VSA capital

Flashnote

Marketing Communication (Connected Research)

Alkemy Capital#

BBG Ticker: ALK LN *Price: £1.15/sh.* *Mkt Cap: £9.38m* **BUY**

Integrated Strategy Update

Port Hedland Study Published

Alkemy Capital (ALK LN) wholly owns the **Tees Valley Lithium (TVL)** project in the North of England and the Port Hedland Lithium (PHL) spodumene conversion project in Western Australia's Boodarie Strategic Industrial Area (SIA). ALK recently published a Class 4 Engineering study for PHL's lithium sulphate facility, showing strong economics using a conventional flowsheet. Like Wilton (where TVL is located) the SIA offers "plug and play" advantages like streamlined planning approval, industrial infrastructure, and a skilled workforce. Aligning with TVL, a four-train facility at the SIA is planned, producing lithium sulphate from spodumene concentrate. This integrated strategy improves feedstock security and captures additional lithium value. We estimate an NPV8 of US$301m for the standalone facility which integrated with TVL takes the group NPV8 to US$1.4bn for train 1.

Feedstock and Offtake Progression

The company has announced that is in advanced discussions with multiple OEMs with a leading global player shortlisting TVL as its preferred European lithium refiner. This brings partial validation of the integrated strategy, flowsheet, environmental and waste considerations and ability to execute. OEMS are making direct investments in upstream lithium projects or inking offtakes **(GM, Ford, Stellantis, Renault, VW)** yet these do not provide a full supply chain solution. China remains dominant in processing and refining capacity for technical grade lithium carbonate and hydroxide yet using this route invalidates eligibility for infrastructure bill funding such as the IRA. Therefore, a firm partnership agreement solves commercial and technical challenges for OEMs and for ALK implies a potential combination of solutions for feedstock and offtake.

The progress is positive and as yet the market has not priced in success. We continue to believe that the company's strategy positions it to achieve these major milestones that would unlock significant value and expedite the project financing process and options.

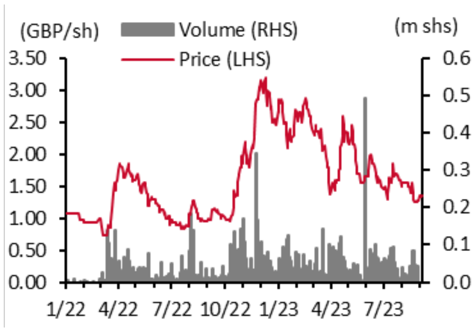
Recommendation and Target Price

Our valuation has been updated to reflect the new study and takes into account the recent fundraising and issuance of new shares. Our target is heavily risked and focused on phase 1 alone. Currently, little of the recent progress in terms of engineering studies, planning permission and feedstock has been reflected in the share price. **We reiterate our Speculative Buy recommendation and increase our target price to £15.30/sh.**

Company Description

Alkemy Capital is an investment company focussed on refining critical minerals including lithium.

One Year Price Performance



Price % chg	1mn	3mn	12mn
	-16%	-30%	-13%
12mn high/low:			320p/73p

***SOURCE**: Eikon, as of 20th October close*

Market:	LSE
Price target:	£15.30/sh
Shares in issue diluted:	8.16m
Free float:	49.8%
Net cash:	£1m
Enterprise value:	£8.38m

Major shareholders	
Paul Atherley	40.59%
Sam Quinn	4.86%
Colin Stone	2.45%

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Overview

ALK has now published engineering studies for both proposed plants demonstrating strong economics at long term consensus pricing. The company has also secured planning permission for the Tees Valley Lithium (TVL) site and secured a site in Port Hedland (Port Hedland Lithium; PHL), Australia for a second facility that would give the company the flexibility to take feedstock as spodumene concentrate, lithium sulphate or lithium carbonate. This feedstock flexibility designed to suit the developing Western supply chain sets the company apart from emerging peers and we believe will ensure that ALK can facilitate one of its core aims which is to reduce the carbon footprint of lithium production by reducing shipment volumes.

The integrated capability is now underpinned by an engineering study using conventional flowsheets which should give investors, offtakers and suppliers confidence. Indeed, based on the company's recent announcement the study has given confidence to leading OEMs one of which has shortlisted the company as its preferred lithium refiner in Europe. The OEM is able to benefit from the lower carbon footprint from reduced shipment volumes and the waste strategy in Europe.

Lithium sulphate is much more highly concentrated than spodumene concentrate and therefore less voluminous and it is also chemically stable. By transporting the lithium sulphate, TVL intends to reduce the carbon footprint of the lithium produced compared to shipping spodumene concentrate.

The environmental and logistical benefits for producing lithium sulphate close to the mine are clear but the industry is not currently set up to ship this intermediate product. PHL derisks this but we note that the strategy is being validated by the wider industry. **Mineral Resources (MIN AU)** has been quoted as saying they now want to produce lithium sulphates to enable them to sell into Europe and the US, underpinned by the need to change from the current reliance of Australia's spodumene miners on China. This is one of the largest spodumene producers in Australia. Therefore, we see PHL as further optionality opening up a broader range of feedstock rather than a definitive supply chain for all four chains.

