

Lake Resources NL (ASX:LKE)

Developing Clean Lithium for an Electrified World

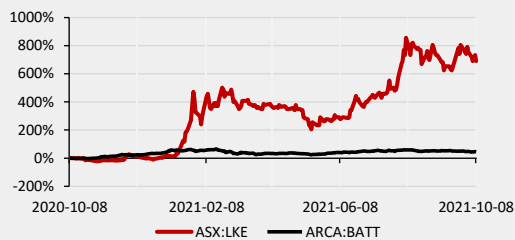
Initiating Coverage

October 12, 2021

(Currency is A\$ unless noted otherwise)

Closing Price (A\$/sh)	\$0.54		
Rating	BUY		
Target (\$/sh)	\$1.25		
Return to Target	131%		
52 Week Low / High	\$0.05 / \$0.68		
CAPITALIZATION	Basic	Diluted	
Shares Outstanding (M)	1,105.0	1,302.6	
Market Capitalization (\$MM)	\$596.7		
Enterprise Value (\$MM)	\$570.7		
Cash and Cash Equivalents (\$MM)	\$26.0		
Total Debt (\$MM)	\$0.0		
FYE: JUN 30	2021A	2022E	2023E
LCE produced (t)	0	0	0
Total cash costs (US\$/t)	0	0	0
EPS (A\$/sh)	0.00	0.00	-0.02
CFPS (A\$/sh)	0.00	0.00	-0.02

RELATIVE PERFORMANCE



RELATIVE VALUATION	C\$ EV/t LCE	P/NAV
Lake Resources NL	\$119.0	0.40x
Peers*	\$160.2	1.21x

*S&P Capital IQ

MAJOR SHAREHOLDERS

Management (9.99%), Acuity Capital Investment Management (3.62%), Purple Manggis Pty Ltd (1.18%)

DISCLOSURE CODE:

(Please refer to the disclosures listed on the back page)

Source: RCS, Company Information, S&P Capital IQ

Company Description

Lake Resources NL is a clean lithium developer utilising clean, direct extraction technology for the development of sustainable, high purity lithium from its flagship Kachi project, as well as three other lithium brine projects in Argentina. The projects are located in a prime location within the Lithium Triangle, where 40% of the world's lithium is produced at the lowest cost. The Kachi project covers 70,000 ha over a salt lake, just south of Livent Corp.'s lithium operation in Argentina, and hosts a large indicated and inferred resource estimate of 4.4Mt LCE.

We are initiating coverage on Lake Resources NL, with a BUY rating and A\$1.25/sh target price. Lake Resources has the largest land package in the Lithium Triangle with a total of four lithium brine projects in Argentina, including its flagship Kachi project. In conjunction with its partner, Lilac Solutions, the company has developed a direct lithium extraction (DLE) technology. This uses ion exchange (IX) methods to produce a high purity (99.97%) Li carbonate from its flagship Kachi project in under a few hours and with little environmental impact as compared to traditional extraction methods. **Lake Resources has already demonstrated its path to production from Kachi through testing at its 2020 pilot plant. With commitments received to cover 70% of the capital costs of Kachi via debt, the company can continue advancing the project, ahead of securing offtake partners and commencing construction activities in H2/22, before beginning production of 25,500tpa LCE in H2/24.**

