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Company	Rating	Price	Target
<b>EV Materials</b>			
AGY-ASX	Spec Buy	A\$0.42	A\$0.85↑
previous			A\$0.80
AKE-ASX	Buy	A\$11.99	A\$19.50↑
previous			A\$18.50
ALLA-AIM	Spec Buy	31p	90p ↑
previous			85p
CRE-TSXV	Spec Buy	C\$2.23	C\$5.00
CTL-AIM	Spec Buy	44p	295p ↑
previous			280p
CXO-ASX	Spec Buy	A\$0.95	A\$1.40↑
previous			A\$1.35
DLI-ASX	Spec Buy	A\$0.45	A\$1.25↑
previous			A\$1.20
FL-TSXV	Spec Buy	C\$1.92	C\$4.50↓
previous			C\$5.25
GL1-ASX	Spec Buy	A\$1.47	A\$2.80↑
previous			A\$2.70
GLN-ASX	Spec Buy	A\$0.99	A\$3.30↑
previous			A\$3.05
GT1-ASX	Spec Buy	A\$0.60	A\$1.85↑
previous			A\$1.80
IGO-ASX	Hold	A\$13.80	A\$14.00↑
previous			A\$13.50
INR-ASX	Spec Buy	A\$0.31	A\$0.50↑
previous			A\$0.45
KOD-AIM	Spec Buy	1p	1.5p↑
previous			1.3p
LAC-TSX	Spec Buy	C\$25.86	C\$55.00↑
previous			C\$50.00
LIRC-TSX	Buy	C\$14.43	C\$23.50
LKE-ASX	Spec Buy	A\$0.47	A\$0.95↑
previous			A\$0.90
LLL-ASX	Spec Buy	A\$0.55	A\$2.20↑
previous			A\$1.90

## Lithium | 1H'23 recharge: Chinese pricing bottoms as demand rolls on

### Thematic remains in play despite Chinese pricing lead

We have updated our lithium supply/demand forecasts and updated our price deck, following what we believe is likely a near low for Chinese pricing. While pricing and investor sentiment has faded, the overall thematic remains firmly intact. On this basis, we see a bottom in pricing leading to a change in equity sentiment, but note the likelihood of some fading in ROW pricing. We think that recent lows in reported Chinese chemical pricing of ~US\$23k/t are not sustainable, nor reflective of the overall market and outlook (also noting significant pricing variability in geographic and product markets), and on a medium-term view, see reasons to be optimistic for a Chinese-led recovery from 2H'23.

### Demand - EV sales growth remain robust

2022 EV sales were stronger than we forecasted in our August 2022 update (see [Lithium | 2H'22 recharge](#)), driven by demand pull-forward ahead of removal of Chinese government subsidies. While prevailing global macro risks have clouded views on similarly strong YoY growth in 2023, MarQ'23 EV deliveries and implied ~40% YoY growth (annualised) continues to support our views on continued strong lithium demand growth in the near term. Our longer-term demand expectations remain supported by growth in planned battery factory capacity (third-party estimates suggest ~7TWh by 2031 vs 2022 capacity of ~1.7TWh), and we think this growth will continue to result in persistent demand tension. We discuss sodium-ion batteries and the potential to offset demand; however, there are fundamental challenges (circularity, life cycle emissions) that need addressing before widespread adoption is seen.

### Supply - material supply growth expected in 2023, but constraints continue to present challenges to long-term supply growth

We now estimate lithium supply to grow ~50% YoY in 2023, driven by projects delayed from 2022 (inc. greenfield projects and expansions), project restarts and new supply from Africa. Revisions to our modelled supply sees our market balance forecasts mostly unchanged - we expect market deficits to widen materially into the late 2020s. We continue to see risks to supply growth over the long term, noting the industry's poor track record of delivering projects on time (average delay of three years excluding ramp-up), driven mostly by permitting/financing/technical challenges.

### Pricing - China pricing may have bottomed

Chinese "spot" chemical prices have fallen by >65% from late 2022 highs, to ~US\$23k/t. While this has driven negative investor sentiment YTD, we don't think this represents a true picture of the lithium market. We highlight that South American export/European import prices for chemicals remain at >US\$50k/t (lag effect of contract structure), while "spot" spodumene prices should imply China chemical pricing closer to ~US\$50k/t based on historical trading relationships. In summary, we don't think the market is as weak as China pricing (and investor sentiment) might suggest. We have updated our lithium price deck, with lower mark-to-market adjustments to CY23E, offset by 40% increases on average to chemical and concentrate pricing assumptions over 2025E-27E. Our LT prices remain at US\$22.5k/t for chemicals and US\$1,500/t SC6, respectively.

### Lithium equities - M&A activity turns sentiment, but we believe pricing movements into 2H'23 could be a more powerful catalyst

Lithium equities are down 25-30% on average since 2022 highs, reflecting weaker pricing. While we continue to see long-term valuation upside across the sector, we think recent sector M&A activity (so far Australian centric) marks a line in the sand with respect to implied asset/strategic values. This has driven a possible shift in investor sentiment, with lithium equities appearing to have somewhat stabilised. The potential for price rises into 2H'23 represents a more powerful potential catalyst for shares, in our view.

LPI-ASX	Spec Buy	A\$0.31	A\$1.50↑
<i>previous</i>			<i>A\$1.30</i>
LTR-ASX	Spec Buy	A\$2.75	A\$2.80↑
<i>previous</i>			<i>A\$2.50</i>
PLL-ASX	Spec Buy	A\$0.80	A\$2.15↑
<i>previous</i>			<i>A\$1.85</i>
PLS-ASX	Buy	A\$4.20	A\$5.50↑
<i>previous</i>			<i>A\$5.10</i>
PMET-TSXV	Spec Buy	C\$12.15	C\$16.75
PSC-ASX	Spec Buy	A\$0.14	A\$0.16↑
<i>previous</i>			<i>A\$0.15</i>
RCK-TSXV	Hold	C\$2.29	C\$2.50↓
<i>previous</i>			<i>C\$2.75</i>
SGML-TSXV	Buy	C\$46.24	C\$75.00↑
<i>previous</i>			<i>C\$67.00</i>
SLI-TSXV	Spec Buy	C\$4.40	C\$9.00↓
<i>previous</i>			<i>C\$15.00</i>
SYA-ASX	Spec Buy	A\$0.20	A\$0.31↑
<i>previous</i>			<i>A\$0.30</i>

Priced as of close of business 3 May 2023

Please refer to the important disclosure section of this report.

### CGe global lithium sector coverage

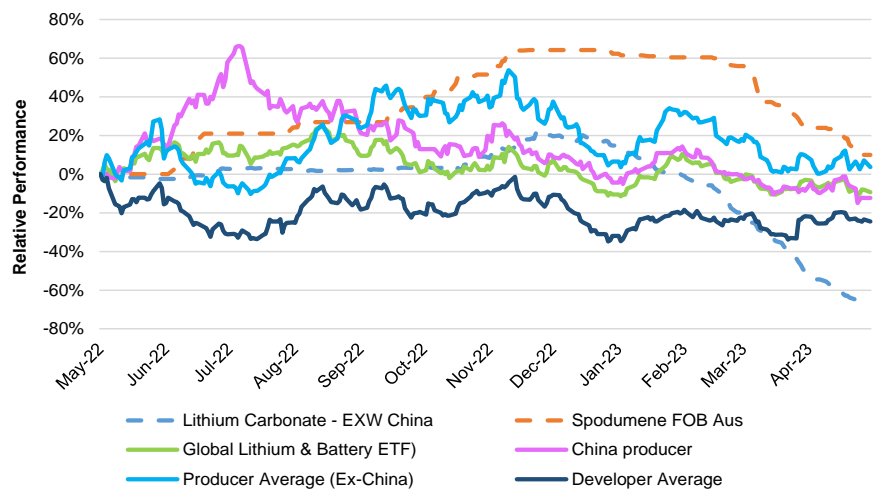
Our updated pricing assumptions have lifted valuations across our extensive global lithium equity coverage (30 stocks across Australia, Canada and the UK). See sidebar and Figure 4 for details. We see reasons to be more optimistic toward equities in the short term as pricing bottoms, with our top sector picks including AKE-ASX and PLS-ASX among producers, LAC-TSX, CRE-TSXV, INR-ASX and LLL-ASX among developers and PMET-TSX, GL1-ASX, GT1-ASX and DLI-ASX as early stage businesses developing and completing studies on resources.

## Lithium | 1H'23 recharge

Much has changed in the lithium landscape since our last sector update nine months ago ([Lithium | 2H'22 recharge: "giga-demand" needs major supply growth](#)). New lithium producing jurisdictions (i.e. Africa) have risen in importance, albeit supply continues to disappoint (i.e. more project delays); inflation has impacted industry capital intensities and project financing considerations, macro headwinds have impacted demand from the EV sector, and the threat of new battery technologies (i.e. sodium-ion) on demand has risen. More recently, volatile lithium pricing (and confusion?) continues to affect sentiment.

We see much of the prevailing investor uncertainty regarding the lithium sector to be short term in nature, with our medium-to-longer term expectations continuing to call for structural market deficits and elevated pricing. **As such, we remain long-term bulls on the sector.**

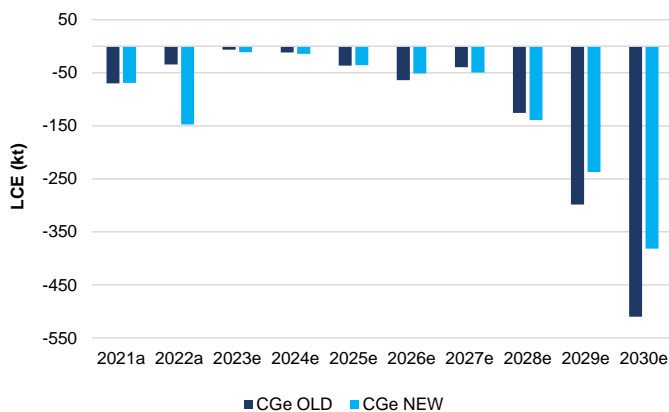
**Figure 1: 12-month relative performance of lithium prices vs global equities**



Source: Asian Metal, Canaccord Genuity estimates

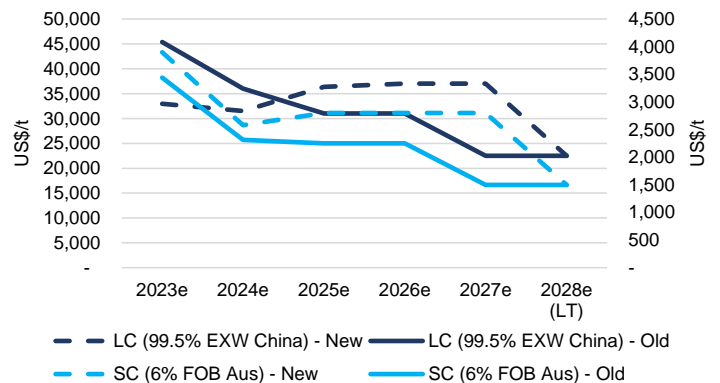
In this report, we update our SxD modelling and lithium product price deck, address key sector themes which are driving near-term investor sentiment and lithium equity performance, revise our estimates and target prices and reiterate our key sector picks.

**Figure 2: Market balance estimate changes**



Source: Company reports, Canaccord Genuity estimates

**Figure 3: Lithium price deck changes**



Source: Canaccord Genuity estimates

**Figure 4: CG global lithium equity coverage – target price changes**

Code	Exch	Name	Old rating	New rating	Analyst	Type	Curr	Mkt cap	Price	Old TP	New TP	Change
PLS	ASX	Pilbara Minerals Limited	BUY	BUY	Timothy Hoff	Spodumene	AUD	12,680	4.20	5.10	5.50	8%
IGO	ASX	IGO Limited	HOLD	HOLD	Timothy Hoff	Spodumene	AUD	10,541	13.80	13.50	14.00	4%
AKE	ASX	Allkem Limited	BUY	BUY	Reg Spencer	Integrated	AUD	7,645	11.99	18.50	19.50	5%
LTR	ASX	Liontown Resources	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	6,045	2.75	2.50	2.80	12%
CXO	ASX	Core Lithium Ltd	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	1,745	0.95	1.35	1.40	4%
SYA	ASX	Sayona Mining Ltd	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	1,704	0.20	0.30	0.31	3%
PLL	ASX	Piedmont Lithium Inc.	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	1,607	0.80	1.85	2.15	16%
VUL	ASX	Vulcan Energy Resources Ltd	RESTRICTED		Timothy Hoff	Brine	AUD	R	R	R	R	R
INR	ASX	Ioneer Ltd	SPEC BUY	SPEC BUY	Timothy Hoff	Integrated	AUD	687	0.32	0.45	0.50	11%
LKE	ASX	Lake Resources N.L.	SPEC BUY	SPEC BUY	Reg Spencer	Brine	AUD	675	0.47	0.90	0.95	6%
AGY	ASX	Argosy Minerals Ltd.,	SPEC BUY	SPEC BUY	Timothy Hoff	Brine	AUD	572	0.42	0.80	0.85	6%
LLL	ASX	Leo Lithium	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	537	0.55	1.90	2.20	16%
GL1	ASX	Global Lithium Limited	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	312	1.47	2.70	2.80	4%
LRS	ASX	Latin Resources	RESTRICTED		Reg Spencer	Spodumene	AUD	R	R	R	R	R
GLN	ASX	Galan Lithium Ltd	SPEC BUY	SPEC BUY	Reg Spencer	Brine	AUD	302	0.99	3.05	3.30	8%
DLI	ASX	Delta Lithium	SPEC BUY	SPEC BUY	Paul Howard	Spodumene	AUD	195	0.45	1.20	1.25	4%
LPI	ASX	Lithium Power International	SPEC BUY	SPEC BUY	Reg Spencer	Brine	AUD	194	0.31	1.30	1.50	15%
GT1	ASX	Green Technology Metals	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	114	0.60	1.80	1.85	3%
PSC	ASX	Prospect Resources Ltd	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	64	0.14	0.15	0.16	7%
SGML	TSXV	Sigma Lithium	BUY	BUY	Katie Lachapelle	Spodumene	CAD	4,785	46.24	67.00	75.00	12%
LAC	TSX	Lithium Americas Corp.	SPEC BUY	SPEC BUY	Katie Lachapelle	Brine	CAD	4,125	25.86	50.00	55.00	10%
PMET	TSXV	Patriot Battery Metals	SPEC BUY	SPEC BUY	Katie Lachapelle	Spodumene	CAD	1,116	12.15	16.75	16.75	0%
LIRC	TSX	Lithium Royalty corp	BUY	BUY	Katie Lachapelle	Royalty	CAD	797	14.43	23.50	23.50	0%
SLI	TSXV	Standard Lithium Ltd	SPEC BUY	SPEC BUY	Katie Lachapelle	Brine	CAD	732	4.40	15.00	9.00	-40%
CRE	TSXV	Critical Elements Limited	SPEC BUY	SPEC BUY	Katie Lachapelle	Spodumene	CAD	485	2.23	5.00	5.00	0%
FL	TSXV	Frontier Lithium	SPEC BUY	SPEC BUY	Katie Lachapelle	Spodumene	CAD	430	1.92	5.25	4.50	-14%
RCK	TSXV	Rock Tech Lithium	HOLD	HOLD	Katie Lachapelle	Spodumene	CAD	194	2.29	2.75	2.50	-9%
ALLA	AIM	Atlantic Lithium	SPEC BUY	SPEC BUY	Alex Bedwany	Spodumene	GBP	187	0.31	0.85	0.90	6%
KOD	AIM	Kodal Minerals	SPEC BUY	SPEC BUY	Alex Bedwany	Spodumene	GBP	136	0.01	0.01	0.02	15%
CTL	AIM	CleanTech Lithium	SPEC BUY	SPEC BUY	Alex Bedwany	Brine	GBP	46	0.44	2.80	2.95	5%

Source: FactSet, Canaccord Genuity estimates

### Lithium demand – EV sales proving resilient in the face of macro uncertainty

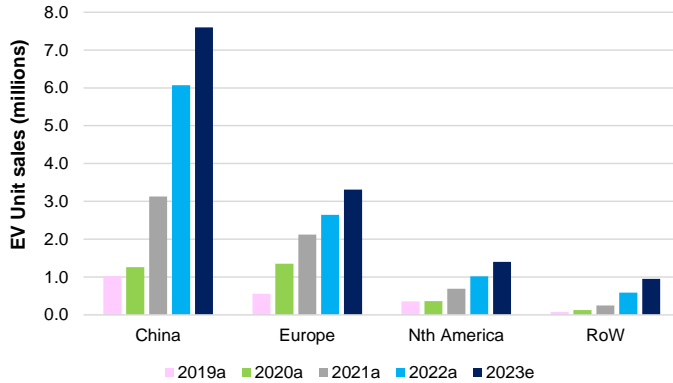
*2022 surprised to the upside, can 2023 be a repeat performance?*

Overall, total EV sales in 2022 were 10.3m units (73% BEV), +67% YoY. Growth was driven by China (+2.1m units YoY) and Europe (+0.5m units YoY) which accounted for 84% of global deliveries.

China EV sales of 6.1m exceed our August 2022 4.8m estimate, showing another strong year-end finish. China retains dominant global EV market share (CGe 2023 57%), with outperformance of that market in 2022 attributable to a pull-forward of 2023 demand given most major Chinese government subsidies rolled off in January 2023.