The Inflation Reduction Act has had a significant impact on the outlook for Western lithium supply chains to benefit from direct funding and other features to remove China from their plans. China currently accounts for over 90% of lithium refining capacity. ALK is therefore extremely well-positioned, in our view, both to meet the fundamental shortage of refining capacity (European lithium demand is set to reach 600ktpa by 2030 with only 305ktpa of planned refining capacity of which ALK makes up a third) and the evolving environmental and legislative requirements of Western governments and investors. The UK and US are committed to drafting a Critical Minerals Agreement to confirm the eligibility of IRA funding where minerals including lithium are sourced from the UK whether mined, processed or recycled. This was announced as part of the Atlantic Declaration in June 2023. We note the UK and EU are already aligned on the supply of critical minerals for lithium-ion batteries for electric vehicles.

We are confident that a (UK/US) CM agreement will be reached as, in parallel, the Minerals Security Partnership (13 countries including the USA, UK and Australia as well as the EU) aims to accelerate the development of critical energy mineral supply chains from mining through to refinery. The joint statement released during LME week highlighted a focus on strengthening collaboration between these countries and identifying projects suitable for government support with a high potential to contribute to this aim. A number have so far been identified with one in lithium, seven in rare earth elements and others in copper, cobalt, manganese, and graphite.

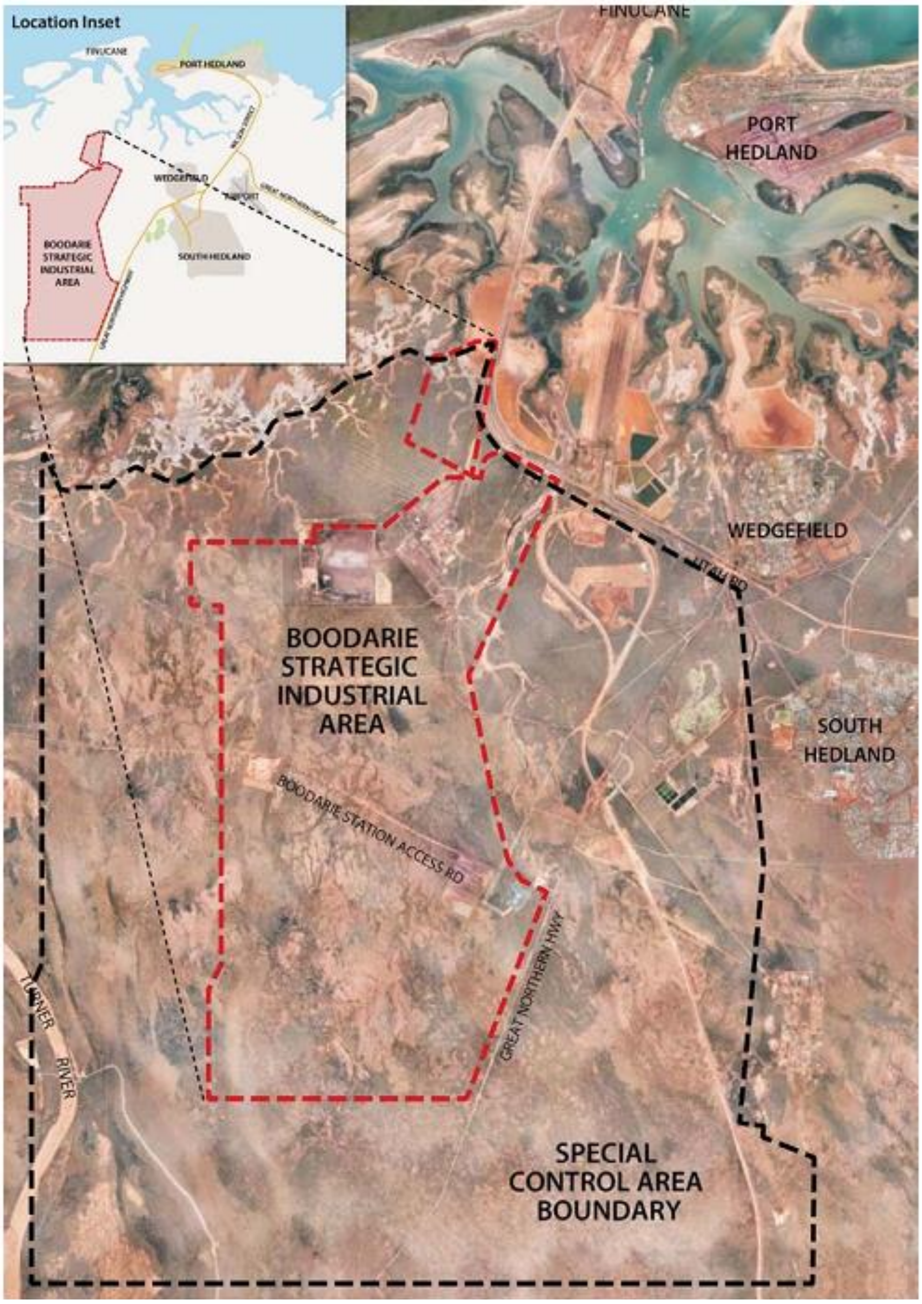
On the environmental side, the shipping industry is under massive pressure to reduce its carbon footprint with a range of legislation and measure from governments and the International Maritime Organisation forcing them to reduce emissions. It also means there is no waste product to dispose of in Europe.