- **Clean Li with ESG benefits.** Traditional extraction methods take up to two years and only recover about 50% of the Li content. Lake and Lilac's DLE process produces 99.97% Li carbonate in under three hours using less land and water, and with a reduced carbon footprint.
- **Kachi's Li carbonate exceeds industry standards.** Battery-grade purity is 99.5% and testing in Jan/20 confirmed Kachi's high purity of 99.97%, making it highly sought after by Tier 1 battery makers and EV manufacturers. Further testing is underway to demonstrate its utility compared to other commercially available Tier 1 Li carbonate products. Results are expected to facilitate offtake discussions.
- **Green energy revolution fueling Li demand.** With a push to increase sales of EVs in the US and globally (40% to 50% of all new vehicles sold by 2030 are to be EV) demand for Li, a key component of Li-ion batteries, is expected to increase by 4x in 2025. With current supply unable to keep up with demand, projects like Kachi that are modular and scalable, will become imperative to the Li supply chain.
- **Significant upside potential.** A PFS published in Mar/21 outlined an NPV_{8%} of US\$1.6B and IRR of 35% for Kachi, considering 25,500tpa LCE. Expansion studies are underway to support potential future production of 51,000tpa LCE. Furthermore, other projects (Cauchari) have shown very promising results similar to those observed at neighbouring mines and large projects.
- **A strong team to lead the way forward.** Lake's management team has global experience in the resource sector and has expertise leading companies from inception to development, and operation.

We are initiating coverage with a BUY rating and A\$1.25 target price.

Our target price is derived using the discounted cash flow (DCF) method and after applying a 0.7x multiple. Lake trades at a discount to peers on a P/NAV basis (0.40x vs. peers at 1.21x). As Kachi is de-risked further and inches closer to production, we expect this valuation gap to close.

Upcoming catalysts: 1) Demo plant (Q4/21), 2) Off-take discussions (ongoing) and 3) DFS and ESIA (Q2/22). **Mining and exploration is inherently risky** and Lake is subject to various technical, corporate and financial risks.

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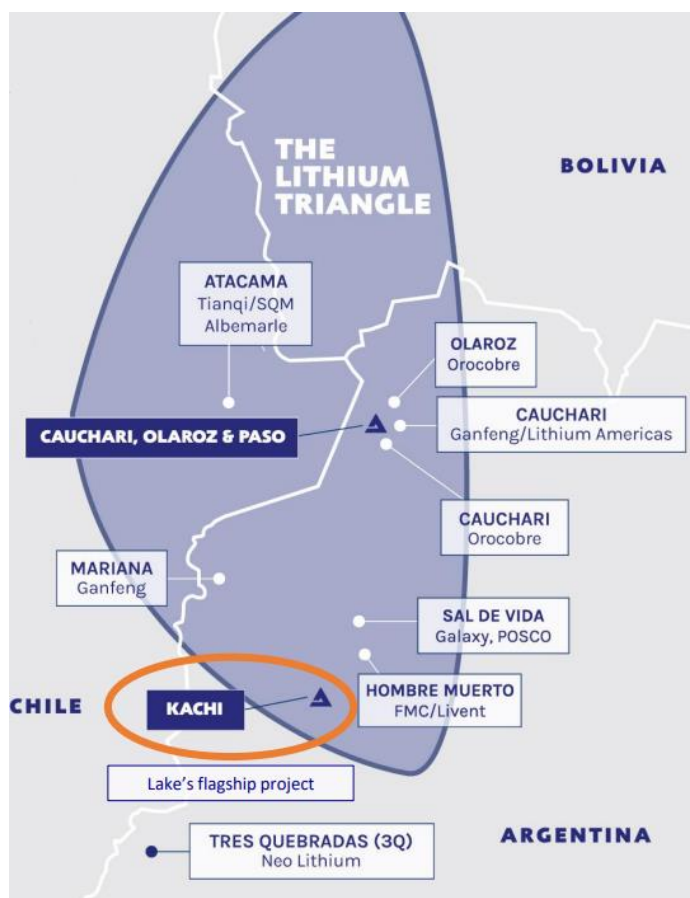
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Executive Summary

Lake Resources' lithium brine projects are in a prime location within the Lithium Triangle in Argentina (Figure 1), which produces 40% of the world's lithium at relatively low costs. The company holds the largest land package in the region (close to 2,000 sq. km) consisting of four lithium brine projects (Kachi, Cauchari, Olaroz and Paso) and one lithium pegmatite project (Catamarca).