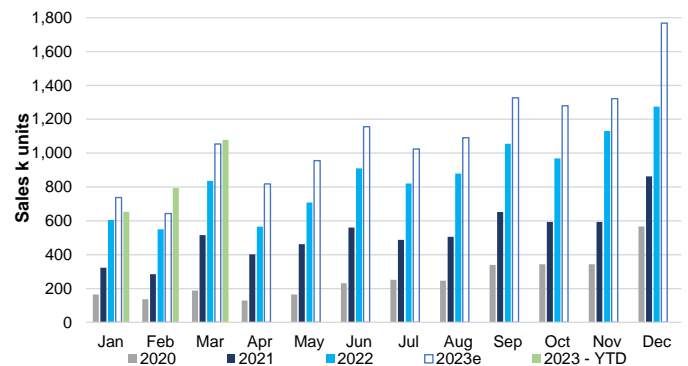
EU sales of 2.6m also marginally beat our estimate of 2.5m units, while North America sold 1M vehicles, which was in line with our estimates. ROW also outperformed our expectations with 0.6m units sold vs our 0.4m estimate. While ROW usually gets little attention given the fractional nature of the market, it actually represents ~26% of the total auto market and we believe it may be a major growth vector over the next few years.

**Figure 5: Sales are ramping up across major markets. ROW grew at the same pace as North America at +300k units YoY. We anticipate stronger growth in the US in 2023-24 as additional models are rolled out**



Source: Rho Motion, Canaccord Genuity estimates

**Figure 6: YTD sales are meeting our expectations, adding an incremental ~200k vehicles per month vs 2022. Seasonality usually shows weak sales in 1H, with January and April the lowest sales periods**



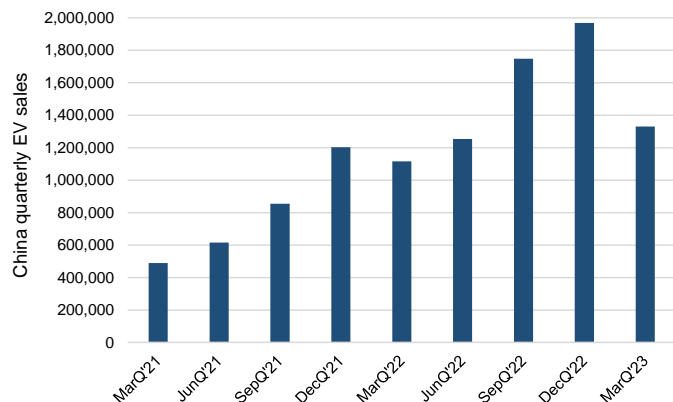
Source: Rho Motion, Canaccord Genuity estimates

MarQ'23 global EV sales totalled 2.5m units, with YTD deliveries proving somewhat resilient in spite of prior expectations of softer sales growth in China (subsidy removal) and risks of recession in other key markets.

We have revised our EV sales assumptions on a rebased 2022 result and now model sales of 13.5m units for 2023 (vs prior estimates of 11.8m units). China EV sales have historically displayed a distinct seasonality (i.e. MarQ weakest with 17.5% of annual sales and DecQ strongest with 35% of annual sales). If we look at MarQ numbers for China and apply this split in sales (17.5% of sales), it implies 7.8m sales in China in 2023 and a total sales number of 14.3m units versus our estimate of 13.3 units (IEA 2023 EV Outlook calling for 14m units presenting a ~40% YoY increase).

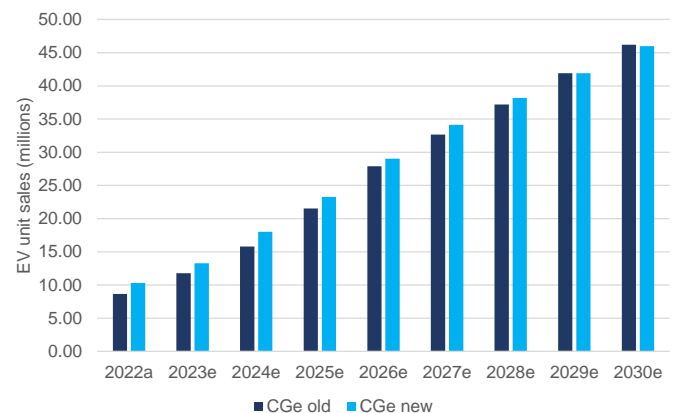
Over the medium term, we have lifted our sales expectations over 2024-25 by an average of 8%, but acknowledge the risk of uncertain macro conditions on demand in North America and Europe. This could be offset by the potential for the reintroduction of Chinese subsidies in the worlds largest auto/EV market as part of [local Chinese government stimulus](#).

**Figure 7: China quarterly EV sales have historically displayed a distinct seasonal pattern, with sales growth increasing throughout the year**



Source: Rho Motion

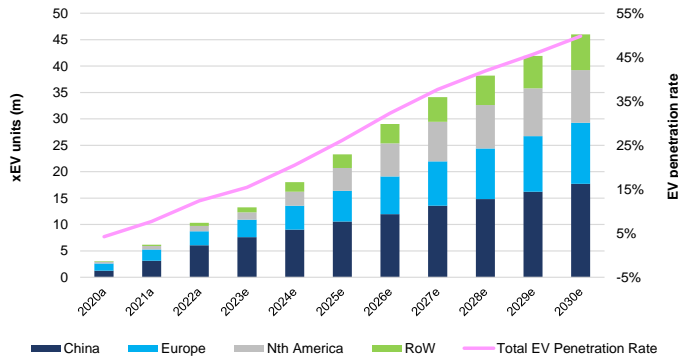
**Figure 8: CGe EV sales forecast revisions with minor upgrades flowing through as a result of rebasing 2022**



Source: Rho Motion, Canaccord Genuity estimates

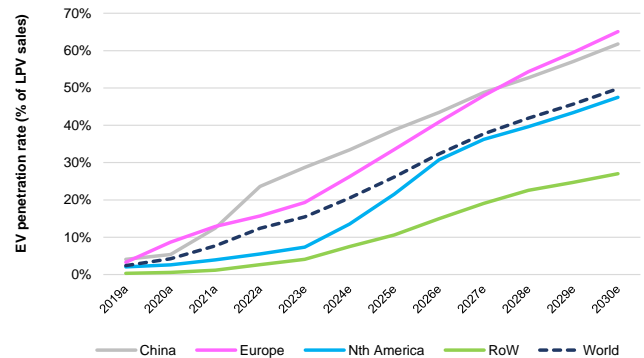
Our longer-term forecasts remain mostly unchanged, which call for 2025 and 2030 deliveries of 23m and 46m units, respectively (20% CAGR). These forecasts imply a global EV penetration rate of 50% by 2030 (vs 2023 15.4%).

**Figure 9: EV sales forecasts – 2020-30E. China remains a major part of the market**



Source: Rho Motion, Canaccord Genuity estimates

**Figure 10: EV sales forecasts and penetration by market**



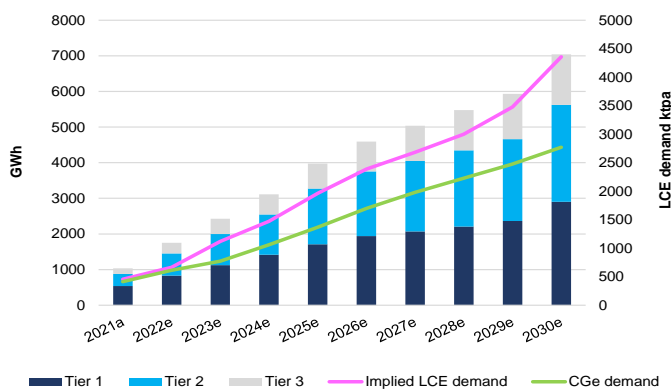
Source: Rho Motion, Canaccord Genuity estimates

*Battery factory capacity expectations continue to grow; what does this imply for lithium demand?*

While we continue to forecast lithium demand based on EV sales, we place that into the context of planned battery factory capacity. In many cases, these battery companies have better visibility into future demand and so the planned capacity is important to reconcile with our estimates. Since we published in August 2022 ([Lithium | 2H'22 recharge: "giga-demand" needs major supply growth](#)), the forecast capacity of battery factories globally has increased 35% to +7,000GWh by 2030 (Benchmark).

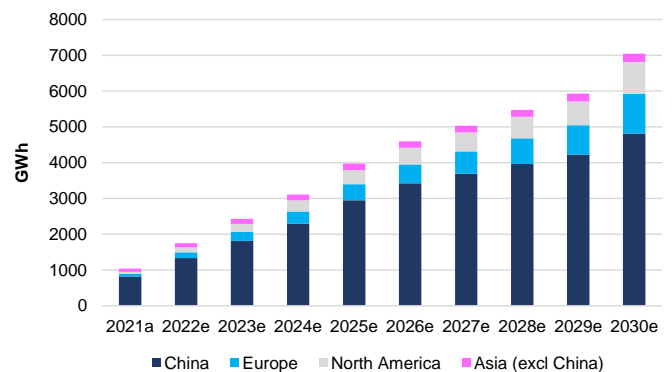
If we contrast the giga-implied LCE demand (Figure 11) with our estimates, we are consistently lower. If this demand is delivered, there will be significant tension in the market, which supports our price recovery thesis (discussed below).

**Figure 11: Giga-demand profile is much stronger than our forecasts and, if delivered, will require higher growth in supply and therefore higher prices to stimulate supply**



Source: Benchmark, Canaccord Genuity estimates

**Figure 12: While there has been much discussion of western supply chains, the reality remains China will be the primary market for battery materials out to 2030**



Source: Benchmark

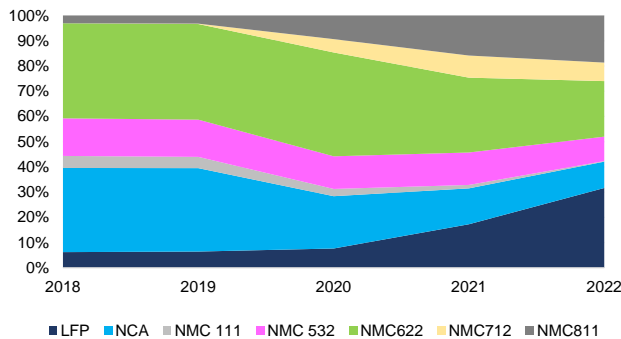
The cathode chemistry mix has tracked largely to our expectations through 2022. LFP is taking total market share but this should not be confused with replacement of other chemistries.

Rho Motion data shows that in 2022, every chemistry, other than NMC111, grew in absolute demand terms. NMC111 made up 1.4% of the 2021 market and only 0.3% of the 2022 market. We expected the NMC chemistry rotation out of 111 as higher nickel chemistries took preference due to higher energy density and high cobalt prices.

LFP continues to grow strongly, particularly in China; however surprisingly, battery sizes for LFP aren't falling. This indicates the "LFP for small format" thesis may not be holding true. We may also see higher LFP penetration in European, North American and ROW markets if these Chinese EVs begin to be exported.

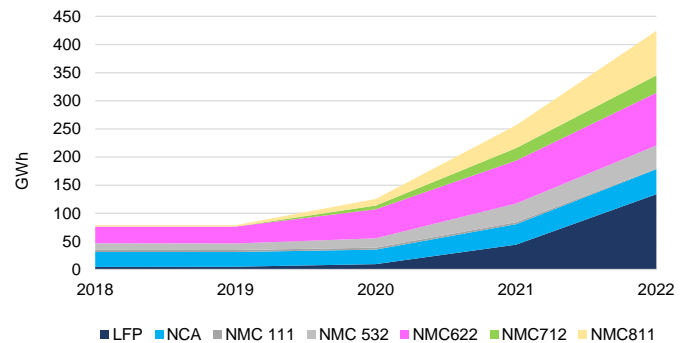
Another interesting trend is that overall battery sizes are growing. This is perhaps not surprising in North American and European markets but this is also occurring in China. We'd expect to see this trend continue to some degree as EU, North American and ROW markets grow and battery costs come down with scaling and vertical integration, allowing for large format vehicles.

**Figure 13: LFP batteries are taking market share from NMC622...**



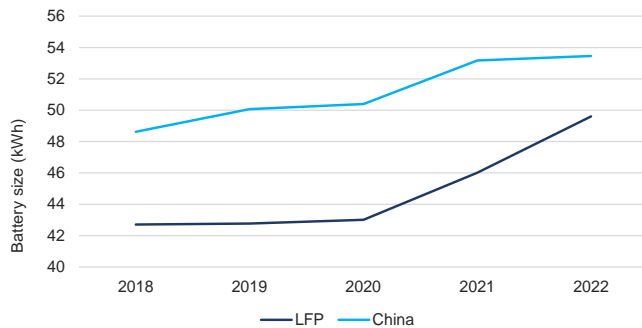
Source: Rho Motion

**Figure 14: ...but don't be deceived - all chemistry formats, other than NMC111, grew in total GWh in 2022**



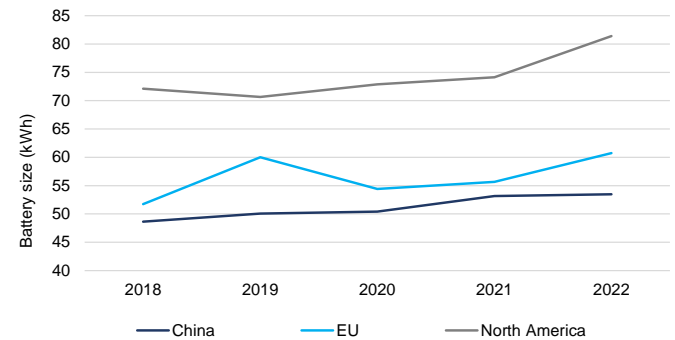
Source: Rho Motion

**Figure 15: Average Chinese auto battery sizes aren't trending to being smaller... neither are LFP batteries**



Source: Rho Motion

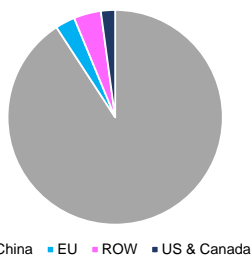
**Figure 16: Western market average battery sizes are also trending higher**



Source: Rho Motion

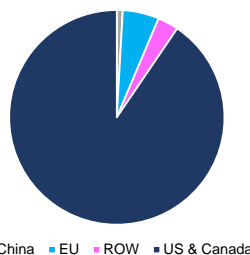
As expected, China contributes the vast majority of LFP demand with 91% of all LFP auto batteries sold in China last year. NCA (Tesla's primary chemistry) was unsurprisingly focussed on the US market. In the EU, the largest market share was high nickel based NMC chemistries, with 47% within the EU for NMC622, 78% within the EU for NMC712 and 24% within the EU for NMC811.

**Figure 17: 162 GWh of LFP in 2022 with the vast majority in China**



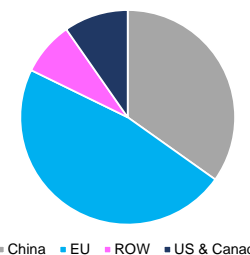
Source: Rho Motion

**Figure 18: 45 GWh of NCA sold in 2022 with a primary US (Tesla) focus**



Source: Rho Motion

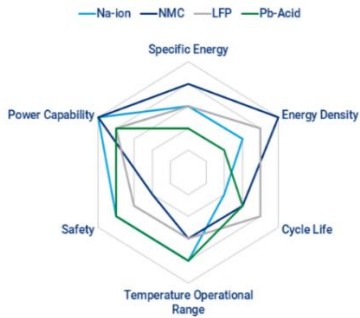
**Figure 19: 104 GWh of NMC622 sold in 2022 with EU consumers the focus**



Source: Rho Motion



**Figure 20: Characteristics of different battery types**



Source: Wood Mackenzie

Ultimately, this has demand implications for the differing lithium products. LFP predominantly uses lithium carbonate and it therefore stands to reason that China is the primary driver of demand. NMC and NCA predominantly use lithium hydroxide and, while China makes up a large proportion of these chemistries, the demand drivers are closer aligned to North America and Europe.

NMC811 appears to be the the outlier with China consuming 56%. This may be due to the adoption of new technologies occurring quicker in China than the US and EU, with the US and EU staying with "safer" cathode chemistries while they ramp up initial EV model sales.

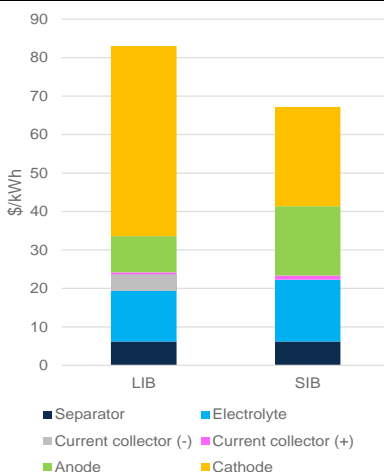
*Sodium ion batteries have been commercialised faster than expected, but we don't think this presents a major demand risk*

With the demand for battery materials such as lithium, copper, nickel and cobalt accelerating as the world pursues electrification, battery manufacturers are constantly looking for ways to produce more energy and cost efficient batteries.