The IMO has set a target to reduce CO_2 emissions from the industry by 40% by 2030 and 70% by 2050. A number of measures are being introduced by the IMO such as the Energy Efficient Design Index, Energy Efficiency Existing Ship Index, the Carbon Intensity Indicator, and the Ship Energy Efficiency Management Plan to monitor these efforts which coincide with regional legislative changes such as by the EU including the Emissions Trading system Directive which now encompasses the maritime sector.

Port Hedland Class 4 Study

ALK recently published a Class 4 Engineering Study (comparable to the level of study published for Wilton in 2022) demonstrating a robust plan. The PHL published economics demonstrate a robust NPV8 of US$293m for the Port Hedland plant designed to produce lithium sulphate from spodumene concentrate. However, perhaps more important than the plant's standalone economics are that it confirms the ability to supply the planned UK lithium refinery (TVL) with a stable supply of lithium sulphate from the world's largest region of spodumene concentrate production. Furthermore, vertical integration may enhance the economics of TVL; particularly in higher price environments.

Boodarie SIA Location Plan



SOURCE: *Boodarie SIA, VSA Capital Research.*

In January 2023, ALK announced that it had secured an option on a site in the Boodarie Strategic Industrial Area (SIA), located 10km from Port Hedland, Australia's largest export port and gateway to the Pilbara mining region. This site would host a lithium sulphate refinery converting lithium spodumene concentrate into lithium sulphate. This intermediate lithium product has a higher concentration of lithium meaning that it can be transported to the UK refinery in lower volumes; more efficient both economically and environmentally.

The SIA as at Wilton leverages a "plug and play concept" and means a concentration of relevant infrastructure (road, gas, power water and rail), labour and expertise which should derisk development, construction and operation bringing both economic and intangible benefits designed to incentivise more value-add mineral activity in Australia. Major global industrial groups such as **POSCO, BP**, **Fortescue Metals** and **Alinta Energy** have also been allocated plots in the 4,000ha site which will be linked to the port via a dedicated infrastructure corridor. To date, these are the only groups alongside ALK which have been approved demonstrating the credibility and robustness of TVL's technical submissions. It should be noted that the SIA is not yet built unlike Wilton.

The SIA has planning approvals in place including native title and the zoned land is protected from sensitive land uses; the core and buffer zones on the map prevent competing/ incompatible land uses from being located next to each other and hindering the planning process. It has been specifically designed to attract downstream processing projects in critical minerals, and energy to move Australia up the value chain and broaden its market away from China.

As part of the streamlined planning process the Boodarie SIA has a centralised Industrial Ecology Strategy while flora and fauna studies have already been undertaken with no priority or threatened species identified. This provides a baseline study for future submissions by TVL which will be required as part of the wider permitting process which is heavily streamlined by being in the SIA. There is a published framework for proposals to optimise adhering to the approvals process. As part of the study the company submitted a waste strategy for the PHL plant, however, the detail of this has not yet been disclosed.

Spodumene Processing in WA

The Pilbara is the world's largest spodumene producing region with product shipped to China, however, infrastructure bills such as IRA are seeking to cut China out of the West's EV supply chain. Initiatives such as the Boodarie SIA demonstrate that Australia is committed to developing a downstream industry but this will take time and having dedicated conversion capacity will likely speed this process compared to spodumene miners trying to become specialty chemical producers.

Three lithium hydroxide plants are currently being advanced which will produce lithium hydroxide. These are primarily being developed as integrated operations by **Albemarle** and **Tianqi** meaning their capacity will be reserved for own production leaving a shortfall for non-integrated producers which ALK seeks to service. TVL are targeting the European market where EU Rules of Origin require part of the processing to have been carried out within the EU which for battery materials does include the UK. An additional point is the challenge of maintaining battery quality over long shipping distances and with large volumes as lithium hydroxide can quickly begin to degrade. Furthermore, whilst we have highlighted the importance of reducing carbon emissions for the shipping industry the EU is the EU is set to implement a border tax on carbon or Carbon Border Adjustment Mechanism (CBAM) to try to level the playing field for non-EU producers who are not subject to the Emissions Trading System (ETS) in the EU which provides a rationing system for emissions output. The CBAM is a levy on imports depending on the emission content of production and to cover this, EU importers will have to buy certificates linked to the carbon price.

