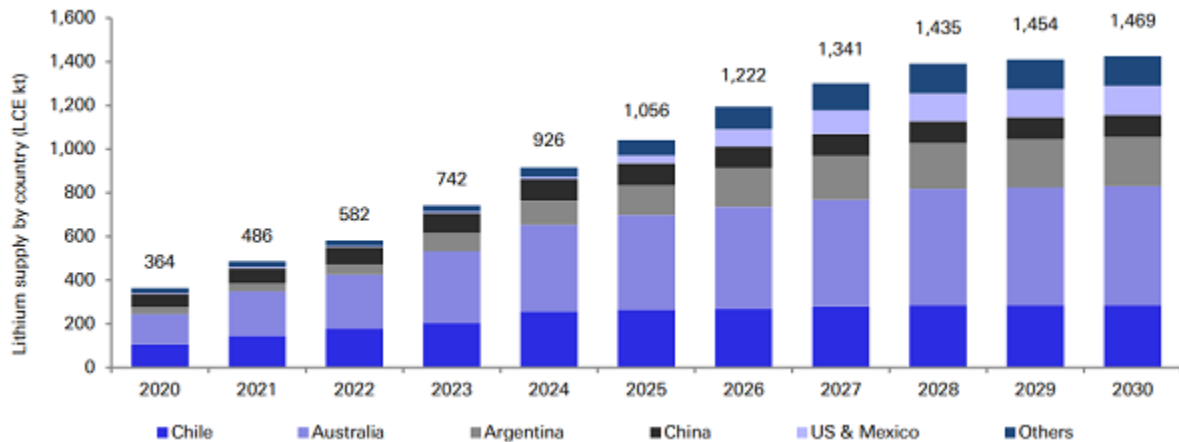
The auto industry will be the major driver of growth in lithium demand going into the future. **This change is being driven by government regulations in many countries and changing consumer awareness of global environment issues.** The following chart shows lithium demand by battery use in gigawatt hours (ESS – electric grid storage, motive – forklifts, electric scooters, e-bikes, drones etc):



Source: Wood Mackenzie

We see the future demand profile for lithium, as now being well established, with the auto industry add significant tail winds well into the foreseeable future. **Looking to the future, the lithium-ion battery, it appears, will play a major role in delivering the power packs for EVs, as mass production status nears. The changing demand profile for lithium does look compelling.**

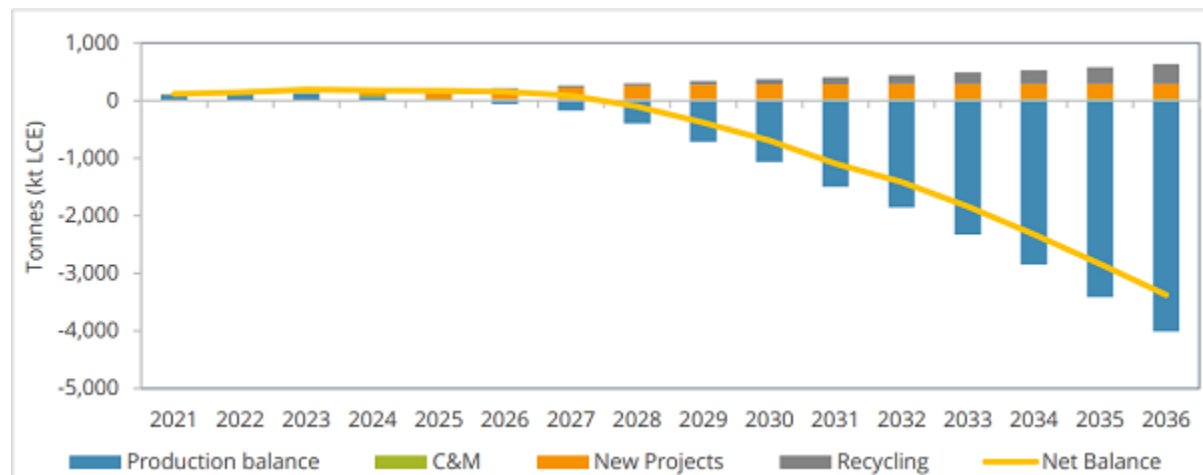
The broader trend in global lithium production in recent times has been up, and we expect this trend will continue going out to 2030. The following chart shows annual forecast lithium production (LCE – lithium carbonate equivalent):



Source: Bloomberg

Mine production of lithium for 2020 was a reported 364,000 tonnes, and as Members can see from the above chart, production is forecast to hit 1.4 million tonnes by 2030.

Under our supply and demand scenarios, **we expect the lithium market will remain in modest surplus balances out to 2027.** The following chart shows the forecast market dynamics for lithium out to 2036:



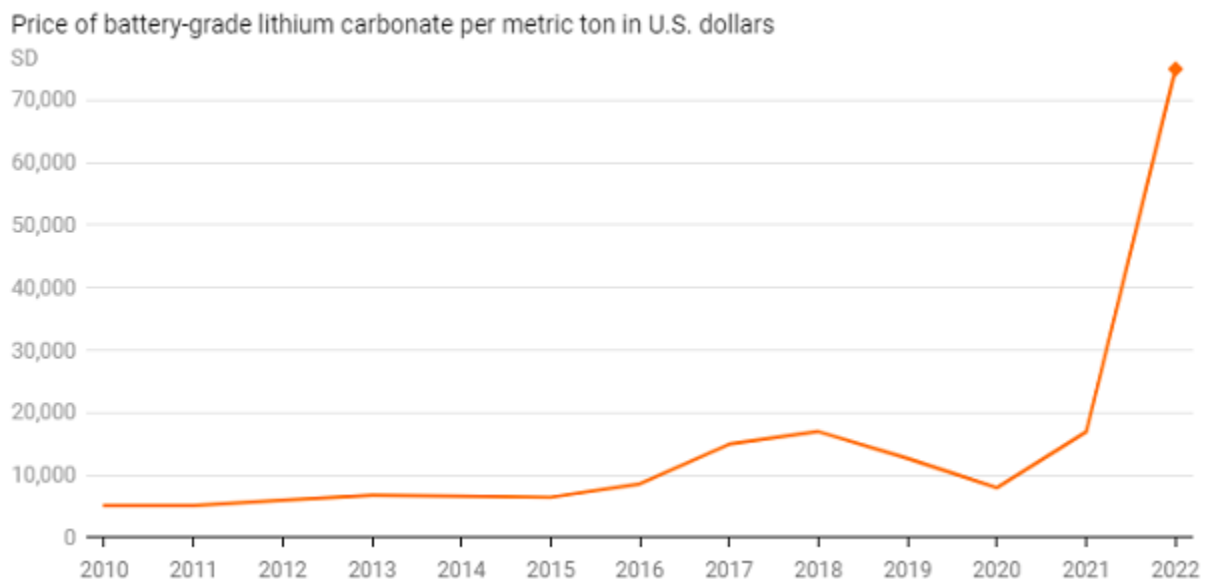
Source: Bloomberg

As Members can see from the above chart, our supply demand scenario will **deliver a deficit in the supply of lithium by 2028 and accelerate out to the end of the forecast**

period of 2036. By 2030 the deficit is forecast to be some one million tonnes of lithium and by 2036 the gap will have widened to over four million tonnes. Driving this deficit will be long ramp up times for new production for both brine and hard rock projects with a six to ten years development cycle. On top of the development time, we expect further holdups on environmental concerns and government licencing and permitting requirements.

The higher price now commanded by lithium, will we believe, engender the forecast supply side response. **To this end, there has been an increase in the value propositions for lithium deposits, and with this increased exploration activity.** There has also been a rise in the number of listed companies just in Australia, with lithium projects. In April 2015 there were around 35 juniors with a lithium interest listed on the Australian Stock Exchange and today the number is around 60. **We believe producers are not readily able to deliver supply even on significant price moves, which should sustain upside potential and limit the downside.**

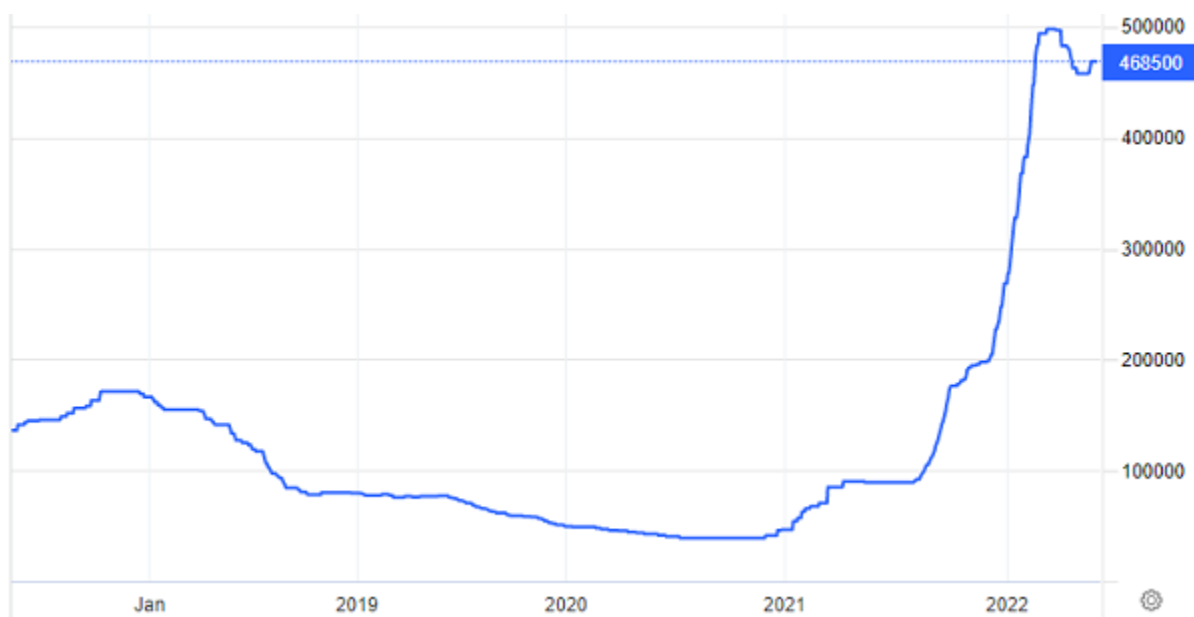
The price of lithium until only recently has been somewhat benign over an extended period of time. The following chart shows the long-term lithium price:



Source: Canarymedia

As Members can see from the above chart, the price of lithium has moved higher as the market digested the demand and supply scenario started to play out in the auto industry. **Mine production was sufficient to cope with demand.**

It has only been in the past 12 months that the price of lithium has responded to what is a favourable forecast change in the dynamics of its market. The following figure shows the price of lithium concentrate (98% pure as a proxy) from 2014 to the present:



Source: Trading Economics

We would expect to see some softening in the lithium price near-term, given the meteoric rise we have seen in the price in recent months. We see this pullback as more of the speculative edge of the market disengaging, which means any price weakness, in our view will only be shallow. The broader fundamentals now in play in the lithium market, are a precursor to persistently higher prices.

The high may now be, in the near-term, behind us but we can on the scenario we have painted see lithium prices rechallenge its highs. We see the risks as skewed to the upside for investors with a long-term investment horizon.

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