Sodium ion batteries (SiBs) are regarded by some as a promising alternative for the next generation of energy storage systems. What makes SiBs particularly attractive is the use of abundant and cheap sodium in the battery chemistry instead of less abundant and more expensive materials such as lithium, nickel and cobalt. The operating principles and cell construction of SiBs are similar to those of lithium-ion batteries (LiB) and LiB production lines are, apparently, able to be switched to SiBs in a timely and cost-efficient manner. Like conventional LiBs, SiBs consist of the same key components:

- **Cathode:** The three main materials used are layered oxide, polyanion and PBA (Prussian Blue analogues). Each material has its advantages and disadvantages when considering energy density, cycle life and c-rate. The absence of lithium in the cathode results in a significant cost saving.
- **Anode:** Amorphous (non-graphitizable, hard/soft) carbon is used. Due to the larger size of sodium-ions, they are unable to be intercalated into conventional graphite anode. Amorphous carbon is typically more expensive than battery grade graphite and is considered to be energy intensive (poor CO2 outcome).
- **Electrolyte:** Sodium hexafluorophosphate in an organic solvent like dimethyl carbonate, ethylene carbonate, or a combination of the two, is used.
- **Separator:** Polyethylene or polypropylene separator material is used, much like a LiB.
- **Current collectors:** Unlike LiBs, which utilise copper and aluminium for the anode and cathode respectively, SiBs utilise aluminium for both. This results in a minor cost saving.

**Figure 21: LiB vs SiB cost breakdown**



Source: Rho Motion

*But low bill of materials leads to questions on circularity*

While most analysis and coverage is focussed on the cost-saving potential of SiBs, there is little discussion on the full life cycle of a SiB and the implications for the environment. The problem with producing batteries using "cheap" and "abundant" materials like sodium is that there is no incentive to recycle those materials and full consideration must be given to all the contents. This includes Prussian blue, which contains ferrocyanides.

We speculate that the majority of SiBs will find their way into landfill at the end of their life, posing a significant environmental risk, as well as undermining the ambitions of governments around the world to create a sustainable, circular economy which closes the loop through recycling of key raw materials.

*China led, unlikely to impact high energy markets*

Scaled production of SiBs is currently exclusive to China, with the Chinese government providing research support for the development of SiBs in an attempt to alleviate its reliance on imported lithium (and other raw materials such as nickel and cobalt). Major battery manufacturers such as HiNa, CATL, LiFUNG, HIGEE, Natrium and Farasis are reportedly planning to scale up or commence SiB production in 2023.

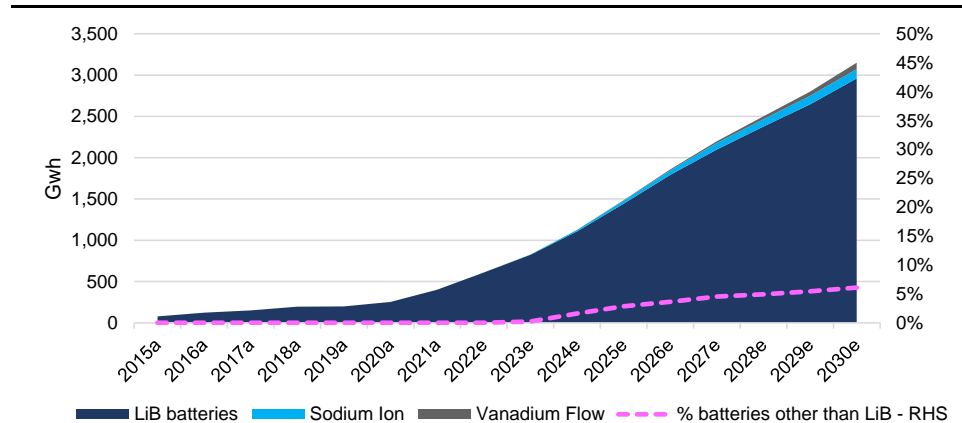


In our view, the current cost benefits of SiBs (and similar performance characteristics) make them somewhat of a threat to LFP batteries in select markets. Ternary LiBs (NMC, etc.) are less likely to be substituted given the energy density of SiBs is significantly lower. This may result in SiBs being used for energy storage; however, on a comparable cycle life this may also reduce the competitiveness. Battery manufacturer CATL recently announced a US\$3.5bn investment to construct a new battery materials recycling and processing facility, which will be tailored to LFP and NMC electric vehicle batteries as well as graphite anodes. The facility is expected to take around four years to construct and we believe this shows that even the leading developers of SiBs foresee a strong demand for LiBs in the future.

#### *We include SiBs in our forecasts*

We forecast SiB demand of 113GWh in 2030 with growth largely due to Chinese production for small scale EVs. We also forecast 79GWh of vanadium flow batteries in 2030 due to use in energy storage systems. In comparison, we forecast 2,960GWh of LiB batteries by 2030.

**Figure 22: We anticipate growth in sodium ion batteries but we expect vanadium flow batteries to compete in energy storage and lithium-ion batteries to remain the dominant technology for transportation**

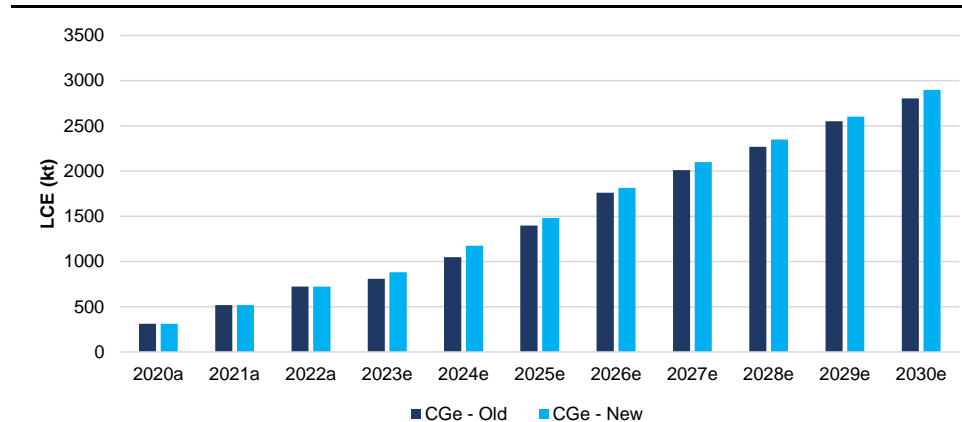


Source: Company reports, Canaccord Genuity estimates

#### *Lithium demand revisions*

Revisions to our EV sales forecasts result in an upward revision to our LCE demand by ~7% on average over the next five years, with nearer-term estimates lifting by 12% (125kt LCE) and 6% (84kt LCE) in 2023 and 2024 respectively. Our longer-term forecasts continue to call for LCE demand of ~1.5Mt in 2025 and ~2.9Mt by 2030, representing CAGR of 20% out to 2030.

**Figure 23: LCE demand changes**



Source: Company reports, Rho Motion, Canaccord Genuity estimates

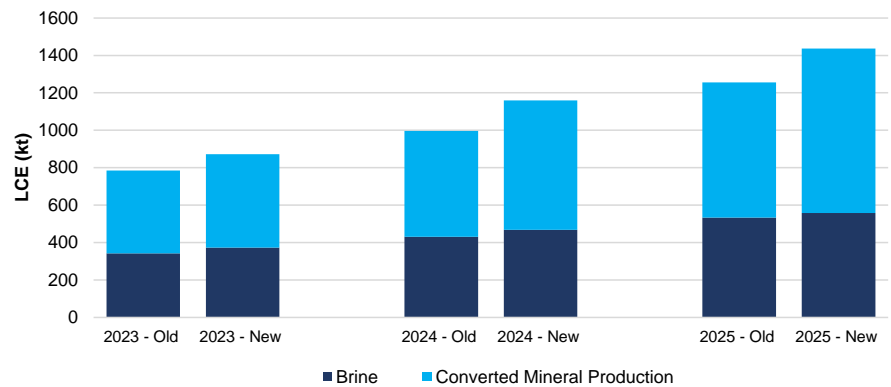
## Lithium supply – significant YoY growth expected, but medium-to-long term supply expectations remain beset with risks

### Modelled supply revisions

We expect 2023 to be a year of significant supply growth, with model revisions now calling for a ~50% YoY increases to 870kt LCE (vs our previous estimate of 804kt). Key drivers comprise mainly of several greenfield/expansion projects originally slated to enter production in 2022 (i.e. Finniss, Grota de Cirilo, Olaroz II, Cauchari), project restarts (Bald Hill), new supply from Africa coming on faster than we previously expected (Arcadia) and increased Chinese brine production.

Our near-term supply revisions are illustrated in Figure 24 below.

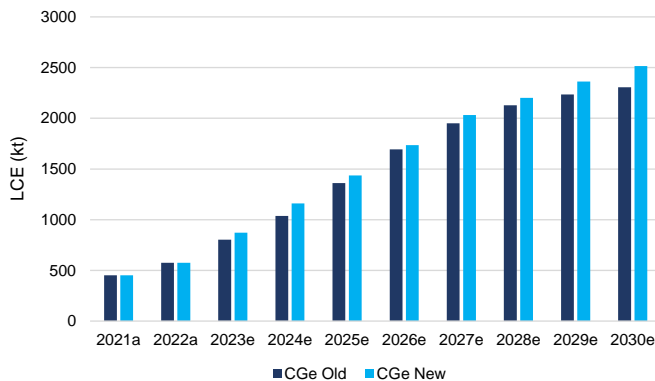
**Figure 24: CGe near-term LCE supply forecast changes**



Source: Canaccord Genuity estimates

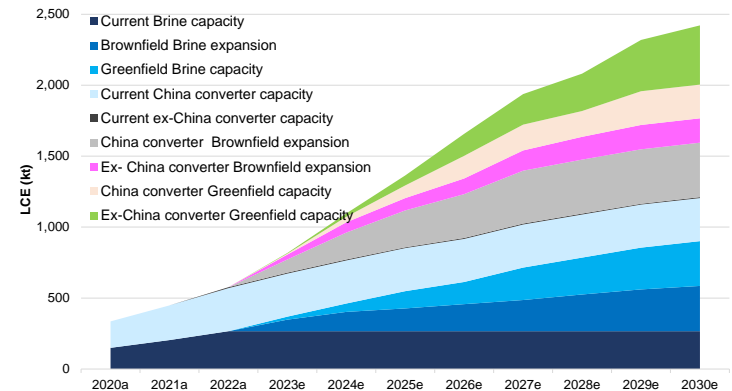
Over the longer term, our modelled supply has increased marginally by an average of 6% (Figure 25), comprised mostly of increased mineral conversion capacity. We estimate average annual supply growth of 20% out to 2030.

**Figure 25: CGe market supply forecast changes**



Source: Company reports, Canaccord Genuity estimates

**Figure 26: CGe supply forecasts by production source**



Source: Company reports, Canaccord Genuity estimates

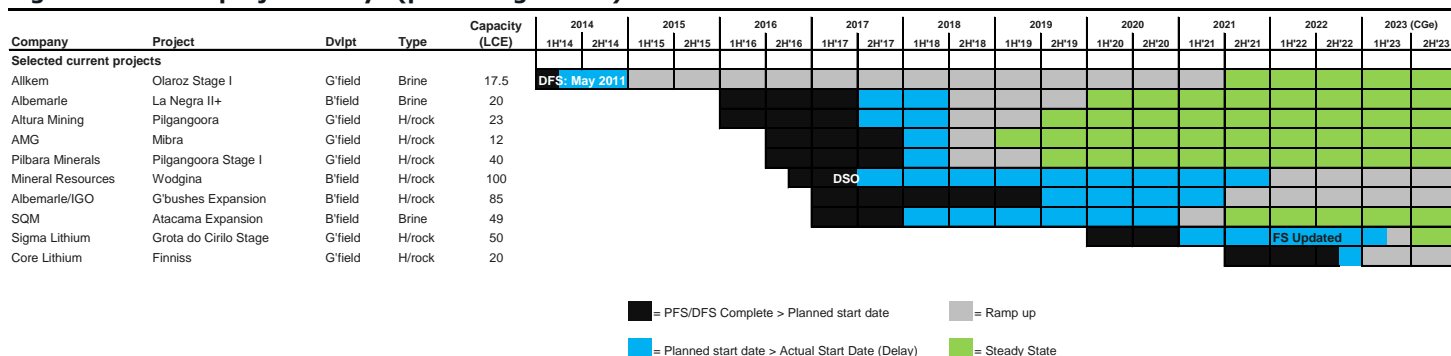
We continue to highlight longer term risks to supply, noting that greenfield projects (typically carrying higher permitting/financial/technical risks) comprise 50% of our modelled 2030 supply (Figure 26).

### Project delays still very much a key theme

Our research has found that, on average, lithium projects are delayed by ~3 years from their original announced timelines, excluding production ramp-ups to nameplate capacity (Figures 27 and 28). These delays are attributed to various factors, including permitting/approvals, lithium price cycles and technical challenges during commissioning and production ramp-up.

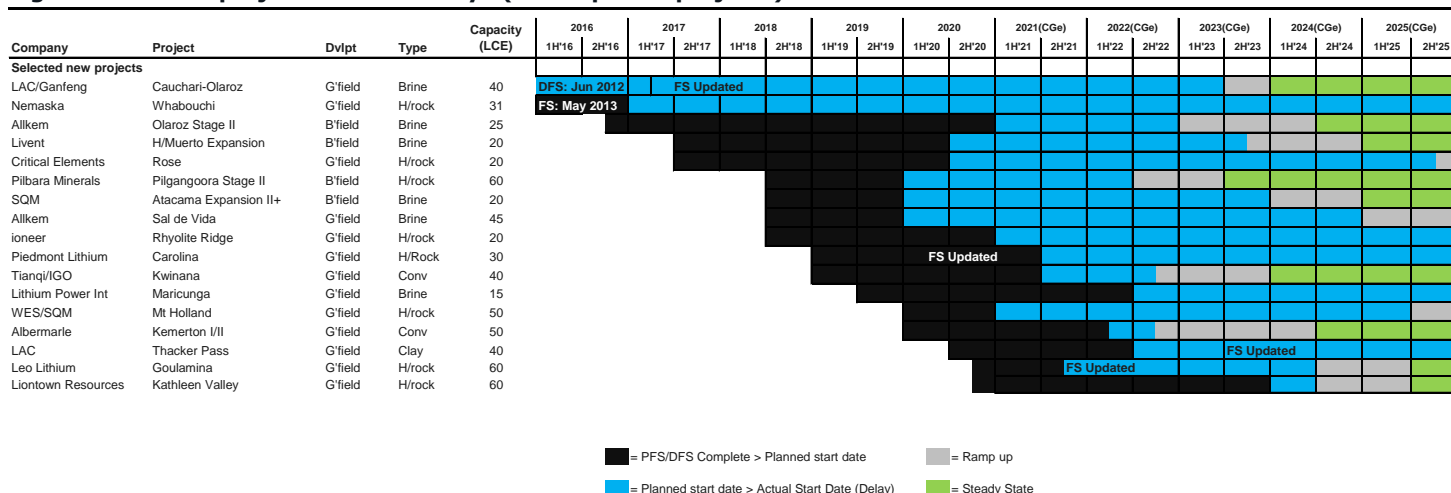
There are numerous examples of recently announced delays for new lithium supply (i.e. Sal de Vida, James Bay, Mt Holland, Mt Marion expansion) and we continue to see delays to project timelines as a major risk to our supply forecasts over the long term.

**Figure 27: Select project delays (producing assets)**



Source: Company reports, Canaccord Genuity estimates

**Figure 28: Select project timeline delays (development projects)**



Source: Company reports, Canaccord Genuity estimates

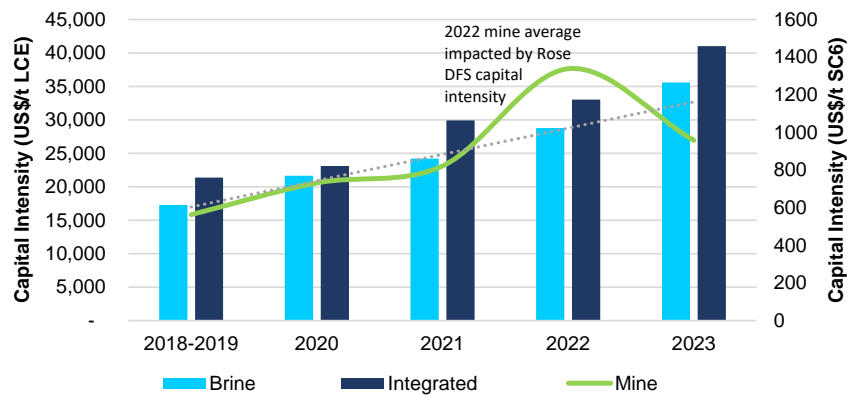
### Inflationary pressures continue to drive up capital intensities

We estimate average industry capital intensities to have increased 20% over the last 12 months, with our estimates for weighted average capital intensities for new lithium chemical supply at US\$23,000/t LCE (incl. US\$27,500/t for greenfield brines and US\$34,000/t for greenfield integrated hard rock projects).

There are numerous examples of project capex increases in the last 12 months (the more notable being Kathleen Valley, Vulcan, Mt Holland, Kemerton, Tennessee and Thacker Pass).