In 2022, Greenbushes (Tianqi and ALB) produced 1.34mnt of concentrate, **Pilbara Minerals** produces 360-380ktpa rising to 1mntpa, **Allkem** produced 194kt in 2022 and Mineral Resources is targeting an increase in output to 900ktpa. Other developers such as **Liontown** have ambitions to bring additional production on line in the coming years (although the proposed acquisition by ALB may affect this strategy).

As we have previously highlighted, the production of lithium sulphate from spodumene concentrate is a conventional process and lithium sulphate is commonly produced as an intermediate product in integrated lithium plants. The flowsheet at Port Hedland has been designed by **Wave International** who have a wealth of lithium experience and designed the Teesside plant. This stage of the conversion process is relatively straightforward compared to producing battery quality lithium products and the tolerances of the intermediate product are comparatively wide. That said, one advantage of PHL is that it gives a higher probability of optimising the appropriate feedstock for the plant in the UK.

Economics

The study similar to the Teesside plant envisages four trains of equal capacity. At Port Hedland the plant will have throughput capacity of 180ktpa which implies around 40ktpa of lithium sulphate production corresponding to the front end capacity at TVL. Based on typical conversion ratios this implies an assumption of around 5.8% Li2O at Port Hedland with a recovery of 88% which would by typical of spodumene produced in the region.

The capital cost is assumed at US$322m (£237m) for each train including a 15% contingency. We have assumed that further sustaining capital is spent at around US$5.5mpa (£4mpa) per train. Given the aim is to supply feedstock to the Teesside plant, we believe that the underlying margins at PHL on a standalone basis are of limited relevance but the positive NPV demonstrates that this is an accretive exercise. The value uplift is further downstream.

Operating cost as at TVL is primarily associated with the purchase cost of feedstock. The company has assumed acquiring feedstock at US$1,500/t SC6 pricing adjusted for the 5.8% processing assumption. To date, Australia has focused on producing spodumene concentrate with the benchmark for pricing being 6% Li2O content. This is some way below the current spot price in excess of US$3,000/t but aligns with long-term consensus pricing and implies annual purchasing costs of around US$250m delivered to the facility and clearly this cost will vary in line with market pricing. In addition to this will be processing costs which as at TVL add a modest further cost. The company assumes a long-term LioH price of US$25,000/t, marginally above our estimate of US$24,000/t. The margin is dependent on the internal pricing assumption between PHL and TVL.

Project highlights, VSA Capital Analysis

	Train 1	Average over Project
SC6 Throughput	180	720
LSM Output, ktpa	40	160
Revenue, £mpa	302	1,086
EBITDA, £mpa	57	326
Free Cash Flow £mpa steady state	30	180
Initial Capital, £m	(237)	(1,030)
Sustaining Capital, £mpa	(4)	(18)
NPV, £m	258	1,353

SOURCE: *Company data, VSA Capital Research.*

Our assumptions are modestly different to those in the published but consistent with our assumptions for Wilton which is based off US$24,000/t LiOH. The ratios for the LSM and SC6 price are adjusted accordingly in our analysis which produces an NPV8 of £258m for a single train.

Corporate taxation is assumed at 30% but with the capital depreciated as a tax shield in the early years of production.

We do not assume a royalty.

In 2020, Western Australia updated its royalty rates for lithium to a 5% rate for spodumene and capped at 5% of the value of the spodumene used as feedstock where sold as lithium carbonate or hydroxide assuming that the carbonate or hydroxide is the first product to be sold. It was designed to incentivise lithium processing and downstream activity.

ALK will be acquiring spodumene concentrate from unrelated parties so at this stage the royalty will have been paid by the spodumene miner on sale to ALK. Australia's mineral royalty rates apply to bulk material, concentrate material and metal; not to specialty chemicals. There are a number of outstanding areas which require clarification with respect to lithium royalties and the Government says it will do so in due course, however, we currently do not assume that PHL will be subject to a royalty given that it is a specialty chemical producer.

Integrated Project Analysis

The economics of the standalone project in Port Hedland are secondary, in our view, to the strategic goals that the plant fulfils and the combined economics of the integrated plants; firstly providing security of supply for the Wilton facility for higher margin LSM which is an emerging intermediate product and secondly ensuring a lower embedded carbon footprint in the TVL supply chain. By increasing the lithium content of the intermediate product close to the mine this reduces the volume of waste shipped and therefore carbon footprint associated with shipping for producing the lithium making it more attractive to end users.

Project highlights, VSA Capital Analysis

	Train 1	Average over Project
SC6 Throughput	180	181
LSM Output	40	160
LiOH Output, ktpa	24	96
Revenue, £mpa	392	1,407
EBITDA, £mpa	72	407
Free Cash Flow £mpa steady state	37	225
Initial Capital, £m	(494)	(2,190)
Sustaining Capital, £mpa	(10)	(36)
NPV, £m	1,099	4,532

SOURCE: *Company data, VSA Capital Research.*

The company has published its integrated analysis using market pricing assumptions between Australia and the UK. i.e. the plant in Port Hedland sells LSM at a market price to the facility at Wilton. Consequently, adding the NPVs of the two projects together provides an indication of the value potential. However, this may not be the most value accretive or the most practical approach to executing the project. Currently, the tax level in the UK and Australia favours maximising value in the UK.