We are initiating coverage on Lake Resources with a BUY rating and A\$1.25/sh target price. Our target is based on a discounted cash flow model stemming from future cash flows of the Kachi project, after accounting for certain corporate adjustments, and applying a 0.7x multiple.

Figure 1: Location of Lake's projects in Argentina



Source: Company Reports

Upcoming Catalysts

- 1) On-site demonstration plant (Q4/21)
- 2) Off-take discussions (ongoing)
- 3) DFS and ESIA (Q2/22)
- 4) Completion of project financing (H1/22)
- 5) Construction activities (H2/22)
- 6) Expansion studies to 51,000tpa LCE (2022)
- 7) Production of 25,500tpa LCE (H2/24)

DLE technology allows lithium concentrate production in under three hours with minimal environmental impacts

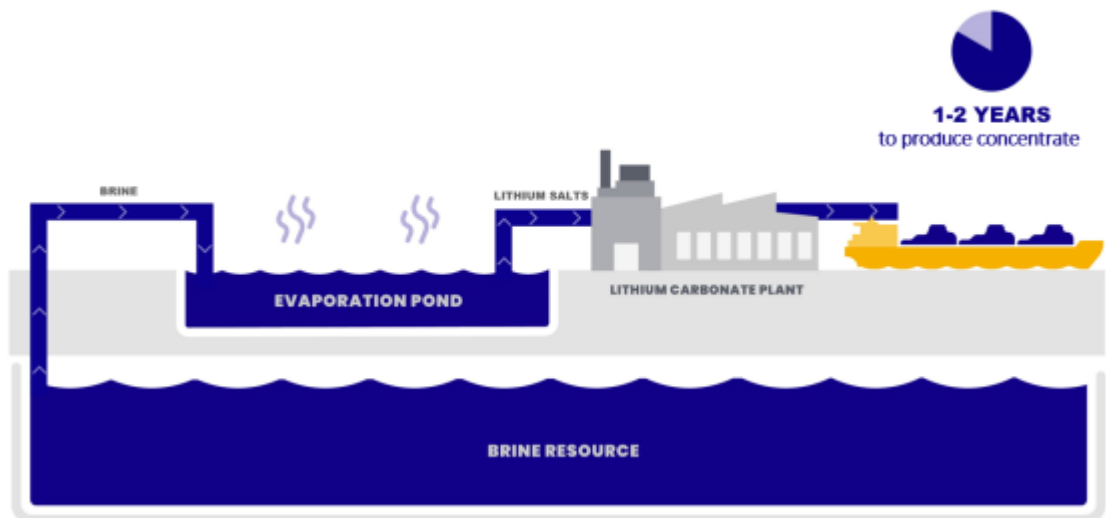
Investment Thesis

Developing clean lithium with ESG benefits for an electrified world.