Taking industry average capital intensities, we now estimate the lithium sector requires US\$55bn in capex for supply to meet our 2030 demand forecasts. We remain of the view that lithium prices will need to remain elevated over the long term in order to incentivise this scale of supply response.

**Figure 29: Average greenfield lithium project capital intensities over time based on feasibility studies and capex revisions**

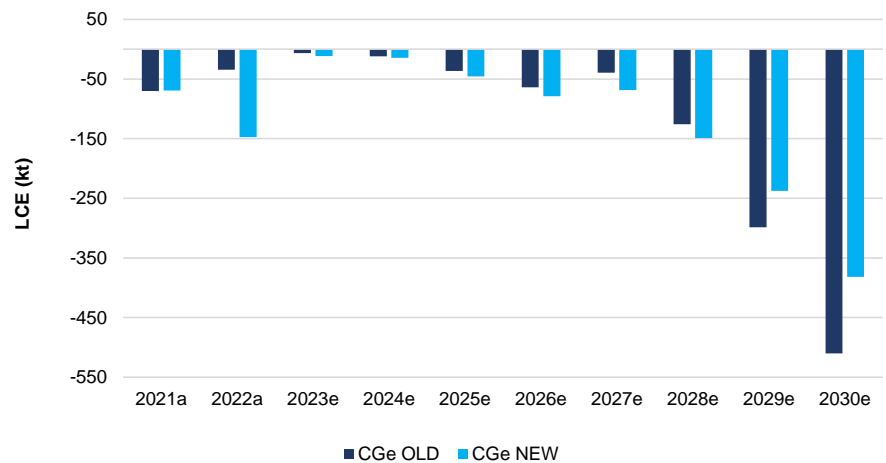


Source: Company reports, Canaccord Genuity

### Market balance – we continue to forecast deficits

Revised SxD modelling sees our market balance forecasts mostly unchanged (Figure 30). We estimate 2022's market deficit at ~20%, which we continue to expect to mostly reverse in 2023-25 (arguably already reflected in market pricing). From 2025, we expect strong growth in EV sales (possible demand upside risk from ESS) and expectations of a lagging supply response (most acute from the late 2020s) to result in widening market deficits (CGe ~400kt LCE in 2030, Figure 31).

**Figure 30: CGe lithium market balance revisions**



Source: Company reports, Canaccord Genuity estimates

**Figure 31: Summary Lithium SxD model**

		2021a	2022a	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e
<b>Supply</b>											
<b>Brines</b>	<b>kt LCE</b>	<b>207</b>	<b>270</b>	<b>373</b>	<b>467</b>	<b>557</b>	<b>617</b>	<b>706</b>	<b>776</b>	<b>846</b>	<b>892</b>
Existing brine supply	kt LCE	207	270	270	270	270	270	270	270	270	270
Brownfield expansions	kt LCE			81	136	160	190	220	258	294	319
Greenfield brine prod'n	kt LCE			21	62	126	156	216	248	282	304
<b>Effective converter capacity</b>	<b>kt LCE</b>	<b>244</b>	<b>305</b>	<b>499</b>	<b>693</b>	<b>879</b>	<b>1119</b>	<b>1325</b>	<b>1425</b>	<b>1517</b>	<b>1623</b>
China	kt LCE	245	287	403	533	652	773	858	865	875	875
Ex-China	kt LCE		18	96	159	227	346	468	560	643	749
<b>Total market supply</b>	<b>kt LCE</b>	<b>451</b>	<b>575</b>	<b>872</b>	<b>1160</b>	<b>1437</b>	<b>1736</b>	<b>2031</b>	<b>2201</b>	<b>2363</b>	<b>2516</b>
YoY change	%	31%	27%	52%	33%	24%	21%	17%	8%	7%	6%
<b>Demand</b>											
Industrial use	kt LCE	107	109	111	113	115	118	120	122	125	127
Batteries - EV's	kt LCE	293	487	639	885	1164	1474	1753	1989	2216	2476
Batteries - other (inc WIP)	kt LCE	121	126	134	176	203	224	227	239	260	295
Total batteries	kt LCE	414	614	772	1061	1367	1697	1980	2228	2476	2770
<b>Total demand</b>	<b>kt LCE</b>	<b>521</b>	<b>723</b>	<b>883</b>	<b>1174</b>	<b>1482</b>	<b>1815</b>	<b>2100</b>	<b>2350</b>	<b>2601</b>	<b>2898</b>
YOY change	%	67%	39%	22%	33%	26%	22%	16%	12%	11%	11%
<b>Market surplus/(deficit)</b>	<b>kt LCE</b>	<b>-69</b>	<b>-148</b>	<b>-11</b>	<b>-14</b>	<b>-46</b>	<b>-79</b>	<b>-68</b>	<b>-149</b>	<b>-237</b>	<b>-382</b>
%		-13%	-20%	-1%	-1%	-3%	-4%	-3%	-6%	-9%	-13%

Source: Company reports, Canaccord Genuity estimates

### Pricing – momentum has been to the downside but Chinese pricing may have bottomed

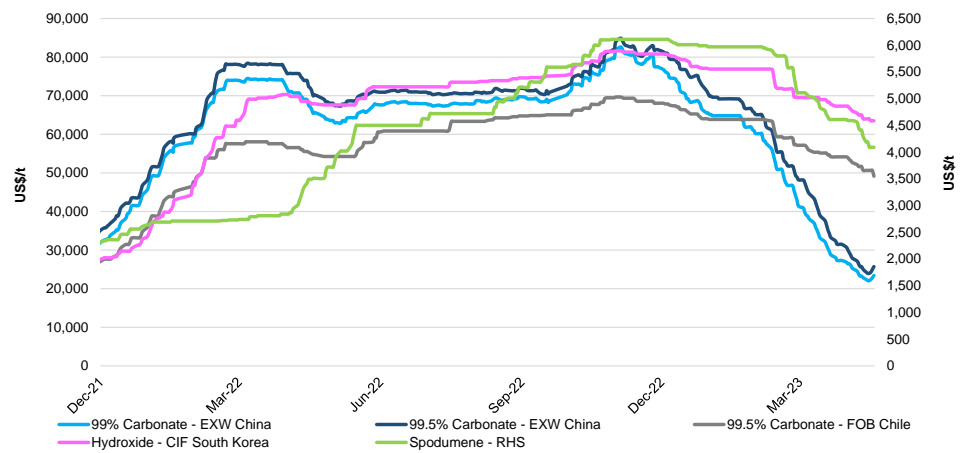
*Pricing divergence reflects geographical nuances – not all markets reflect Chinese conditions*

The answer to the question on what is the real lithium price is not that straightforward, in our view. While much recent market attention has been focussed on weakness in Chinese chemical pricing (Figure 32), we note that similarly dramatic falls are not reflected in other product markets. For example, spodumene concentrate (SC) prices are currently trading at ~US\$4,000/t, -33% from 2022 highs compared to carbonate at -72%.

Moreover, SC prices set the cost base for a large majority of Chinese chemical production and, based on historical pricing relationships (SC prices have averaged ~7% of Chinese chemical prices over the last five years), this would imply chemical prices of ~US\$50 to US\$55,000/t versus reported prices of ~US\$27,000/t currently.

Another example is lithium hydroxide (LiOH), whereby Chinese prices have fallen 55% from 2022 highs to US\$35,550/t, compared to Japan/Korea pricing which is currently trading at US\$62,000/t. In our view, this apparent divergence in market pricing is associated with differing market dynamics in each geography (i.e. LFP dominant market share in China, local Chinese auto market currently undergoing period of aggressive price cuts and influence of introduction of new emission standards from July 1 for ICE vehicles).

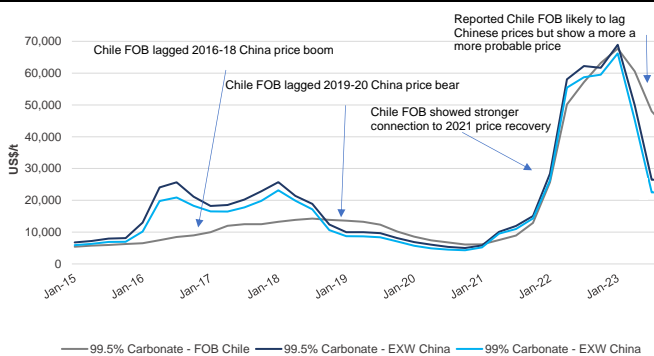
**Figure 32: Lithium product prices have shown significant divergence since late 2022**



Source: Asian Metal

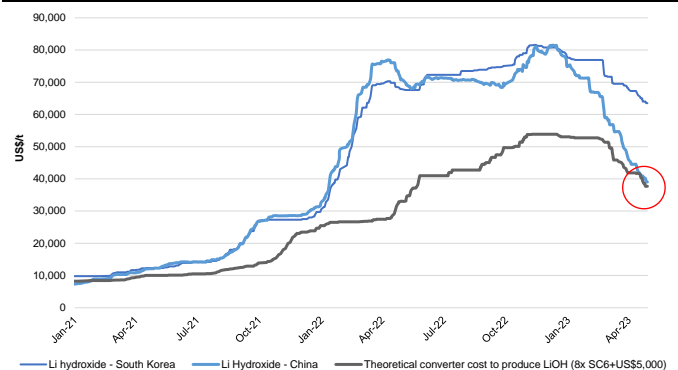
Figures 33 and 34 below further illustrate pricing variability. The (longer-term, fixed pricing?) structure of supply contracts from South American chemical producers lead to a lag effect in pricing versus Chinese markets. Similarly, pricing differentials for LiOH in China vs Japan/Korea suggest vastly different margins for producers selling into those regions.

**Figure 33: Carbonate pricing dynamic shows South American prices lag reported Chinese pricing. The 2021/22 price spike saw South American prices more closely following Asian pricing**



Source: Asian Metal, Canaccord Genuity

**Figure 34: LiOH converters in China are likely experiencing margin compression, unless they are capable of exporting LiOH or are acquiring SC6 below Asian Metal's reported pricing. We believe SC6 lags lower for a time**



Source: Asian Metal, Canaccord Genuity

### Lithium price forecasts – what is the *real* price of lithium in the market?

For clarification, we attempt to forecast pricing expected to be seen as reported by various price reporting agencies, not company specific realised prices. As each company has its own contracts and pricing mechanisms, they will all be different (but typically lagging “spot” prices), so while companies may realise better pricing in 2023 than 2022, our expected headline reported price will be lower.

Our prior price forecasts in August 2022 called for peak pricing in the DecQ'22 with prices pulling back over the course of 2023. It appears that our thesis of reduced tension (rather than oversupply) continues to play out, with feedback of strong demand not reconciling with an apparent collapse in Chinese pricing.



While Chinese prices took the elevator down (**we do not know of any western producers that directly reference this price**), we think the delayed pricing for major producers will see a more gradual price fall. The Chinese move has now extended below our previous forecasts (Figures 35-44) and is beginning to interact with the top of the cost curve. Evidence of this is apparent with reports of several Chinese lepidolite operations cutting production due to operating costs higher than pricing. In our view, this shows the fatal flaw in the “Chinese led oversupply” narrative, and we believe this leads to supply cuts in 2023-24 *which will hinder Chinese lepidolite investment in the future*.

Ultimately, we see a bottoming in pricing in 2023 with a more balanced market and steady recovery in 2024, before pricing is forced higher again by incessant demand/lagging supply in 2025-2026. We revert to LT price forecasts in 2028 and maintain our LT price forecast of US\$22,500/t for chemicals and US\$1,500/t for SC6 (acknowledging these are conservative in light of our forecast supply deficits).

#### *Wuxi exchange – a price leader or price deceiver?*

Probably both. The fall in Chinese carbonate prices has been the primary narrative driver for equities since the end of 2022. An emerging exchange called the Wuxi Stainless Steel Exchange (“Wuxi”) has often been quoted in this narrative, with a price curve that has been pushing aggressively lower. The volatility of the exchange perhaps suggests a lack of liquidity and there is sparse details on the quality of product being offered. As we previously discussed, **there are no companies under our coverage using the Wuxi exchange as a price setting mechanism**. So, while it may be an indication of general price direction, we don’t see the velocity of price changes impacting day to day operations of lithium companies or the products they sell.

Below is a list of companies operating on the exchange. There are a number of consumers and producers on the exchange but ultimately no supply from the top five producers globally.

Our view is the exchange does not provide transparent pricing (access restricted) and presents as Stainless Steel focussed exchange with limited operational scope (10 total products quotes with three related to stainless steel and one lithium product). We have contacted the exchange to discuss its operations but have received no response to date. The lack of visibility means we are sceptical on its “prices” and the impact to companies, but at the same time we believe it can’t be ignored given its impact on sentiment for lithium equities.

#### **Figure 35: Producers and operators using the Wuxi exchange**

Sichuan State Lithium Materials (Yahua subsidiary 53%)	Spodumene producer and offtake partner
Qinghai East Tajinar Lithium Resources	Brine producer
Jiangxi Nanshi Lithium New Materials	Lipidolite producer
Shanghai China Lithium Industrial	Lithium refiner
Hunan Brunp Recycling Technology (CATL subsidiary 100%)	Recycler
Quzhou Huayu Resources Recycling Technology (Huayou Cobalt subsidiary 100%)	Recycler

Source: Wuxi Stainless Steel Exchange

#### **Updated price deck – prices near a bottom; lifting our medium-term expectations**

Revisions to our price deck are outlined in Figure 36, with major near-term changes relating to lower Chinese carbonate pricing assumptions through CY23; we see minor upgrades to SC while South American export pricing is largely unchanged.

The major revisions to our deck are in 2024E-27E, with downward revisions to 2024E pricing offset by material increases through 2025E-27E (average +40% for chemicals, 24-87% for SC). The upgrades to our medium-term pricing reflect our views of the requirement for higher incentive pricing to solve for major forecast deficits in the late 2020s. Our LT prices (from 2028) are unchanged at US\$22,500/t for chemicals and US\$1,500/t for SC.

**Figure 36: CGe price deck changes**

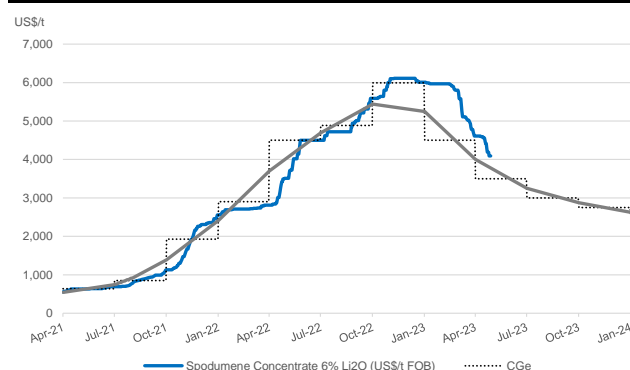
		2022	MarQ'23	JunQ'23	SepQ'23	DecQ'23	2023	2024	2025	2026	2027	2028 (LT)
Lithium Carbonate min 99% Li (US\$/t FOB SthAm)	New	59,555	60,552	48,000	42,000	37,500	47,013	33,750	39,375	40,000	40,000	22,500
Lithium Carbonate min 99% Li (US\$/t FOB SthAm)	Old	59,555	59,000	50,000	42,500	40,000	47,875	35,000	30,000	30,000	22,500	22,500
% change		0%	3%	-4%	-1%	-6%	-2%	-4%	31%	33%	78%	0%
Lithium Carbonate min 99% Li (US\$/t China EXW)	New	59,962	45,294	22,500	22,500	25,000	28,824	27,500	34,375	35,000	35,000	20,500
Lithium Carbonate min 99% Li (US\$/t China EXW)	Old	59,962	53,000	44,000	35,000	34,000	41,500	33,000	29,000	29,000	20,500	20,500
% change		0%	-15%	-49%	-36%	-26%	-31%	-17%	19%	21%	71%	0%
Lithium Carbonate min 99.5% Li (US\$/t China EXW)	New	62,720	49,888	26,500	26,500	29,000	32,972	31,500	36,375	37,000	37,000	22,500
Lithium Carbonate min 99.5% Li (US\$/t China EXW)	Old	62,720	55,000	49,000	40,000	37,500	45,375	36,000	31,000	31,000	22,500	22,500
% change		0%	-9%	-46%	-34%	-23%	-27%	-13%	17%	19%	64%	0%
Lithium Hydroxide min 57% Li (US\$/t China EXW)	New	60,406	54,062	37,500	29,000	31,500	38,015	34,000	38,875	39,500	39,500	22,500
Lithium Hydroxide min 57% Li (US\$/t China EXW)	Old	60,406	60,000	44,000	42,500	40,000	46,625	37,500	32,500	32,500	22,500	22,500
% change		0%	-10%	-15%	-32%	-21%	-18%	-9%	20%	22%	76%	0%
Lithium Hydroxide min 57% Li (US\$/t Asia CIF)	New	69,116	73,616	52,500	42,500	40,000	52,154	36,875	40,000	40,000	40,000	22,500
Lithium Hydroxide min 57% Li (US\$/t Asia CIF)	Old	69,116	69,000	59,000	45,000	40,000	53,250	37,500	32,500	32,500	22,500	22,500
% change		0%	7%	-11%	-6%	0%	-2%	-2%	23%	23%	78%	0%
6% Li2O Spodumene Concentrate - FOB Australia	New	4,570	5,600	3,938	3,188	2,800	3,881	2,581	2,800	2,800	2,800	1,500
6% Li2O Spodumene Concentrate - FOB Australia	Old	4,570	4,500	3,500	3,000	2,750	3,438	2,313	2,250	2,250	1,500	1,500
% change		0%	24%	13%	6%	2%	13%	12%	24%	24%	87%	0%

Source: Asian Metal, Canaccord Genuity estimates

We view spodumene pricing as one of the key indicators to watch for throughout 2023. With the influx of DSO from Africa (sometimes actually found to be barren rocks on arrival in China) the S&D balance has equalised somewhat. However, with spodumene setting the marginal cost processed chemical (8x SC6 + US\$5,000 conversion costs), it limits the ability for some converters to accept lower chemical pricing (i.e. at US\$3,500/t, SC6 converters would need pricing of at least US\$38,750/t LiOH to make a profit).