Vertical integration will benefit ALK economically in higher price environments by acquiring lower cost product earlier in the value chain. In lower pricing environments this will be less pronounced. We have not provided a scenario analysis as we believe that contracts are likely to be tailored and fully unhedged pricing exposure is likely to be unrepresentative of the reality. Furthermore, our base case only reflects one product scenario, for example, we do not consider a train dedicated to processing technical grade lithium carbonate and we note TVL is in discussions with two South American brine producers for offtake.

Our other key assumption is that the projects are financed and constructed simultaneously. Clearly timing this perfectly is unlikely but will be significantly influenced by the feedstock deals and financing discussions that the company reports it is actively involved in.

Wilton Project Progress

Our initiation followed the publication of the Class 4 Feasibility Study with support from leading lithium engineering group Wave for the lithium hydroxide refinery to be built in the Wilton International Chemical Park in Teesside. This plant has been designed to process lithium sulphate or convert lithium carbonate into battery grade lithium hydroxide.

One of the major developments over the last 12 months has been the grant of full planning permission from Redcar & Cleveland Borough Council. The swift and expedited process, which included a full Environmental Impact Assessment, was in large part due to the fact that the company secured an undeveloped site on the Wilton International Chemical Park. This “plug and play” facility where TVL has now agreed terms on a 30 year lease is a key factor in the investment case as the chemicals park gives the company access to renewable power, chemicals, water and a skilled workforce.

Our base case analysis on the TVL plant assumes processing lithium sulphate across the four trains with output capacity of 24ktpa lithium hydroxide. It demonstrated the potential for strong cashflow generation, attractive margins, using a lithium hydroxide price based on a 10% premium to our lithium carbonate forecast producing an NPV8 of £2.2bn. In this scenario the EBITDA margin is 26% on a standalone basis rising to 38% when integrated with the PHL project.

Project highlights, VSA Capital Analysis

	Train 1	Average over Project
LiOH Output, ktpa	24	96
Revenue, £mpa	392	1,407
EBITDA, £mpa	118	437
Free Cash Flow £mpa steady state	72	266
Initial Capital, £m	(237)	(1,160)
Sustaining Capital, £mpa	(6)	(18)
NPV, £m	598	2,171

SOURCE: *Company data, VSA Capital Research.*

We also highlight that our analysis suggests that TVL once established will offer relatively more stable exposure to the lithium market than direct mining meaning lower through cycle volatility and steady cash margins due to the fact that the major cost input, the feedstock, is geared to the broader lithium price trend. Although lithium prices have pulled back since the November 2022 peak, they are not yet at our long term base case but we highlight that as market prices fall so does the cost of feedstock protecting TVL's margin through the cycle acting as a specialty chemicals business rather than simply a lithium producer.

Integration does alter this strategy and brings greater leverage to the lithium price in simple terms, however, the contracts that ALK agrees with feedstock suppliers will also have a large bearing on the sensitivity to pricing.

Lithium Market Update

Spot lithium carbonate prices have been the focus for investors since they peaked at over US$80,000/t in November last year. Stoppages in China's key Yichun region in late 2022 caused prices to reach all-time highs, however, this was followed by disruption to end users and the automotive sector in China in early 2023 which paused buying leading to price falls. When prices in commodity markets make such big moves it can take only small changes in volumes to affect the price thereafter. The disruption to demand in early 2023 was compounded by growing concerns over the outlook for the world economy which likely prompted buyers to be more cautious in the near term.

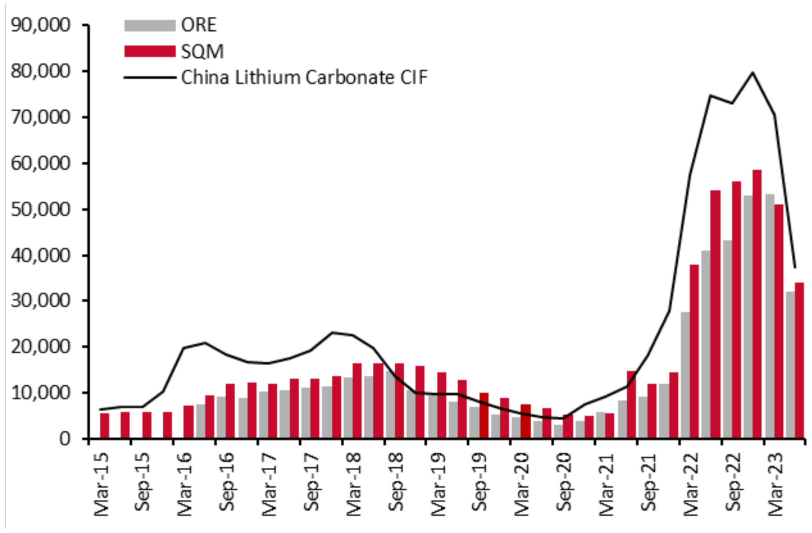
That said, the automotive sector in China has got over this initial hiccough with new energy vehicle sales up 31% YTD in August with a 31% YoY increase in sales in August up 27% YoY alone.