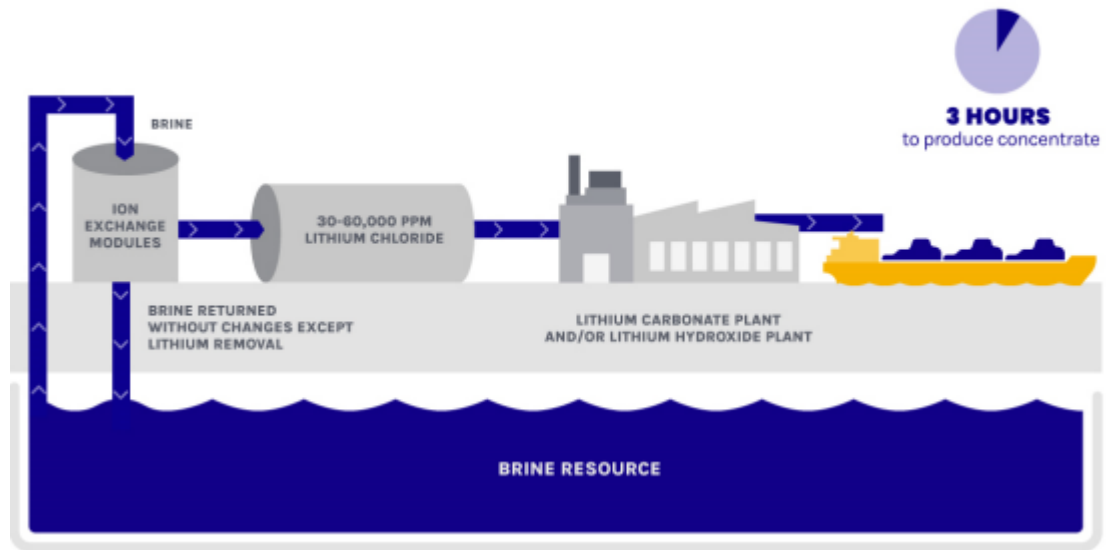
Conventional lithium extraction from brines involves being pumped to the surface for storage in large evaporation ponds (Figure 2). Solar evaporation then reduces the liquid content, leaving behind the lithium concentrate. This process typically takes anywhere from nine months to two years, and recovers ~50% of the lithium content. Lake Resources, in conjunction with its California-based partner, Lilac Solutions, has developed a direct lithium extraction (DLE) process using ion exchange (IX) technology; IX technology has been widely used since the 1940's in water treatment facilities. IX beads and the column system together enable a simple, robust and sustainable process as the processed brine is returned to the aquifer once the lithium has been extracted. The development of this process has enabled the company to produce high-purity lithium concentrate in under a few hours with minimal environmental impact – with less land and water use, and a reduced carbon footprint (Figure 3). Furthermore, this IX process eliminates some of the issues that plague certain deposits such as high levels of magnesium or sulphate in the brine, and can be used on brines of fairly low lithium concentration without severely impacting project economics.

Lithium concentrate is then processed to produce lithium carbonate; a precursor and critical component in the creation of lithium compounds used in lithium-ion batteries. These are the most common type of batteries used in electric vehicles (EV) due to their high energy density.