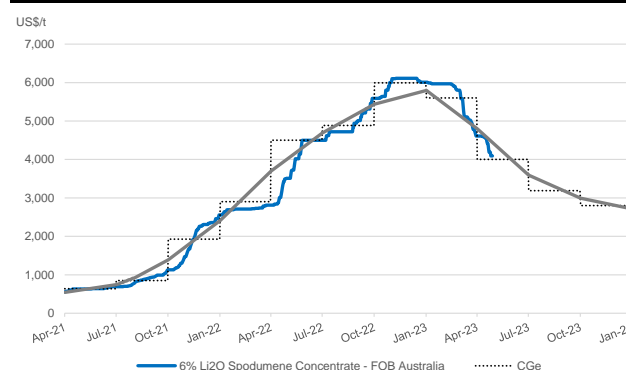
Given industry feedback continues to be of strong inbound enquiry, we believe these prices are acceptable to most converters with LT pricing in place. We have brought up our forecasts for spodumene pricing over the near term to maintain a ~7% linkage to LiOH prices.

**Figure 37: CGe previous spodumene price forecasts - SC6 prices have been stronger than we anticipated, likely due to linkage mechanism**



Source: Asian Metal, Canaccord Genuity estimates

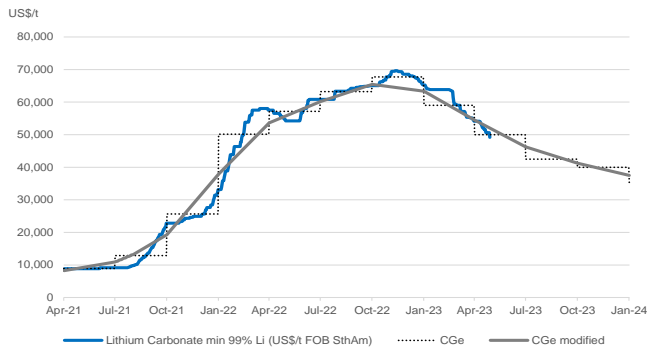
**Figure 38: CGe updated spodumene price forecasts - we have lifted our forecasts but still expect an easing of prices, aligned to ~7% of the Asian LiOH price**



Source: Asian Metal, Canaccord Genuity estimates

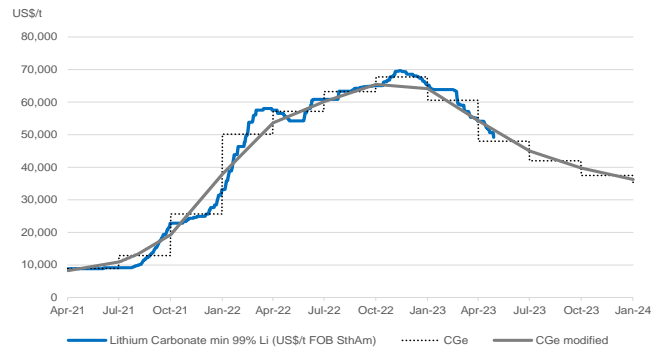
South American carbonate pricing has seen a general decline in line with our forecasts. This is not surprising given the lagged pricing mechanisms which tend to dictate realised price. We have made minor adjustments to our prices, lower pricing through CY23-24 but we forecast a price rebound to US\$40,000/t in CY25-26.

**Figure 39: CGe previous lithium carbonate price forecasts for FOB South America - largely aligned with the reported price**



Source: Asian Metal, Canaccord Genuity estimates

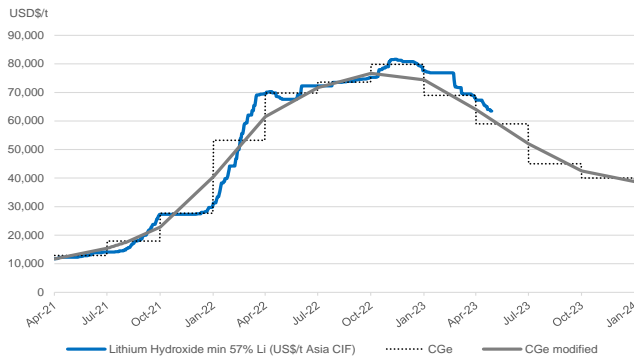
**Figure 40: CGe updated lithium carbonate price forecasts for FOB South America - these have fallen slightly in CY23 and CY24 but we have lifted our CY25-27 profile as demand lifts**



Source: Asian Metal, Canaccord Genuity estimates

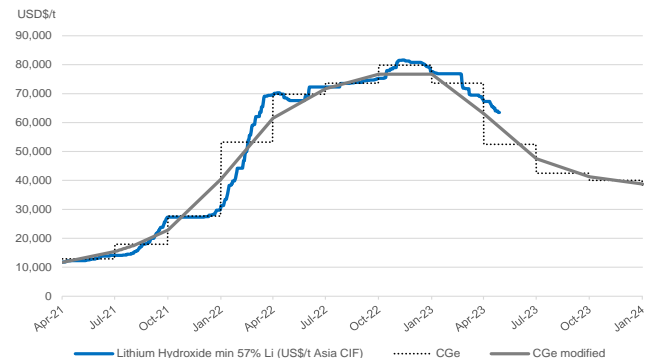
South Korean hydroxide prices were also holding up reasonably well into April but fell (margins for converting Chinese lithium carbonate into hydroxide likely resulted in some equalisation of pricing). We have adjusted our prices slightly lower through CY23-24 but have a price recovery in CY25-26 as demand builds.

**Figure 41: CGe previous Asian LiOH price forecasts - also largely aligned with reported pricing**



Source: Asian Metal, Canaccord Genuity estimates

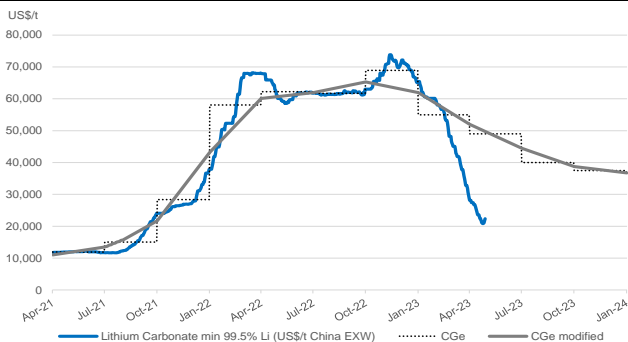
**Figure 42: CGe updated Asian LiOH forecasts - these have come down in CY23 but have lifted our CY25 forecasts**



Source: Asian Metal, Canaccord Genuity estimates

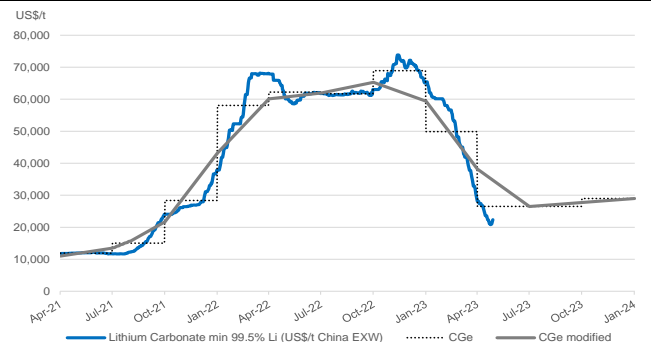
Asian Metal Chinese pricing showed some of the same falls seen on the Wuxi exchange but to a lesser degree. We think this price has either bottomed or is bottoming and will begin to recover through CY23-25. As with the Wuxi exchange price we are not aware of any producers referencing this series in order to set prices. On this basis (again), we view this as an indication of price direction but not velocity.

**Figure 43: CGe previous Chinese carbonate price forecasts - rapidly fell in early 2023, with the fall putting prices roughly 1 quarter in front of our forecasts**



Source: Asian Metal, Canaccord Genuity estimates

**Figure 44: CGe updated Chinese carbonate price forecasts - it appears prices are starting to stabilise after severe falls. We see a bottoming in CY23 and recovery into CY24**



Source: Asian Metal, Canaccord Genuity estimates

## CG lithium sector coverage

Our comprehensive global lithium equity coverage is outlined in Figure 45. Our target price revisions stem from changes to our lithium price forecasts.

**Figure 45: CG global lithium sector coverage – target price changes**

Code	Exch	Name	Old rating	New rating	Analyst	Type	Curr	Mkt cap	Price	Old TP	New TP	Change
PLS	ASX	Pilbara Minerals Limited	BUY	BUY	Timothy Hoff	Spodumene	AUD	12,680	4.20	5.10	5.50	8%
IGO	ASX	IGO Limited	HOLD	HOLD	Timothy Hoff	Spodumene	AUD	10,541	13.80	13.50	14.00	4%
AKE	ASX	Allkem Limited	BUY	BUY	Reg Spencer	Integrated	AUD	7,645	11.99	18.50	19.50	5%
LTR	ASX	Liontown Resources	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	6,045	2.75	2.50	2.80	12%
CXO	ASX	Core Lithium Ltd	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	1,745	0.95	1.35	1.40	4%
SYA	ASX	Sayona Mining Ltd	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	1,704	0.20	0.30	0.31	3%
PLL	ASX	Piedmont Lithium Inc.	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	1,607	0.80	1.85	2.15	16%
VUL	ASX	Vulcan Energy Resources Ltd	RESTRICTED		Timothy Hoff	Brine	AUD	R	R	R	R	R
INR	ASX	Ioneer Ltd	SPEC BUY	SPEC BUY	Timothy Hoff	Integrated	AUD	687	0.32	0.45	0.50	11%
LKE	ASX	Lake Resources N.L.	SPEC BUY	SPEC BUY	Reg Spencer	Brine	AUD	675	0.47	0.90	0.95	6%
AGY	ASX	Argosy Minerals Lts.,	SPEC BUY	SPEC BUY	Timothy Hoff	Brine	AUD	572	0.42	0.80	0.85	6%
LLL	ASX	Leo Lithium	SPEC BUY	SPEC BUY	Reg Spencer	Spodumene	AUD	537	0.55	1.90	2.20	16%
GL1	ASX	Global Lithium Limited	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	312	1.47	2.70	2.80	4%
LRS	ASX	Latin Resources	RESTRICTED		Reg Spencer	Spodumene	AUD	R	R	R	R	R
GLN	ASX	Galan Lithium Ltd	SPEC BUY	SPEC BUY	Reg Spencer	Brine	AUD	302	0.99	3.05	3.30	8%
DLI	ASX	Delta Lithium	SPEC BUY	SPEC BUY	Paul Howard	Spodumene	AUD	195	0.45	1.20	1.25	4%
LPI	ASX	Lithium Power International	SPEC BUY	SPEC BUY	Reg Spencer	Brine	AUD	194	0.31	1.30	1.50	15%
GT1	ASX	Green Technology Metals	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	114	0.60	1.80	1.85	3%
PSC	ASX	Prospect Resources Ltd	SPEC BUY	SPEC BUY	Timothy Hoff	Spodumene	AUD	64	0.14	0.15	0.16	7%
SGML	TSXV	Sigma Lithium	BUY	BUY	Katie Lachapelle	Spodumene	CAD	4,785	46.24	67.00	75.00	12%
LAC	TSX	Lithium Americas Corp.	SPEC BUY	SPEC BUY	Katie Lachapelle	Brine	CAD	4,125	25.86	50.00	55.00	10%
PMET	TSXV	Patriot Battery Metals	SPEC BUY	SPEC BUY	Katie Lachapelle	Spodumene	CAD	1,116	12.15	16.75	16.75	0%
LIRC	TSX	Lithium Royalty corp	BUY	BUY	Katie Lachapelle	Royalty	CAD	797	14.43	23.50	23.50	0%
SLI	TSXV	Standard Lithium Ltd	SPEC BUY	SPEC BUY	Katie Lachapelle	Brine	CAD	732	4.40	15.00	9.00	-40%
CRE	TSXV	Critical Elements Limited	SPEC BUY	SPEC BUY	Katie Lachapelle	Spodumene	CAD	485	2.23	5.00	5.00	0%
FL	TSXV	Frontier Lithium	SPEC BUY	SPEC BUY	Katie Lachapelle	Spodumene	CAD	430	1.92	5.25	4.50	-14%
RCK	TSXV	Rock Tech Lithium	HOLD	HOLD	Katie Lachapelle	Spodumene	CAD	194	2.29	2.75	2.50	-9%
ALLA	AIM	Atlantic Lithium	SPEC BUY	SPEC BUY	Alex Bedwany	Spodumene	GBP	187	0.31	0.85	0.90	6%
KOD	AIM	Kodal Minerals	SPEC BUY	SPEC BUY	Alex Bedwany	Spodumene	GBP	136	0.01	0.01	0.02	15%
CTL	AIM	CleanTech Lithium	SPEC BUY	SPEC BUY	Alex Bedwany	Brine	GBP	46	0.44	2.80	2.95	5%

Source: FactSet, Canaccord Genuity estimates

## Estimate revisions

Our estimate revisions for covered producers and near-term producers are shown in Figure 46. Our near-term revisions are mixed, with most major upgrades in CY25E reflecting our updated price deck.

**Figure 46: CG lithium producer estimate revisions**

		Old EBITDA			New EBITDA			Difference		
		FY23E	FY24E	FY25E	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E
AKE	A\$m	1058	1347	1508	990	1359	1766	-6%	1%	17%
PLL	A\$m	59	160	153	64	190	215	-6%	1%	17%
SYA	A\$m	1	0	0	1	0	0	9%	19%	41%
AGY	A\$m	41	60	59	1	55	79	-99%	-9%	34%
CXO	A\$m	2	323	366	2	374	367	0%	16%	0%
IGO	A\$m	2043	1895	1511	2190	1938	1598	7%	2%	6%
PLS	A\$m	3298	1827	1818	3387	1878	2134	3%	3%	17%
LAC	US\$m	21	301	213	-16	251	308	-175%	-17%	45%
SGML	C\$m	474	645	1477	471	614	1005	-1%	-5%	-32%

		Old NPAT			New NPAT			Difference		
		FY23E	FY24E	FY25E	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E
AKE	A\$m	635	895	1003	600	921	1185	-6%	3%	18%
PLL	A\$m	72	148	240	80	184	353	11%	25%	47%
SYA	A\$m	-10	166	69	-11	173	97	10%	4%	40%
AGY	A\$m	16	27	23	-4	25	40	-125%	-7%	70%
CXO	A\$m	1	306	322	0	351	326	-97%	15%	1%
IGO	A\$m	1434	1116	830	1545	1144	893	8%	2%	8%
PLS	A\$m	2258	1258	1258	2320	1295	1481	3%	3%	18%
LAC	US\$m	17	288	180	-21	238	275	-225%	-17%	53%
SGML	C\$m	261	449	1178	222	373	681	-15%	-17%	-42%

		Old FCF			New FCF			Difference		
		FY23E	FY24E	FY25E	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E
AKE	A\$m	282	649	743	270	596	840	-4%	-8%	13%
PLL	A\$m	12	-202	-199	20	-165	-78	68%	-18%	-61%
SYA	A\$m	-237	68	98	-273	81	123	15%	19%	25%
AGY	A\$m	14	-127	-152	-9	-93	-139	-165%	-27%	-9%
CXO	A\$m	-59	199	313	-59	251	316	0%	26%	1%
IGO	A\$m	999	1085	1011	1156	1038	980	16%	-4%	-3%
PLS	A\$m	2736	968	1237	2798	979	1378	2%	1%	11%
LAC	US\$m	4	7	-686	-33	-43	-591	112%	-116%	16%
SGML	C\$m	120	442	1200	183	271	701	-35%	63%	71%

Source: Canaccord Genuity estimates

## Company summaries

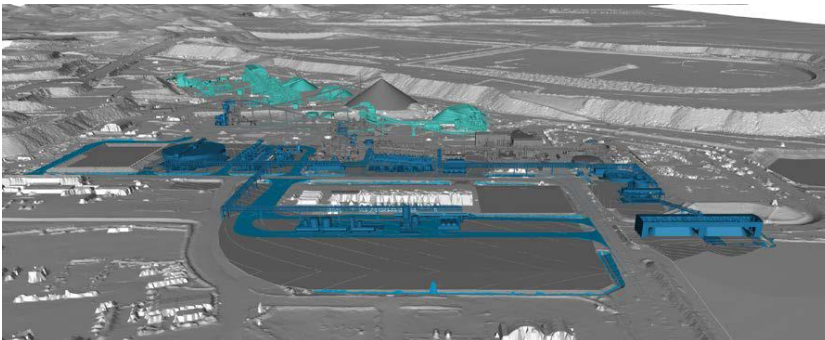
### **Pilbara Minerals Ltd (PLS-ASX: A\$4.20, mkt cap A\$12.68bn | BUY, TP A\$5.50 (prev. A\$5.10) | Tim Hoff)**

Pilbara has had a company-defining six months, with cash increasing by ~A1.175bn since the end of the SepQ'22 due to strong spodumene concentrate pricing and spodumene shipments. The company is currently focussed on expanding its Pilgangoora operation, with a major construction contract awarded for the P680 Expansion Project in January. The expansion will see Pilgangoora's capacity grow to ~680ktpa. Additionally, the PLS board has made a FID to further increase the nameplate capacity of the Pilgangoora Project to 1Mtpa (P1000 Project) via an expanded concentrator with increased throughput and a range of supporting infrastructure. P1000 will be initially executed in parallel with the ongoing P680 Project, with first ore targeted for MarQ'25 and full production at the end of SepQ'25.