As a result, the lithium carbonate spot price which represents marginal volumes is now around the US$23,500/t level easing back after a brief recovery in May. With many companies moving towards index linked pricing the movement in the spot market is increasingly important as indicated by the 37% YoY reduction in pricing from SQM in Q2 2023 to US$33,981/t with a similar reduction reported by Allkem.

In the near term, we believe that the downside is relatively limited as recent additions to supply have been met by Chinese lepidolite production which is high cost and technically challenging. Fastmarkets report that in 2022 this source supplied 85kt LCE but lithium processors have indicated that due to the higher impurities and lower lithium content it is typically harder and more expensive to produce battery quality lithium products from lepidolite. Currently this is the marginal supply only made economic by the rapid increase in pricing. Consequently, in the short term while larger scale lower cost alternatives such as DLE or claystone projects are still in development this creates an unusual cost curve structure where the marginal cost that sets the floor price is some way above the rest of the industry. This is a function of the rapid growth of the lithium market since 2015.

In relation to these larger lower cost developments, there has been little commentary on the progress of the Cauchari project in Argentina's commissioning which was due to commence in H2 2022, one of the most significant new projects to come online in the near term. Elsewhere **Sigma Lithium's (SIGMA CN)** project offers the potential for further modest near-term increases in supply (270ktpa of spodumene concentrate) having commenced production in April 2023. Given global EV demand is expected to increase by a further 20% YoY in 2023 lithium demand growth is set to remain strong keeping markets tight. New supply is on the horizon from **Pilbara Minerals (PLS AU)**, **Lithium Americas (LAC CN)** (now separated and eligible for US Government funding) and SIGMA but we highlight the challenges with successfully executing the startup of a mining project to the timing of commissioning.

Lithium Carbonate Price



SOURCE: *Eikon, VSA Capital Research.*

London listed lithium equities although trading at significantly lower valuations compared to peers on the TSX-V and ASX, have begun to improve their leverage to lithium pricing, in our view reacting to changes in the wider lithium market more quickly than in previous cycles. This is in part due, in our view, to the flurry of strategic deals announced in recent months. Although starting from a lower valuation base this has not meant that these stocks have escaped a pullback driven by lower pricing and wider equity market volatility.

Atlantic Lithium (ALL CN) suffered from a short seller attack on its partner **Piedmont Lithium (PDL US)** accused of obtaining its mining licences inappropriately. The company strongly refuted these allegations and gained the commitment of the Ghanaian Sovereign Wealth Fund to invest up to US$27.9m in the company and assets. Additionally, the company recently published an expanded mineral resource of 35.3mnt at 1.25% Li_2O and continued to progress the DFS.

Kodal Minerals (KOD LN) announced investment at the topco and project level entities of US$117.5m from Hainan Mining Co. a subsidiary of Fosun International. The company owns the Bougoni hard rock lithium project in Mali. **Andrada Mining (formerly Afritin ATM LN)** has announced a strategic review given interest in its Namibian lithium-tin assets. **Premier African Minerals (PREM LN)** also secured Chinese funding for its Zulu project in Zimbabwe.

We also note the announcement by **Zinnwald Lithium (ZNWD LN)** with strategic investment **Advanced Metallurgical Group (AMG)** who are building the lithium refinery in Germany. This is the most relevant update for ALK as it highlights that AMG intends to vertically integrate to secure feedstock meaning that although this is intended to be the first capacity online in Europe the capacity has already likely been set aside for processing the concentrate from the nearby Zinnwald project. This further highlights the shortage of available refining capacity for lithium miners and end users and ALK remains the only listed exposure to refining capacity.

AMG Resources broke ground eight months ago and are progressing construction, they are likely to be the first into production while **Rock Tech Lithium (RCK CN)** have secured the first partial permit as of March 2023 but intend to fill supply their plant with material from their own projects in Canada. Almost all lithium carbonate and hydroxide produced by miners today is reprocessed by dedicated refineries to make it battery grade. This is done in China and is a vital step in the process for making lithium-ion batteries.

Given the rules of origin for EU products (in which the UK is included) and the logistical practicalities, the need for refineries in Europe is clear.