Figure 2: Conventional lithium evaporation process

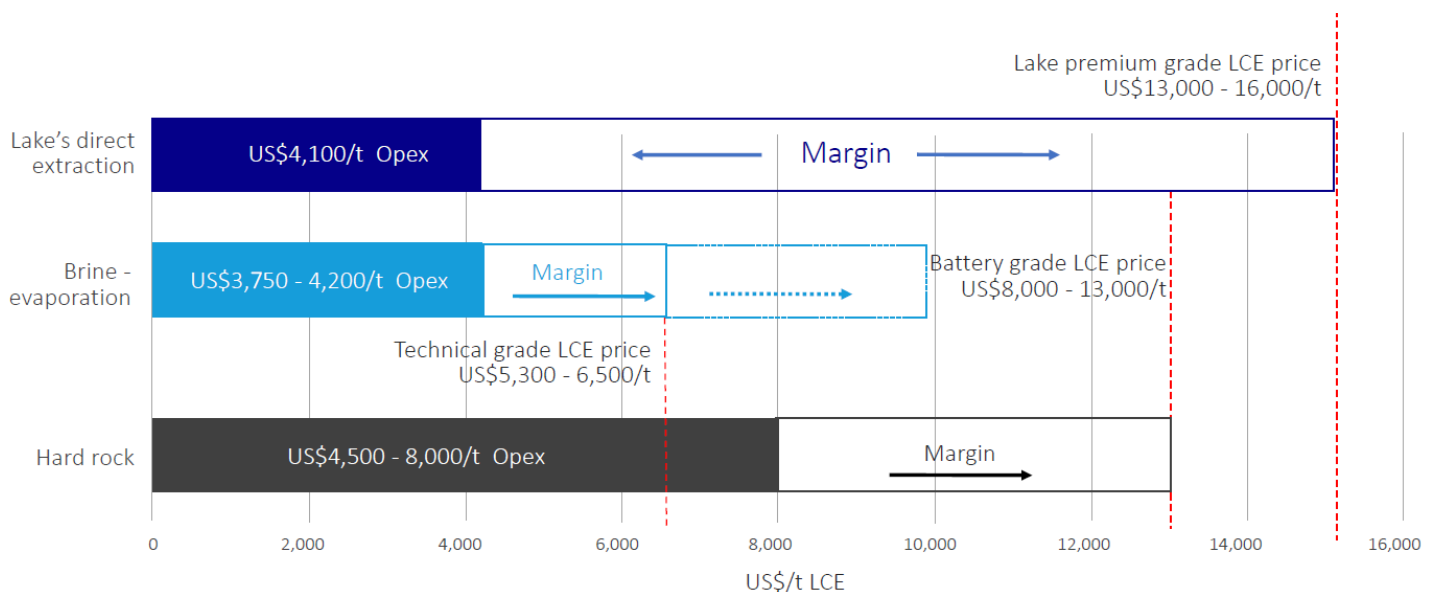


Source: Company Reports

Figure 3: Lake Resources and Lilac Solutions' DLE process


Source: Company Reports

High-purity (99.97%) lithium carbonate produced from Kachi. Testing conducted at Lilac Solutions' IX pilot plant in Jan/20 confirmed very low impurities of iron and boron. Additional testing conducted by an independent assay laboratory, Hazen Research Inc., in Oct/20 also further confirmed these results. The high-purity lithium carbonate produced bodes very well for the Kachi project as it exceeds industry standards for battery-grade purity (99.5%) yielding higher margins for the project in the future (Figure 4).

Figure 4: Forecasted margins from the sale of high-purity lithium carbonate from Kachi


Source: Company Reports

PFS provides compelling economics. An updated Pre-Feasibility Study published in Mar/21 outlined robust economics for the Kachi project based on production of 25,500tpa Li_2CO_3 for a period of 25 years, at a forecasted price of US\$15,500/t. The PFS outlined a post-tax NPV_{8%} of US\$1.6B and IRR of 35%. Other production and financial parameters from the PFS can be seen in Figure 5. Capital and operating costs are broken down on pages 15 and 16.

Figure 5: Production and financial parameters from Kachi PFS

	Units	Values
Production Parameters		
Construction period	Years	2
Project life	Years	25
Production rate	tpa	25,500
Mineral resource (indicated)	Mt	1.01
Lithium grade	Mg/L	250
Production rate (brine extracted)	M m ³ /year	23
Recovery	%	83.2
Financial Parameters		
Capital required	US\$M	540
Annual operating cost	US\$M	107
Cash cost	US\$/t	4178
IRR post-tax	%	35
NPV _{8%} post-tax	US\$M	1.58
Payback	Years	3
Annual sales	US\$M	400
Annual EBITDA	US\$M	257

Source: Company Reports

Ensuring Kachi can produce quality cathode material. In Aug/20 Lake Resources appointed Novonix Battery Technology Solutions to produce lithium-ion battery cells using the lithium carbonate samples produced from Kachi. Novonix is in the process of developing a 'million miles' battery technologies with revolutionary anode and cathode materials. The lithium carbonate samples produced from Kachi brines were to be combined with commercial battery cathode precursor materials to form an NMC622 (nickel-manganese-cobalt) cathode and battery.