The POSCO Pilbara Downstream JV remains on schedule with the first train now over 35% complete and targeting to commence commissioning from late CY23. The second train also remains on schedule and expected to commence commissioning in MarQ'24. Earlier in the year, the JV secured a debt facility of US\$460m from Korean government-owned banks. The facility represents the remaining ~60% of the forecast funding required for the development of the Gwangyang Chemical Facility.

We have updated our price deck and our price target (risked NAV) has increased to A\$5.50 (from A\$5.10). We maintain our BUY recommendation on valuation (0.75x P/NAV).

**Figure 47: Pilgan Plant schematic: existing plant infrastructure in dark grey, P680 project in teal and P1000 project in dark blue**



Source: Pilbara Minerals

**Figure 48: POSCO Pilbara Solution Headquarters in Gwangyang**



Source: Pilbara Minerals

### **IGO Ltd (IGO-ASX: A\$13.80, mkt cap A\$10.54bn | HOLD, TP A\$14.00 (prev. A\$13.50) | Tim Hoff)**

The Greenbushes operation continues to perform well with the company guiding to the top end of FY23 production guidance of 1,350-1,450kt SC. In the MarQ'23 IGO realised a price of US\$5,783/t for SC6, placing it at the top of the realised price leaderboard for spodumene producers. Ramp-up at the company's joint venture, Tianqi Lithium Energy Australia (TLEA), Kwinana Refinery continues slowly with the company aiming to reach reach 60-70% of nameplate capacity by the end of CY23. This is an excellent example of the difficulty of ramping up greenfields lithium converters. Ultimately, we believe TLEA may not reach nameplate capacity for the first stage of its Kwinana Refinery ambitions and that stage two will require additional capital to correct issues identified in stage one.

We have updated our model resulting in minor upgrades to our FY23E-25E EBITDA figures. Our price target (risked NAV) has increased to A\$14.00 (from A\$13.50). We maintain our HOLD recommendation on valuation (0.97x P/NAV).



**Allkem Ltd (AKE-ASX: A\$11.99, mkt cap A\$7,645m | BUY, TP A\$19.5 (prev. A\$18.50) | Reg Spencer)**

AKE continues to focus on growth initiatives (i.e. Sal de Vida, James Bay, Olaroz II ramp up) and on our estimates (CGe cumulative EBITDA FY23E-25E US\$4.1bn vs CGe capex of US\$1bn) these initiatives are fully funded. However, as noted in the MarQ'23 report, minor timeline delays at Sal de Vida (i.e. resourcing/procurement) and James Bay (permits) see production pushed out 3-6 months. Once growth initiatives are executed, our longer-term modelling forecasts see AKE achieving a ~4x increase in capacity to 120kt LCE by 2030.

Near term, Mt Cattlin is seeing improvements while AKE expects Olaroz II to be commissioned in the JunQ'23. Pricing appears to be a key driver of investor sentiment – we note JunQ'23 guidance sits materially above Chinese “spot” pricing (reflecting AKE contract structures, geographics product pricing variance).

Our revised price deck upgrades EBITDA slightly with FY24E and FY25E estimates increasing by 1% and 17%, respectively. This is offset by minor adjustments to our NPV risk weightings, with our price target (blended 8x five-year forward average EBITDA + risked NPV10%) increasing 5% to A\$19.50 (from A\$18.50). AKE remains a standout on volume and earnings growth, in our view.

**Liontown Resources Ltd (LTR-ASX: A\$2.75, mkt cap A\$6.05bn | SPEC BUY, TP A\$2.80 (prev. A\$2.50) | Reg Spencer)**

Construction activities at Kathleen Valley (KV) are progressing with key activities including completion of the camp, award of key contracts, detailed design, power station/TSF build underway, and commencement of mining. First production remains scheduled for mid CY24, with recent project capex increases to A\$895m (see [Inflation bites at KV - >60% capex increase](#)) a result of maintaining project timelines and project scope changes.

On our estimates, we continue to model average Stage 1 SC production of 560ktpa (years 1-4) and Stage 2 of 770ktpa from 2029. Revised project capital costs (CGe US\$911m) and the resulting funding gap based on available liquidity remains to be solved, but we remain of the view that LTR have numerous options available (equity, debt, offtake related finance). We assume 50:50 debt/equity for shortfall financing and peak debt of A\$460m in MarQ'23E.

In the near term, we expect the market to remain focused on M&A following Albemarle's recent bid (see [Liontown rejects Albermale bid](#)). There has been much market speculation on an improved offer from ALB or even a third party – given this potential, we remain at SPECULATIVE BUY with our target price (risked NPV10%) increasing 12% to A\$2.80 (from A\$2.50) on the back of revised pricing assumptions.

**Sigma Lithium Corp. (SGML-TSXV: C\$46.24, mkt cap C\$4.78bn | BUY, TP C\$75.00 (prev. C\$67.00) | Katie Lachapelle)**

Sigma Lithium recently achieved first production of spodumene concentrate at its flagship Grotto do Cirilo project. Sigma expects the plant to produce at full production capacity by July 2023 (~270ktpa SC5.5 for Phase 1). We look forward to the first shipment of spodumene concentrate in May, where we will get a 'first look' at the realised price received on Sigma's material and a potential sale of tailings. For 2023E, we model total production of ~170kt SC5.5, resulting in post-tax FCF of \$414m (excl. potential spend on Phase 1+2). Depending on the SC to LiOH ratio received for its sale of SC, we may be proven too conservative.

With Phase 1 now in production, focus is shifting towards a Phase 2 and Phase 3 expansion, which we believe could come online as early as 2025. The company released an updated technical report in December, outlining the proposed expansion, along with US\$100m in debt financing. The proposed expansion from 270ktpa to 766ktpa SC5.5 (~104kt LCE) was supported by a 63% increase in Mineral Reserves to 54.8Mt @ 1.44% Li2O. Detailed engineering and FEL-3 level capex costing work is underway on site for the expansion. Sigma expects this work to inform a Definitive

Feasibility Study, which it expects to be released in JunQ'23. We conservatively model higher capex (\$217m vs \$155m) due to sector wide inflationary pressures. A formal investment decision from the Board is expected mid-year, which would allow the ordering of long lead items. In our view, Sigma is well funded with current cash on hand (C\$85 million as of SepQ'22) and projected cash flows from Phase 1.

We have updated our estimates to reflect our revised lithium price deck and modest revisions to our operating assumptions. Given the increase in our medium-term price deck and Sigma's sensitivity to price changes (+15% for each 10% move in price) both our NAVPS and five-year average EBITDA forecasts have increased (8% and 16%, respectively). As a result, we're increasing our target price to C\$75.00 (from C\$67.00) and maintain our BUY rating. Our target price remains based on an equal weighting of 7.0x five-year forward average EBITDA and 1.0x NAV, measured as at April 1, 2024. SGML currently trades at 0.89x NAV.

**Lithium Americas Corp. (LAC-TSX: C\$25.86, mkt cap C\$4.12bn | SPEC BUY, TP C\$55.00 (prev. C\$50.00) | Katie Lachapelle)**

Construction on the Cauchari-Olaroz project in Argentina is now substantially complete, with first production scheduled to commence by the end of June. LAC has not yet provided formal guidance for the year, but the company's expectation is that production will ramp up like a "hockey stick" curve over 2H'CY23. We currently forecast ~10kt Li2CO3, at an operating cost of ~US\$6,245/t (conservatively higher during ramp-up).

At Thacker Pass, construction is now underway following the announced US\$650m strategic investment from General Motors in MarQ'23, a revised Feasibility Study, and the receipt of a favourable decision in the longstanding Record of Decision appeal process. Additional funding is likely to come via the DOE Advanced Technology Vehicles Manufacturing loan program, with approval expected mid-year (a near-term catalyst). The loan can fund up to 75% of the total capital cost for Phase 1 (~\$2.3bn); we currently model 65%.

In April 2023, LAC finalised its acquisition of Arena Minerals, setting the stage for further consolidation of the Pastos Grandes basin in Argentina. The addition of Arena's Sal de la Puna project to the portfolio should allow LAC to add incremental value via an integrated development plan. LAC's 100% owned Pastos Grandes Project is located in the same basin, and Ganfeng has acquired similar properties nearby (Pozuelos). A detailed development plan is expected in DecQ'23, which should incorporate synergies from a larger, consolidated project. Initial expectations are ~40ktpa LCE of capacity and potential production of a lithium chloride concentrate on site with further processing offsite (better infrastructure). LAC's planned separation of its two businesses is still on track to occur before the end of CY23.

We have updated our estimates to reflect our revised lithium price deck and modest revisions to our operating assumptions. Given the increase in our medium-term price deck both our NAVPS and five-year average EBITDA forecasts have increased (5% and 18%, respectively). As a result, we're increasing our target price to C\$55.00 (from C\$50.00) and maintain our SPECULATIVE BUY rating. Our target price remains based on an equal weighting of 8.0x five-year forward average EBITDA and 1.0x NAV, measured as at April 1, 2024. LAC currently trades at 0.45x NAV.

**Patriot Battery Metals Inc. (PMET-TSXV: C\$12.15, mkt cap C\$1,116m | SPEC BUY, TP C\$16.75 | Katie Lachapelle)**

Patriot Battery Metals' drill success continues at its flagship Corvette property in Quebec. In May, the company announced that it has successfully extended the strike length of the CV5 pegmatite to 3.7km. Mineralisation remains open along strike at both the eastern and western ends as well as at depth. Management is currently targeting the release of a maiden Mineral Resource Estimate in the 1H'CY23, which will be a key potential catalyst, in our view.

PMET also commenced exploration work at the recently discovered CV13 pegmatite, which comprises two contiguous lithium outcrop trends with a combined strike length of ~2.3km. PMET continues to demonstrate strong resource potential across its land

Canaccord Genuity received a fee for its role as Joint Lead Manager to Patriot Battery Metal's \$50m equity raising on 21 March 2023.

package, with CV13 returning results in line with CV5. The two pegmatites are located ~4.3km apart, with drilling between the two zones planned for later in 2023.

We have updated our estimates to reflect our revised lithium price deck. As there is no change to our long-term price deck, our target NAVPS is largely unchanged (+1%) and we maintain our C\$16.75 target price (A\$1.85) and SPECULATIVE BUY rating. PMET currently trades at 0.81x NAV.

**Core Lithium Ltd (CXO-ASX: A\$0.95, mkt cap A\$1.74bn | SPEC BUY, TP A\$1.40 (prev. A\$1.35) | Tim Hoff)**

A successful 2022 drilling campaign has seen the Finnis Resource grow by 62% to 30.6Mt @ 1.31% Li<sub>2</sub>O. Since the release of its maiden Resource in 2017, CXO has expanded the Resource base of the Bynoe pegmatite field and we expect this to continue as the company delivers a A\$25m drill program in 2023. We believe this will deliver mine life extensions but could also deliver resources to support expansion.

CXO has received its first revenue of A\$20.1m for its maiden spodumene DSO shipment in January 2023. In February 2023, CXO produced its first spodumene concentrate, which contributed to the maiden 3.5kt parcel that was produced and transported to the Darwin port in March/April. This parcel is awaiting shipment to its customer Sichuan Yahua and will form part of the total 318.5kt of spodumene concentrate, to date, that CXO has agreed to supply Yahua over a four year period.

We have updated our price deck and our target price (blended five-year forward average EBITDA + risked NPV10%) increases to A\$1.40 (from A\$1.35). We maintain our SPEC BUY recommendation on valuation (0.68x P/NAV).

**Figure 49: Australia's newest lithium mine**



Source: Core Lithium

**Figure 50: First spodumene concentrate produced from the DMS plant**



Source: Core Lithium

**Sayona Ltd (SYA-ASX: A\$0.20, mkt cap A\$1,704m | SPEC BUY, TP A\$0.31 (prev. A\$0.30) | Reg Spencer)**

SYA recently announced first production at NAL (SYA 75%/Piedmont Lithium 25% JV) with an updated DFS based on revisions to MROR (see [NAL DFS and Moblan Resource upgrade - first look](#)) confirming LOM production of 190ktpa, total capex of C\$140m, cash costs of ~US\$700/t SC6 and mine life of >20 years. First concentrate sales are expected from mid 2023 with guidance for 1H'FY24 set at 85-115ktpa. On our updated price deck, we estimate the NAL JV to generate EBITDA of US\$241m in FY24.

While NAL entering production is positive, we see significant value potential at Moblan (see [NAL DFS recap; lifting expectations at Moblan on larger Resource](#)) following a major Resource upgrade (now 51Mt @ 1.3% Li<sub>2</sub>O). Favourable deposit characteristics (near surface, broad zones of mineralisation, good mineralogy, high grades) support our views of the strong development potential for the project. A PFS for Moblan is expected to be released in May/June 2023.

Inclusion of the updated price deck increases our price target (risked NPV10%) by 3% to A\$0.31 (from A\$0.30). We maintain our SPECULATIVE BUY recommendation on valuation. News flow on NAL cash flow, downstream studies and/or Moblan studies could offer potential catalysts through CY23, in our view.

**Piedmont Lithium (PLL-ASX: A\$0.80, mkt cap A\$1,607m | SPEC BUY, TP A\$2.15 (prev. A\$1.85) | Reg Spencer)**

PLL recently released a DFS for the Tennessee Lithium Project which is planned to produce 30ktpa of LiOH over 30 years via concentrate feed from NAL (Quebec), Ewoyaa JV in Ghana (PLL earning 50%, DFS due CY23) and third-party sources. The DFS (see [Tennessee firms up; NAL cash flow from 2H'23](#)) included an updated timeline with first production expected in 2026, revised capex of US\$809m and opex (i.e. LOM cash cost) of US\$13,500/t LiOH. Funding for the project is yet to be formalised; however, PLL was a recipient of a US\$142m government grant, with additional funding requirements expected to be supported cash flow from the NAL JV, project loans (i.e. commercial debt, ATVM loan) and listed investments of US\$277m.

NAL (PLL 25%) also recently released a DFS (see [NAL DFS recap; lifting expectations at Moblan on larger Resource](#)) confirming 190ktpa with higher capex and cash costs. PLL expects first shipments from NAL from July 2023 and we see commencement of cash flows for PLL from its NAL offtake as a potential share price catalyst. Our updated price deck sees PLL's NAL offtake generating pre-tax cash flow of US\$50m in 2H'CY23. At "spot" of ~US\$4,500/t, this increases to US\$103m. CGe CY24 cash flow increases to US\$190m on our updated price deck. Near-term potential catalysts for PLL include DFS and permitting for the Ewoyaa JV (CY23), formalised funding for TLP and commencement of cash flows from NAL.

Following inclusion of our updated price deck, our target price (risked NPV10%) increases by 16% to A\$2.15 (from A\$1.85). We maintain our SPECULATIVE BUY recommendation on valuation (0.38x P/NAV).

**Lithium Royalty Corp. (LIRC-TSX: C\$14.43, mkt cap C\$797m | BUY, C\$23.50 TP | Katie Lachapelle)**

Since we [initiated coverage](#) of LRC last month, there have been a number of positive updates on LRC's existing royalty portfolio.

The company's two cash-flowing royalties, Finniss and Mt. Cattlin, both announced Resource upgrades. At Finniss, Core Lithium announced that it has increased the Finniss Resource Estimate to 30.6Mt @ 1.31% Li<sub>2</sub>O (prev. 18.9Mt @ 1.32% Li<sub>2</sub>O). This update also includes considerable conversion of material from Inferred to Indicated, increasing the overall volume of material in the higher confidence Measured and Indicated categories by 63%. At Mt. Cattlin, the Measured & Indicated Resource increased to 11.5Mt @ 1.3% Li<sub>2</sub>O (prev. 6.9Mt @ 1.1% Li<sub>2</sub>O). A second exploration phase is planned, targeting two pegmatite lenses along strike and at depth.

Sigma Lithium also successfully achieved first production at its flagship Grota do Cirilo project (more details below). We expect LIRC to receive its first royalty payment from Grota do Cirilo in JunQ'23, concurrent with Sigma's first shipment of concentrate (~15,000t), currently scheduled for May 2023.

Longer-term royalty Moblan also announced a material resource upgrade, increasing more than 3x to 51.4Mt @ 1.31% Li<sub>2</sub>O (prev. 16Mt @ 1.38% Li<sub>2</sub>O). Based on our estimates, this increase resulted in an 18 year extension in the royalty payments received. On an annual basis, we currently assume run-rate production of up to 200ktpa SC; however, given the significant scale of the updated mineral resource, we believe there are opportunities for SYA to further scale up annual production. We look forward to the results of a Pre-Feasibility Study, expected in May.