Planned European Refining Capacity

Company	Location	Capacity (kt)	Expected Year for First Production
Tees Valley Lithium	UK	96	2026
Rock Tech Lithium	Germany	24	2026
Aurora JV (Galp/NorthVolt)	Portugal	35	2027
AMG Lithium	Germany	20-100	2023
Green Lithium	UK	50	2027

SOURCE: *Company data, VSA Capital Research.*

London-Listed Lithium Companies

Hard Rock	M'Cap US$m	EV, US$m	Locations	Resource, M&I, LCE, mt	Grade	Resource, Inferred, LCE, mt	Grade	EV/t (US$, M&I & I)
European Metals	85	91	Czechia	4.55	0.45%	2.84	0.39%	12
Atlantic Lithium	190	200	Ghana, Ivory Coast	0.88	1.27%	0.21	1.16%	183
Premier African	136	145	Zimbabwe	-	-	0.53	1.06%	276
Savannah Resources	75	84	Portugal	0.16	1.04%	0.13	1.10%	294
Andrada Mining	109	110	Namibia	-	-	1.11	0.63%	99
Kodal Minerals	90	91	Mali	0.32	1.13%	0.26	1.08%	155
Zinnwald Lithium	49	52	Germany, Ireland	0.27	0.76%	0.04	0.76%	169

Clay	M'Cap US$m	EV, US$m	Locations	Resource, M&I, LCE, mt	Avg M&I ppm	Resource, Inferred, LCE, mt	Inferred PPM	EV/t (US$, M&I & I)
Bradda Head	27	34	US	0.4	0.09%	73.3	0.07%	2

Direct Extraction	M'Cap US$m	EV, US$m	Locations	Resource, M&I, LCE, mt	Grade, mg/l Li	Resource, Inferred, LCE, mt	Grade, mg/l Li	EV/t (US$, M&I & I)
Cleantech Lithium	47	62	Chile	800.0	207	1,200.0	205	21

Refinery	M'Cap US$m	EV, US$m	Locations	Resource, M&I, LCE, mt	Grade	Resource, Inferred, LCE, mt	Grade	EV/t (US$, M&I & I)
Alkemy Capital Limited	11	11	UK, Australia	-	-	-	-	-

Source: Company Data, Eikon, VSA Capital Research

Financial Results

During the year ended 31st January 2023 ALK recorded a net loss of £2.65m of which £1.3m was spent on project development and the same figure spent on SG&A. This compares to a loss of £0.8m in the prior year during which the company was formed.

The company finished the year with a cash position of £12k with additional funding supplied by Director's loans which stood at £326k at year end but raised £1.1m in August 2023. Given the expenditures primarily related to spending on engineering studies in relation to the project these were predominantly expensed with only £52k in costs capitalised.

The company on 31st May announced new funding of £0.92m at a placing price of £1.40/sh. in addition two of the Director's agreed to convert outstanding loans to equity taking the new issue of equity to a value of £1.35m or 964,853 new shares. 657,711 of the shares were initially lent by Paul Atherley from existing holdings due to the company's headroom limits for new share issuance. This loan of stock was unsecured and interest free. As expected the company unwound this structure as the headroom became available issuing the new shares and repaying the loan. The company now has 8,164,851 shares outstanding as at 29th September 2023.

Valuation

Our valuation of **Alkemy Capital (ALK LN)** continues to be based on risked DCF valuations. Our assumptions for the Teesside plant are broadly unchanged bar macro updates.

Our group target valuation is strengthened by the addition of the Port Hedland facility at Boodarie and our updated macro assumptions which are consistent across both parts of the chain.

Our model uses our upgraded long-term assumption of US$22,000/t for lithium carbonate (was US$18,000/t) with a 10% premium for hydroxide. Lithium sulphate and spodumene concentrate input prices are assumed based on historical ratios.

In addition we have applied a 10% adjustment to the proposed capital expenditure of £215m in the earlier study given that inflation pressures remain; this is on top of the contingency included. That said, our discount rate is unchanged at 8% and we note that strategic projects such as Alkemy's are beginning to attract low cost debt in line with long term government yields. In America **Li-Cycle (LICY US)** received US$375m loan at the ten year treasury rate to build its recycling facility in the US earlier this year while **Lake Resources (LKE AU)** received expressions of interest from UK Export Finance showing the UK has similar capability. Such a deal would substantially reduce the cost of capital.

Although we have provided analysis on the full proposed development and four trains, we believe that given the company's stage of development and resources it is appropriate at this stage to continue to focus our base case target valuation on a single train at each project. We have applied a risk factor of 0.15x to TVL and PHL.

With a current cash position of £0.9m, the market requires greater clarity on how the project will be funded and the risk factor attempts to take this into account. Additionally, the company will likely require more working capital in the interim.

Investors should also note that the risk factor reflects that our valuation is based on one scenario with spodumene concentrate supplied to Boodarie converted to lithium sulphate and shipped to TVL. Current feedstock discussions imply that different combinations including refining technical grade carbonate as well as lithium sulphate secured via a vertically integrated or third party are on the table. Each of these would have different implications for margins, cash flow and the valuation. However, our risk factor adequately compensates for the potential differences, in our view.

That said, it is difficult to not demonstrate considerable upside potential and the latest announcement indicates that major derisking catalysts which we believe will drive a rerating are now significantly closer. The nature of the process means that market updates and timing is challenging to gauge, however, off the current valuation there is limited downside risk. Correspondingly a feedstock deal with an OEM indicates a major catalyst as it unlocks the project financing process, optionality on structures and potentially direct funding as part of an agreement.