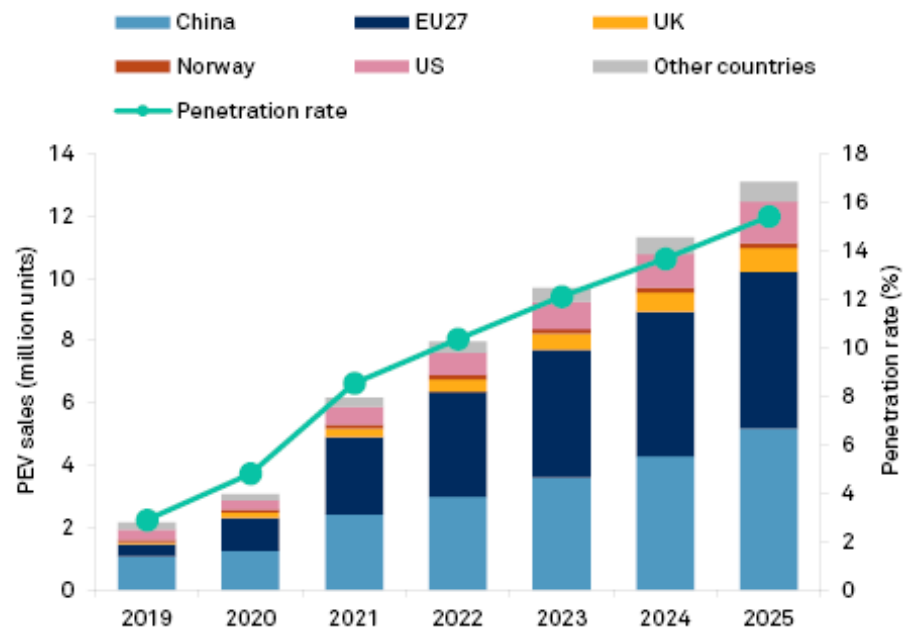
Initial testing conducted returned positive results (in Mar/21) with Lake's lithium carbonate yielding similar voltage profiles, improved capacity retention and better electrochemical behaviour in coin cells, compared to commercially available products from Tier 1 lithium carbonate producers. Larger scale tests will also be conducted using batch-scale synthesis to demonstrate repeatability, homogeneity and cell characterization enabling the company to make direct comparisons of its lithium product performance in battery chemistries. Results from large scales testing are still pending and are expected to facilitate offtake discussions with battery makers and EV manufacturers.

Initial tests returned positive results showing similarities of Lake's lithium carbonate product to Tier 1 producers

Push to increase EV sales globally and in the US is expected to increase Li demand by 4x

Green energy revolution. The focus on renewable energy transition has intensified most recently with US President Biden’s pledge to make half of all new vehicles sold in the US zero-emission vehicles by 2030. The executive order signed by the President aims to tighten fuel efficiency and emissions standards, while investing in a national network of EV charging stations and providing consumers with incentives and financing solutions to invest in cleaner technologies. Automakers in the US including Ford, General Motors and Stellantis (Chrysler’s parent company) have also pledged to reach a goal of 40% to 50% US EV sales by 2030, while South Korea’s Hyundai and Japan’s Nissan have backed similar sales targets. Global passenger EV sales are expected to increase to 13M units by 2025 (Figure 6).

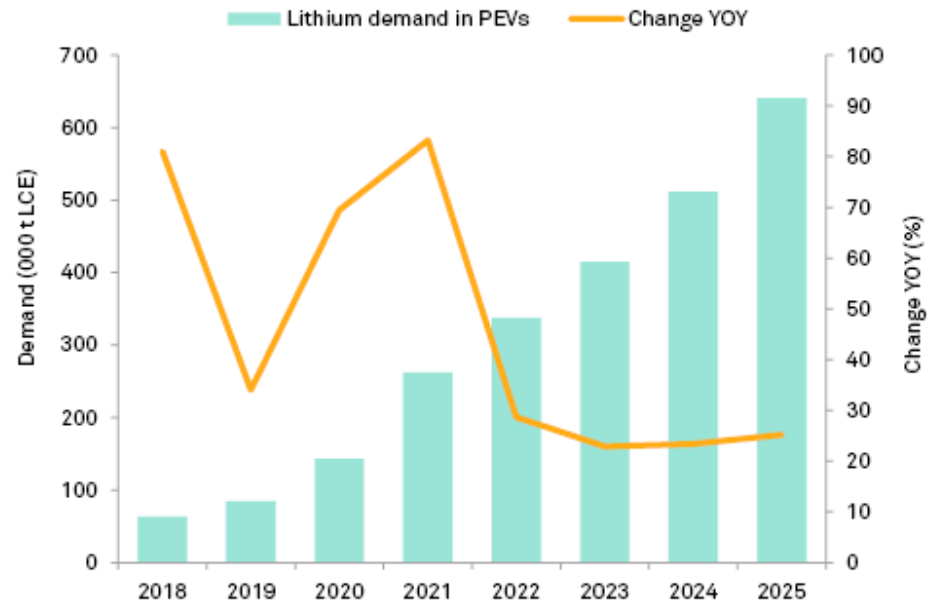
Figure 6: Forecast passenger EV sales by country