LIRC also acquired its 31<sup>st</sup> royalty in early May through the addition of a 3.0% GOR on Atlas Lithium's Das Neves project in Brazil. With first production in 2027 (CGe), Das Neves is an exciting early-stage exploration project located adjacent to SGML's Grota do Cirilo project. Based on our estimates, Das Neves contributes US\$24m to our NAV versus the purchase price of US\$20m and will add an additional ~US\$4.6m in after-tax royalty cash flow per year.

We have updated our estimates to reflect our revised lithium price deck. As a result, our target NAVPS remains largely unchanged at C\$19.68 (prev. C\$19.45) and we maintain our C\$23.50 target price (based on 1.2x NAV) and BUY rating.



**Standard Lithium Ltd. (SLI-TSXV: C\$4.40, mkt cap C\$732m | SPEC BUY, TP C\$9.00 (prev. C\$15.00) | Katie Lachapelle)**

At the company's flagship Lanxess project, all necessary agreements with LANXESS required to secure access to the proposed commercial lithium plant site and conduct all necessary fieldwork for the Definitive Feasibility Study were signed late last year. This sets the stage for accelerated site preparation work and completion of a Definitive Feasibility Study, which will trigger a formal investment decision for Phase 1A of the project this year. We currently assume that LANXESS decides to participate as a 49% partner, with a decision coming mid-year, allowing for the commencement of commercial construction in 2024. Given the time it has taken to get to a FID, we've delayed our timelines and now forecast first production in 2H'CY26. We've also delayed our production forecasts for SLI's second project, SWA, as we do not expect a commercial decision until Phase1A of the LANXESS project nears completion.

In anticipation of the upcoming Feasibility Study, we have also materially increased our capex forecasts to align with cost pressures we're seeing across the industry. SLI had previously guided to approximately US\$250m for Phase 1; we've updated our estimate to US\$400m to be conservative.

Looking beyond Arkansas, SLI announced some exciting results from ongoing Resource expansion work in the East Texas Smackover Region, including the successful identification of brine with a grade 634 mg/l lithium. This is the highest reported lithium grade in brine in North America, to our knowledge.

We have updated our estimates to reflect our revised lithium price deck and revised our operating assumptions as described above. As a result, our target NAVPS has decreased materially to C\$8.93 (prev. C\$14.94). A portion of the decrease is also attributable to recent share price performance (-45% since our last update), with our future equity raises now occurring at the current share price (i.e. increased dilution). Given our updated NAVPS, we are decreasing our target price to C\$9.00 (from C\$15.00). Our target price remains based on 1.0x NAV, now measured at 1 April 2024. SLI currently trades at 0.33x.

**Ioneer Ltd (INR-ASX: A\$0.32, mkt cap A\$687m | SPEC BUY, TP A\$0.50 (prev. A\$0.45) | Tim Hoff)**

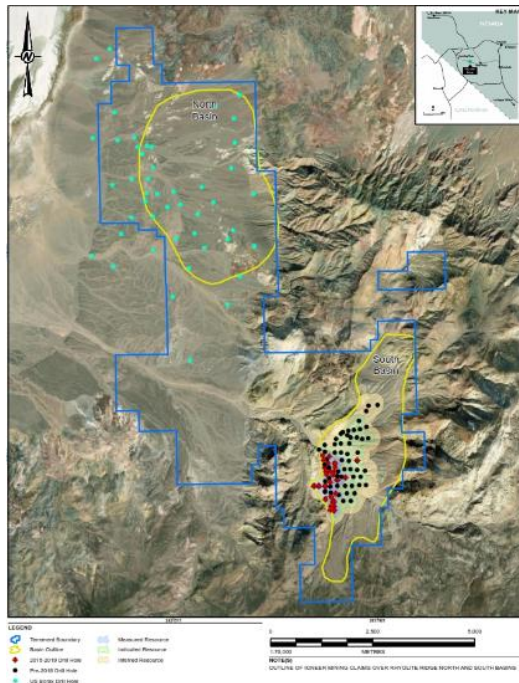
Late last year, the Rhyolite Ridge project advanced into the final stage of federal permitting with the decision by the U.S. BLM to publish a Notice of Intent (NOI) in the Federal Register. This marked a major milestone toward the completion of the NEPA process and approval of the company's revised Plan of Operations which addressed the subpopulations of Tiehm's buckwheat adjacent to the project. Rhyolite Ridge is the first lithium project to be issued a NOI under the current administration.

Less than a month following the announcement, the company announced that it had received a conditional commitment from the US Department of Energy for a loan of up to US\$700m to develop the Rhyolite Ridge Project. In our view, the initial estimated capital cost of US\$785m in 2020 has likely increased due to cost inflation and we now forecast US\$1.2bn in capex. We believe this can still be funded via a combination of the US\$490m capital commitment from joint venture partner Sibanye-Stillwater, the US\$700m loan mentioned above, a potential capital raising and existing company cash.

In April, the company increased its Rhyolite Ridge Resource to 3.4Mt LCE and 14.1Mt boric acid equivalent. The current Resource covers less than half of the total South Basin prospective area, with mineralisation open to the north, east and south. The company will be looking to extend the Resource in the South Basin, while also increasing exploration activity in the much larger, slightly lower grade North Basin. With ample Resource in the South Basin, we don't expect any North Basin Resource to extend mine life, but more so provide expansion optionality.

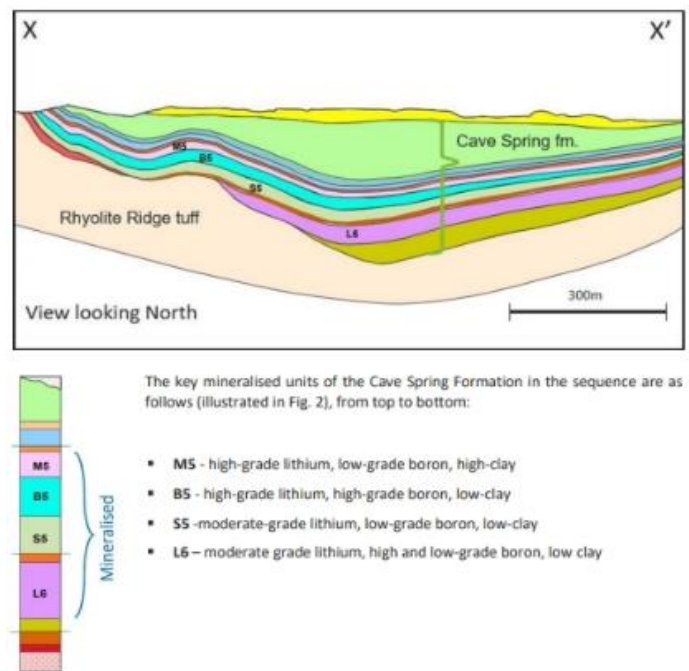
We have updated our price deck and our target price (risked NAV) increases to A\$0.50 (from A\$0.45). We maintain a SPECULATIVE BUY recommendation on valuation (0.62x P/NAV).

**Figure 52: There remains a large scale opportunity at both the South and North Basin projects for INR**



Source: Ioneer

**Figure 53: Cross section of the deposit with all mineralisation now included in INR's Resource estimate**



Source: Ioneer

**Lake Resources N.L. (LKE-ASX: A\$0.47, mkt cap A\$675 | SPEC BUY, TP A\$0.95 (prev. A\$0.90) | Reg Spencer)**

Lake and JV partner Lilac Technologies are currently completing demonstration plant operation at the Kachi DLE brine projects in Argentina. To date, the plant has produced >2.5t of LCE (see [Kachi demo plant results a project derisking milestone](#)) which has been successfully converted into battery spec lithium carbonate at Saltworks, Canada. In our view, this is a major derisking milestone for the project, confirming the suitability and potential commercialisation of Lilac's proprietary DLE process (see our 2022 initiation [Some Fine Argentinian brine](#) for more detail).

Next milestones for the project include delivery of an updated capital cost estimate and project timeline (expected JunQ'23), followed by a DFS and ESIA.

Our updated price deck sees our target price increase 6% to A\$0.95 (from A\$0.90). We maintain our SPECULATIVE BUY recommendation.

**Argosy Minerals Ltd (AGY-ASX: A\$0.42, mkt cap A\$583m | SPEC BUY, TP A\$0.85 (prev. A\$0.80) | Tim Hoff)**

Argosy continues the commissioning and ramp-up process for its 2,000tpa Rincon operation. The company is targeting continuous production operations from the end of JunQ'23. To date, production trials have produced ~13.5t of battery quality lithium carbonate product (average 99.79% purity) from batch operations during commissioning. Resource expansion and production well drilling works are progressing, with the company hoping to materially expand the current Resource to increase project mine life and future annual production capacity.

We have updated our model, pushing back CY23/24 production slightly which has resulted in a A\$17m (off a low base) and A\$6m decrease in our CY23E and CY24E EBITDA, respectively. Our CY25E EBITDA increases 34% on higher pricing assumptions. We have upgraded our target price (blended 7.5x five-year forward average EBITDA + risked NPV10%) to A\$0.85 (prev. A\$0.80). We maintain our SPECULATIVE BUY recommendation on valuation (0.46x P/NAV).



**Figure 54: Rincon Lithium Project operations site, located within Argentina's "Lithium Triangle"**



Source: Argosy Minerals

**Figure 55: Li<sub>2</sub>CO<sub>3</sub> produced from batch operations during commissioning**



Source: Argosy Minerals

**Leo Lithium Ltd (LLL-ASX: A\$0.55, mkt cap A\$537m | SPEC BUY, TP A\$2.20 (prev. A\$1.90) | Reg Spencer)**

LLL's Goulamina Project in JV with Ganfeng is progressing through construction activities, with first concentrate production (Stage 1 500ktpa) remaining scheduled for JunQ'24. In the meantime, we expect updates to the projects Resources (142Mt at 1.3% Li<sub>2</sub>O) and Reserves (52Mt) following recent drilling success (see [Drilling points to Resource upside potential](#)), and potential for early cash flow with DSO expected from late 2023.

The recent project status update (see [Goulamina capex creeps, but timelines intact](#)) have seen development costs increase on inflationary pressure, project definition and working cap, to US\$318m (only marginally above our prior model assumptions). Capital intensity of US\$636/t SC6 (Stage 1) sees Goulamina remain one of the most capital-efficient SC development projects of scale, with industry averages closer to US\$850/t. While the project is only in the early stages of construction (20% complete), we see minor risks of major capex increases from here with 90% of construction package contracts (by value) already tendered/awarded.

The project is mostly funded with potential for 185kt of DSO (prior to concentrate production in 2H'CY24) to close the gap (subject to pricing). We also note any funding gap should be comfortably covered by assumed increases to the Ganfeng loan/third party JV debt facilities. We estimate total JV debt to peak at only US\$185m in late 2023. With updated CGe JV EBITDA of US\$1.5bn over 2024/25E (CGe avg SC6 ~US\$2,700/t vs "spot" US \$4,500/t), we see plenty of scope for early debt repayment and substantial JV dividends to flow to LLL.

Our revised price deck increases our target price (risked NPV10%) to A\$2.20 (from A\$1.90). We maintain our SPECULATIVE BUY recommendation and rate LLL among our preferred lithium developers.

**Critical Elements Lithium Corp. (CRE-TSXV: C\$2.23, mkt cap C\$485m | SPEC BUY, TP C\$5.00 | Katie Lachapelle)**

In early November, CRE announced the receipt of the Certificate of Authorization for its flagship project, Rose. The receipt of this long-awaited provincial permit represents a significant milestone for CRE and sets the stage for accelerated development.

CRE continues to explore potential strategic partnership and financing agreements to advance Rose towards construction. As the only fully permitted project in North America with 100% of its offtake uncommitted, we believe there are a number interested parties (OEMs, battery groups, cathode manufacturers, etc.). We believe a partnership announcement in the near-term could be catalytic to CRE's shares and present a potential re-rating opportunity. Depending on the terms of the agreement, it could also be far less dilutive than our current financing assumptions, which assume 50% of initial capex is funded via debt and the remainder through CRE equity.

The company also continues to advance exploration work on its ~700km<sup>2</sup> land package with two primary goals: 1) extending the existing 17 year mine life at Rose; and 2) defining a maiden Mineral Resource Estimate at its Lemare project.

We have updated our estimates to reflect our revised lithium price deck and modest revisions to our operating assumptions. As a result, our target NAVPS remains largely unchanged at C\$4.89 (prev. C\$4.91) and we maintain our C\$5.00 target price (based on 1.0x NAV) and SPECULATIVE BUY rating. CRE currently trades at 0.51x NAV, a discount that we believe is unwarranted given the advanced nature of the project.

**Frontier Lithium Inc. (FL-TSXV: C\$1.92, mkt cap C\$430m | SPEC BUY, TP C\$4.50 (prev. C\$5.25) | Katie Lachapelle)**

In February, Frontier Lithium announced a positive Resource update at its Spark deposit, one of two high-grade spodumene-bearing deposits at its 100%-owned PAK Lithium Project. This is the second material Resource upgrade at Spark in the last ~18 months and solidifies our view that FL has discovered and is advancing one of the best assets in Canada, given its grade (highest in North America), scale and the incremental exploration upside we see on the property.

The project now hosts a total combined Mineral Resource of ~58.6Mt @ 1.50% Li<sub>2</sub>O, and management sees upside to ~100Mt of open pit material. Phase XIII drilling is already underway with two rigs on site and up to ~10,000m planned. We are most excited for the initial results from Bolt (imminent?), a 600m long pegmatite showing between PAK and Spark, which has yet to be drill tested. Based on a theoretical depth of ~300m and an SG of 2.7, we believe Bolt has the potential to host over 20Mt @ >1.0% Li<sub>2</sub>O (CGe). At Spark, further exploration drilling is also planned to better define the western extent of the deposit, particularly the high-grade zone that was intersected to the northwest.

In the near term, investors are likely to be focused on the Pre-Feasibility Study, expected in JunQ'23. We suspect inflationary pressures will see capex and opex increase, with our forecasts already 20% above previous technical report estimates.

We have revised our model to reflect our updated lithium price deck and recent share price performance (-15% since our last update). Our future equity raises now occur at the current share price, which more than offset the medium-term rise in our price deck and has resulted in an 13% decline in our NAV. As a result, we are reducing our target price to C\$4.50 (from C\$5.25). Our target price remains based on 1.0x NAV, now measured as at 1 April 2024. FL is currently trading at 0.41x NAV.

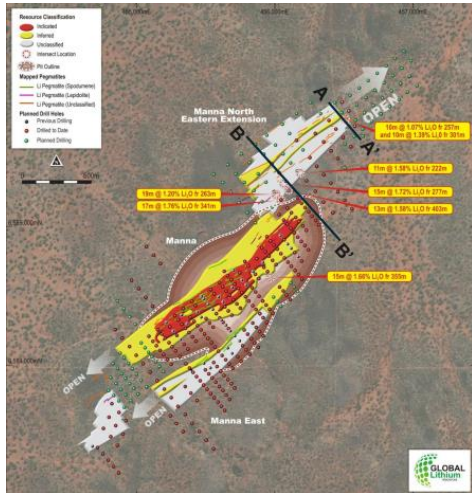
**Global Lithium Ltd (GL1-ASX: A\$1.47, mkt cap A\$312m | SPEC BUY, TP A\$2.80 (prev. A\$2.70) | Tim Hoff)**

In October 2022, GL1 acquired the remaining 20% interest the Manna Lithium Project and lithium rights to the surrounding tenements from Breaker Resources (BRB-ASX). The company paid Breaker A\$60m in cash and a 1.5% NSR royalty on non-precious metals, with Breaker retaining full rights to explore and/or develop gold and precious metals within the tenements. To facilitate the acquisition, GL1 raised A\$121m, which sees the company fully funded through to completion of a Feasibility Study for Manna (currently scheduled for 2H'CY23).

GL1 completed 85,000m of exploration drilling in 2022 and expanded its total Resource in December 2022 to 50.7Mt @ 1.0% Li<sub>2</sub>O. This comprises 32.7Mt @ 1.0% Li<sub>2</sub>O at its Manna Lithium Project and 18.0Mt @ 1.0% Li<sub>2</sub>O at its Marble Bar Lithium Project. The company continues to advance Manna with the completion of the Manna Scoping Study in January, which outlined an initial 10 year LOM with A\$436m in pre-production capex and a 2Mtpa mining and processing operation. GL1 has selected Wave International as its DFS study lead for Manna and has started a new drill program comprised of at least 35,000m, targeting extensions of lithium bearing pegmatites along strike and depth. An interim Resource upgrade is currently underway incorporating assay results from the 2022 drilling program which were not included in the last update.