Valuation Summary

Division	Division NAV, GBP'000	Share, %	Attributable NAV, GBP'000	P/NAV	Fair Equity Value, GBP'000
Boodarie	228,718	100%	228,718	0.15	34,308
Tees Valley Lithium	597,790	100%	597,790	0.15	89,668
Cash, GBP'000					(920)
Total Equity Value, GBP'000					124,896
# of shares (ALK)*					8,164,851
Current price, GBP/share					1.15
12-mo Target Price, GBP/share					15.3

SOURCE: *Company data, VSA Capital Research.*

Our sum of the parts target price for ALK is £15.30/sh.

Financials

Income Statement, Year Ending 31 January 2022 (GBP)

	2021	2022
Continuing Operations		
Administrative Expenses	(466,903)	(1,298,002)
Project Development Expenses	(330,747)	(1,298,011)
Business Development Costs	-	(12,866)
Finance Costs	-	(1,536)
Foreign Exchange Gains/Losses	-	(34,344)
Loss Before Taxation	**(797,650)**	**(2,644,759)**
Taxation	-	-
Loss After Taxation for the Period	(797,650)	(2,644,759)
Other Comprehensive Income		
Forex differences on translation of overseas subsidiaries	-	(2,645)
Total Comprehensive Loss for the Period	**(797,650)**	**(2,647,404)**
Earnings per Share		
Basic & Diluted Earnings per Share (pence)	(19.88)	(40.24)

SOURCE: *Company data, VSA Capital Research.*

Balance Sheet, Year Ending 31 January 2022 (GBP)

	2021	2022
Non Current Assets		
Intangibles: Project Development Costs	-	298,813
Total Non Current Assets	**-**	**298,813**
Current Assets		
Trade & Other Receivables	73	212,125
Cash & Cash Equivalents	1,113,923	12,356
Total Current Assets	**1,113,996**	**224,481**
Total Assets	**1,113,996**	**523,294**
Equity		
Share Capital	120,000	144,000
Share Premium	1,279,094	2,413,243
Share Based Payments	-	63,221
Foreign Exchange Reserve	-	(2,645)
Retained Earnings	(797,650)	(3,442,409)
Total Equity	**601,444**	**(824,590)**
Current Liabilities		
Trade & Other Payables	512,552	1,021,595
Short Term Borrowings	-	326,289
Current & Total Liabilities	**512,552**	**1,347,884**
Total Equity & Liabilities	**1,113,996**	**523,294**

SOURCE: *Company data, VSA Capital Research.*

Statement of Cash Flows, Year Ending 31 January 2022 (GBP)

	2021	2022
Cashflows from Operating Activities		
Loss for the Year Before Tax	(797,650)	(2,644,759)
Share Based Payments	-	63,221
Expenditure met directly by Funding Provider	-	136,289
Increase in Receivables	(73)	(212,052)
Increase in Payables	512,552	339,705
Net Cash Outflow from Operating Activities	(285,171)	(2,317,596)
Cashflows from Investing Activities		
Payments for Intangible Assets	-	(51,475)
Net Cash Outflow from Investing Activities	**-**	**(51,475)**
Cashflows from Financing Activities		
Proceeds of Borrowing	-	190,000
Issue of Shares (Net of Share Issue Expenses)	1,399,094	1,080,149
Net Cash Inflow from Financing Activities	**1,399,094**	**1,270,149**
Net Increase in Cash & Cash Equivalents During the Period	1,113,923	(1,098,922)
Cash at the Beginning of the Period	-	1,113,923
Effect of foreign exchange on currency holdings	-	(2,645)
Cash & Cash Equivalents at the End of the Period	**1,113,923**	**12,356**

SOURCE: *Company data, VSA Capital Research.*

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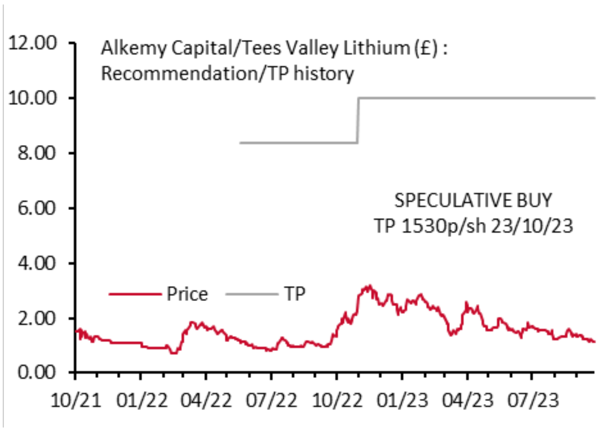
Recommendation and Target Price History



Valuation basis

Our valuation is derived from a risked NPV calculation.

Risks to that valuation

Commodity prices, political risk, execution risk, financing risk.

This recommendation was first published on 14 June 2022.