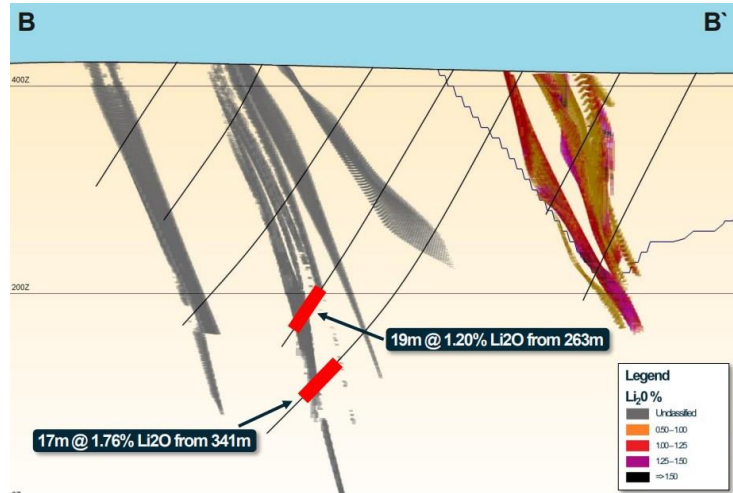
We have updated our price deck and our target price (risked NPV10%) increases by 4% to A\$2.80 (from A\$2.70). We maintain our SPECULATIVE BUY recommendation on valuation (0.54x P/NAV).

**Figure 56: Manna remains open and has recently returned wide intercepts above its Resource grade**



Source: Global Lithium

**Figure 57: The size of the Manna north-eastern extension beside the current pit outline**



Source: Global Lithium

**Galan Lithium Ltd (GLN-ASX: A\$0.99, mkt cap A\$302m | SPEC BUY, TP A\$3.30 (prev. A\$3.05) | Reg Spencer)**

GLN is advancing its high grade, 100%-owned Hombre Muerto West (HMW) Lithium Brine Project, with the delivery of a DFS (and maiden Reserve) planned for release in mid CY23. The DFS will be underpinned by the recently upgraded Resource (6.6Mt LCE @ 880mg/l) and will examine a LiCl concentrate development project (over a "conventional" Li2CO3 project), presenting a lower capex, lower technical risk project, and potentially faster path to market. We recently undertook a detailed assessment of this development concept in [Lithium chloride concentrate – a cheaper, faster pathway to market?](#). GLN expects permits in coming months.

Our base case development is based on an initial 4ktpa LCE (as LiCl) project from 2025, expanding to 27kt LCE (84kt LiCl conc.) by 2H'26 for total capex of US\$455m.

Inclusion of our updated price deck increases our price target (risked NPV10%) by 8% to A\$3.30 (from A\$3.05). We maintain our SPECULATIVE BUY recommendation. We see the DFS, permitting and FID for initial LiCl production as key upcoming newsflow events.

**Atlantic Lithium (ALL-AIM/A11-ASX: 31p/A\$0.58, mkt cap £187m | SPEC BUY, TP 90p/A\$1.60 (prev. 85p) | Alex Bedwany)**

ALL recently increased its Ewoyaa MRE to ~35Mt @ 1.25% Li2O (from ~30Mt @ 1.26%), and we believe there is likely to be further upside, with the company testing multiple targets within the license area. Work also continues on the DFS, which includes scenarios examining [higher throughput levels](#), which we believe would add ~20-25p to our NPV/share estimate (at relatively low additional capex). ALL expects the DFS to be released late JunQ'23.

We have increased our expectation of equity funding (potentially to come from the Ghanaian sovereign wealth fund) to ~A\$43m (US\$30m) to reflect ongoing exploration spending to expand the resource and continue to believe that participation should align with national interests. The additional dilution has slightly offset the impact of the higher price deck, and our NPV/share has risen to 88p (from 82p). We therefore raise our target price to 90p (from 85p), based on 0.3x P/NAV (rounded to the nearest 5p). We maintain our SPECULATIVE BUY rating.

**Rock Tech Lithium Inc. (RCK-TSXV: C\$2.29, mkt cap C\$194m | HOLD, TP C\$2.50 (prev. C\$2.75) | Katie Lachapelle)**

Late last year, RCK released a bankable project study for its planned LiOH converter in Guben, Germany, which outlined updated economics, including considerable cost increases. Site preparation work commenced on site in tandem with the release of the BPS and management also submitted its final tranche of permits to the German authorities in November 2022. The project's first partial permit was received in March 2023, with full approvals expected by the end of the year. In December 2022, the company also released a Pre-Feasibility Study for its flagship Georgia Lake spodumene project in Ontario, Canada. As was the case with the BPS for the converter, the updated Study was largely negative relative to our previous estimates, with both capex and opex coming in substantially higher than what was outlined in the 2021 PEA.

Given current project timelines and the newly updated studies for both facets of the RCK operation, we continue to view project financing as a critical next step for the company. With only C\$35m in cash at the end of the DecQ'22, a material funding gap will need to be addressed before the company can move ahead with construction in the near-term. Per the company's recent MD&A, it expects to spend between C\$14-18m by year-end on permitting, technical work and ground works for the converter, leaving <C\$20m for construction of the converter (initial capex of US\$683m), advancement of Georgia Lake (remaining costs estimated to be C\$8-13m), as well as general corporate expenses. Without additional funding, they will be unable to proceed, in our view.

We have updated our estimates to reflect our revised lithium price deck and delayed our forecasts one year to allow time to figure out financing. As a result, our target NAVPS has declined to C\$2.40 (prev. C\$2.81) and we are reducing our target price (based on 1.0x NAV) to C\$2.50 (from C\$2.75) and maintain our HOLD rating. RCK currently trades at 0.84x NAV.

**Delta Lithium Limited (DLI-ASX: A\$0.45, mkt cap A\$195m | SPEC BUY, A\$1.25 TP (prev. A\$1.20) | Paul Howard)**

Delta Lithium (previously Red Dirt Metals, RDT-ASX) has continued to progress both the Mt Ida and Yinnetharra Projects. The more advanced Mt Ida has seen the [Mining Approval application submitted](#) during the MarQ, as DLI seeks to develop a DSO operation over the coming year, prior to establishing a longer term spodumene concentrate operation. We have previously outlined our assumptions [on what a DSO operation could look like at Mt Ida](#). We await release of initial study work to market this quarter.

Drilling has continued at Mt Ida utilising five rigs. Best recent result of 49.5m @ 1.45% Li<sub>2</sub>O from 388m has come from extensional drilling at depth within the Sister Sam pegmatite. DLI has also claimed a new discovery at the BFB target beneath Sister Sam and outside the 12.7Mt @ 1.2% Li<sub>2</sub>O resource; returning 90.1m @ 0.95% Li<sub>2</sub>O from 651m (incl. 56.1m @ 1.1% Li<sub>2</sub>O, 7.7m @ 1.57% Li<sub>2</sub>O & 22.4m @ 1.52% Li<sub>2</sub>O). DLI has a number of targets outside the resource, that remain untested.

At Yinnetharra, drilling continues to test mapped pegmatites returning [55.6m @ 1.12% Li<sub>2</sub>O](#) at M1 and [35.2m @ 1.00% Li<sub>2</sub>O](#) from 5m at M47. Field mapping and sampling has led to a new discovery at the Jamesons prospect, 20km west of the main Malinda prospect area. Some 20 new pegmatites have been identified. The Jamesons prospect remains on a pending tenement, with work underway to allow for further exploration to commence once it is granted.

We have updated our model for the MarQ cash flow report and have revised our estimates to reflect our updated lithium price deck. We have also applied modest revisions to our future operating assumptions. As a result, our target (NPV12%) has increased to A\$1.25 (from A\$1.20) and we maintain our SPECULATIVE BUY rating.



**Lithium Power International Ltd (LPI-ASX: A\$0.31, mkt cap A\$194m | SPEC BUY, TP A\$1.50 (prev. A\$1.30) | Reg Spencer)**

LPI completed a DFS for Maricunga in January 2022, which outlined a 20-year, Stage 1 15ktpa conventional evaporation brine project (capex US\$626m, opex US\$3,718/t) based on resources within grandfathered "Old Code" concessions (1.9Mt LCE @ 951ppm Li). LPI finalised the consolidation of the Maricunga JV ownership structure in December 2022 (see [Moving to full ownership at Maricunga](#)), and has all necessary permits in place to commence development. LPI expects to move to a project FID in CY23 and, subject to finance, achieve first production in late 2025/early 2026.

Chile recently released its long-anticipated National Lithium Policy (NLP), as we outlined in [New Chilean lithium policy a potential catalyst](#) and [Chilean National Lithium Strategy – first take](#). The release of the policy has created much uncertainty, in our view, but we highlight that LPI's Old Code concessions (on which the DFS was based) and existing operation, environmental and export permits are expected to be unaffected by the new policy.

Inclusion of our updated price deck increases our price target (NPV10%) by 15% to A\$1.50 (from A\$1.30). We maintain our SPECULATIVE BUY recommendation.

**Kodal Minerals (KOD-AIM | 0.75p, mkt cap £136m | SPEC BUY, TP 1.50p (from 1.30p) | Alex Bedwany)**

Kodal announced a US\$118m funding package in January which fully funds the Bougouni spodumene project in Mali, with an initial ~4-year DMS development producing 130ktpa SC5.5 (~120ktpa SC6 eq.), and operating cash flows to finance a 238ktpa SC6 flotation-based expansion. The funding package is expected to complete by 31 May 2023. See our [recent initiation](#) for more detail.

The company is currently drilling to expand the ~21 Mt @ 1.11% Li<sub>2</sub>O resource, and recently announced promising results from the Boumou deposit, including 51m @ 1.08% Li<sub>2</sub>O from 78m, 36m @ 1.29% Li<sub>2</sub>O from 93m, and 31m @ 1.23% from 42m. Further results are expected from coarse-grained targets which could extend the life of the DMS development. We estimate that one-year of DMS life extension would increase our NPV/share by ~6%, and a one-year life extension of the flotation plant would increase it by ~4%.

The updated price deck has resulted in an increase in our NPV/share to 1.50p (from 1.31p), and we therefore raise our target price to 1.5p (from 1.3p), based on 1x P/NPV (rounded to the nearest 0.05p). We maintain our SPECULATIVE BUY rating.

**Green Technology Metals Ltd (GT1-ASX: A\$0.60, mkt cap A\$114m | SPEC BUY, TP A\$1.85 (prev. A\$1.80) | Tim Hoff)**

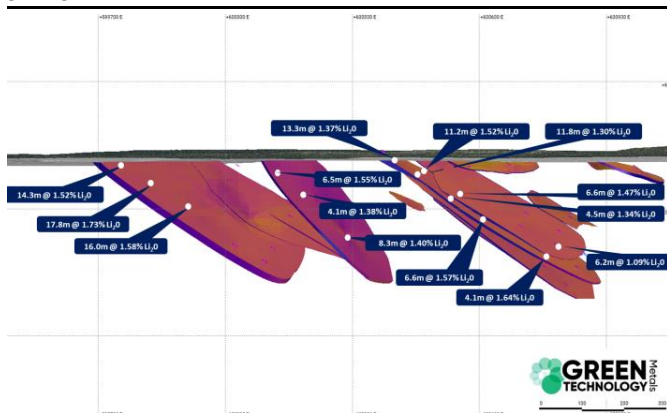
GT1 has been focussed on expanding its Resource base at both its flagship Seymour Project and Root Project. At the Root Lithium Project, located approximately 200km west of Seymour, the company has focussed on three main prospects; McCombe, Morrison and Root Bay. In April, the company released its maiden Root Resource Estimate of 4.5Mt @ 1.01% Li<sub>2</sub>O, building upon the existing Seymour Resource of 9.9Mt @ 1.04% Li<sub>2</sub>O. Drilling at Morrison and Root Bay has now concluded, with assay results returning. Recent highlights have shown the potential at Root Bay with intercepts of 17.8m @ 1.73% Li<sub>2</sub>O from 99.4m, 16m @ 1.58% Li<sub>2</sub>O from 181.4m and 14.3m @ 1.52% Li<sub>2</sub>O from 33.1m. The Company will use the summer exploration season to identify new priority drill targets through field exploration. Once field operations are complete, drilling will recommence.

In December, GT1 produced its first coarse spodumene concentrate from its flagship Seymour project, with lithium recovery exceeding 72%. The company is currently carrying out further metallurgical test work which will contribute to the Preliminary Economic Assessment and take the company a step closer to building a vertically integrated lithium business.

Canaccord Genuity, and its associates, holds an option position in GT1.AU.

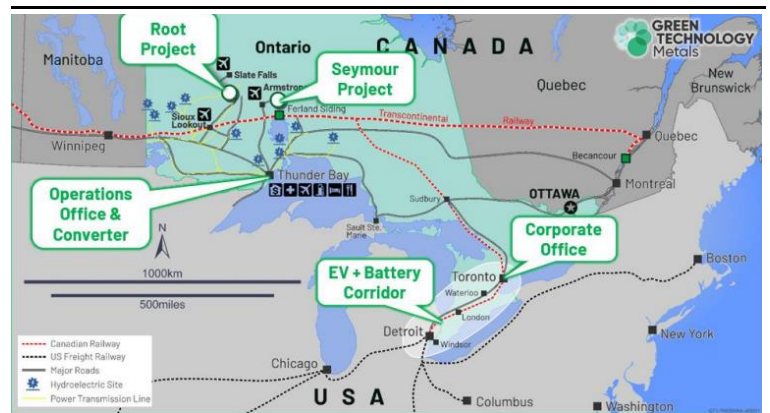
We have updated our model resulting in upgrades to FY23E-25E EBITDA figures. We raise our target price (NPV10%) to A\$1.85 (from A\$1.80). We maintain our SPECULATIVE BUY recommendation on valuation (0.34x P/NAV).

**Figure 58: Thick, high-grade intercepts at the Root Bay prospect in Ontario**



Source: Green Technology Metals

**Figure 59: GT1 is well positioned to capitalise on the Made in Ontario initiative**



Source: Green Technology Metals

### **CleanTech Lithium (CTL-AIM: 44p, mkt cap £46m | SPEC BUY, TP 295p (prev. 280p) | Alex Bedwany)**

CleanTech Lithium continues to progress the two key projects, Laguna Verde and Francisco Basin, with an updated MRE and Scoping Study expected for the latter over the next two quarters. The company also expects the Laguna Verde pilot plant to be commissioned on site in SepQ'23. We believe this will be key for demonstrating the DLE process for investors and the environmentally-focused government.

Chile's President recently announced several elements of the country's lithium strategy (see our [first take for more](#)). While the policy outlined increased Government involvement in the sector, and the development of a national lithium company, CleanTech has [received assurances](#) that this would not mean that the Government would seek to take majority ownership of its own projects. Subsequently, the EVP of Corfo (the Chilean economic development agency) confirmed in an interview that the state does not aim to take a majority stake in every project, and that the Government is in a position to grant CEOLs (production permits). In our view, the Government's plan to create a state lithium company to develop resources could result in a similar industry structure to that of copper, whereby Codelco operates several key projects. We await more detail from the Government on this front. In the meantime, CTL is exploring potential government minority participation in Laguna Verde and Francisco Basin prior to submitting applications for its CEOL.

The updated price deck has resulted in an increase in our NPV/share to 296p (prev. 278p), and we therefore raise our target price to 295p (from 280p), based on 1x P/NPV (rounded to the nearest 5p). We maintain our SPECULATIVE BUY rating.

### **Prospect Resources Ltd (PSC-ASX: A\$0.14, mkt cap A\$64m | BUY, TP A\$0.16 (prev. A\$0.15) | Tim Hoff)**

Prospect Resource has spent the last six months exploring its two primary lithium Projects – Omaruru, in Namibia, and Step Aside, in Zimbabwe. At the Omaruru Project, Phase 1 drilling confirmed the existence of high-grade lithium mineralisation. The company is now planning its next phase of work at Omaruru which will include both RC and diamond drilling programs at the Karlsbrunn and Brockmans prospects. Phase 1 drilling at the Step Aside Project also returned encouraging grades up to 1.49% Li<sub>2</sub>O. A 2,000m Phase 2 drilling program commenced in February with the goal of targeting strike and dip extensions of the Phase 1 discoveries. Assay results from Step Aside Phase 2 drilling are expected to be returned in the JunQ'23.

Canaccord Genuity, and its associates, holds >1% of the issued share capital of PSC.AU.



We have updated our price deck and our target price (based on a nominal exploration valuation of A\$40m and cash backing) has increased to \$0.16 (from \$0.15). We maintain our BUY recommendation on valuation (0.88x P/NAV).

**Figure 60: Step Aside prospect within Figure 61: Omaruru Lithium Project Figure 62: Underground adit sampling at proximity to the Arcadia Lithium project in Namibian has shown prospective Karlsbrunn in Namibia results so far through grab samples and drilling**



Source: Prospect Resources



Source: Prospect Resources



Source: Prospect Resources

## Appendix: Important Disclosures

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### Investment Recommendation

Date and time of first dissemination: May 05, 2023, 00:03 ET

Date and time of production: May 05, 2023, 00:03 ET

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#### Global Stock Ratings (as of 05/05/23)

Rating	Coverage Universe		IB Clients
	#	%	%
Buy	600	64.38%	22.50%
Hold	142	15.24%	10.56%
Sell	16	1.72%	0.00%
Speculative Buy	159	17.06%	45.91%
	932*	100.0%	

\*Total includes stocks that are Under Review

### Canaccord Genuity Ratings System

**BUY:** The stock is expected to generate risk-adjusted returns of over 10% during the next 12 months.

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"Risk-adjusted return" refers to the expected return in relation to the amount of risk associated with the designated investment or the relevant issuer.

### Risk Qualifier

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