Source: S&P Capital IQ Pro

Lithium demand expected to increase by 4-fold by 2025. With the revolutionary shift towards EV production in the auto industry, demand for lithium, a key component of lithium-ion batteries used in EVs, is expected to increase by 2025 (Figure 7). Common battery chemistries in EVs used today are NMC532 and NMC622, currently being tested by Novonix using Kachi brine. As demonstrated in Figure 7, demand for lithium is expected to increase from 143kt LCE in 2020 to 640kt LCE in 2025.

Figure 7: Lithium demand in passenger EVs

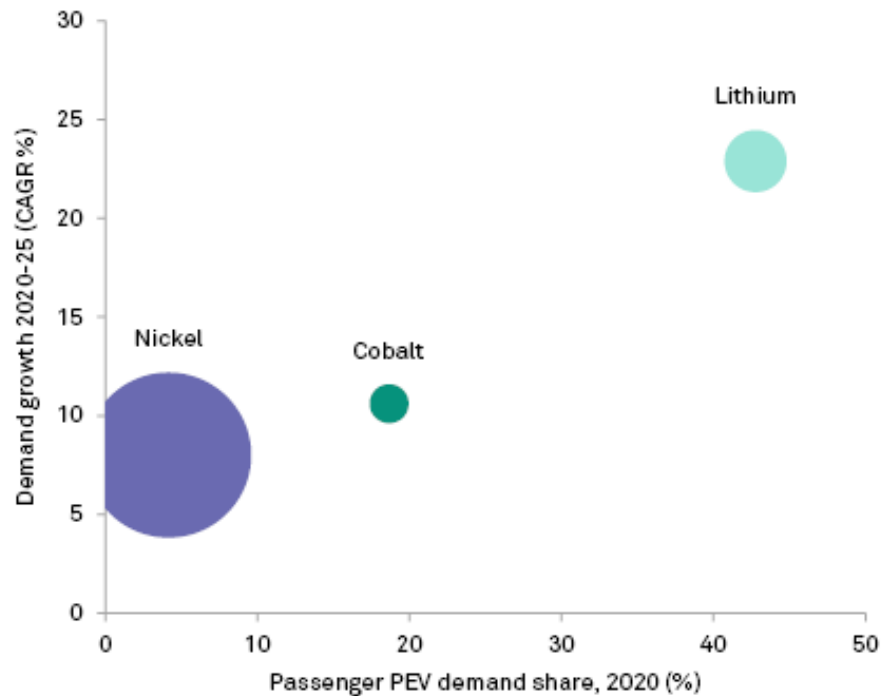


Source: S&P Capital IQ Pro

Demand for Li expected to be greater than Ni or Co

While there are other materials required in the production of lithium-ion battery cathodes like cobalt and nickel, demand for lithium is expected to outperform the demand for other metals because of the critical nature and widespread use of lithium in several current battery technologies (Figure 8).

Figure 8: Lithium demand growth compared to cobalt and nickel

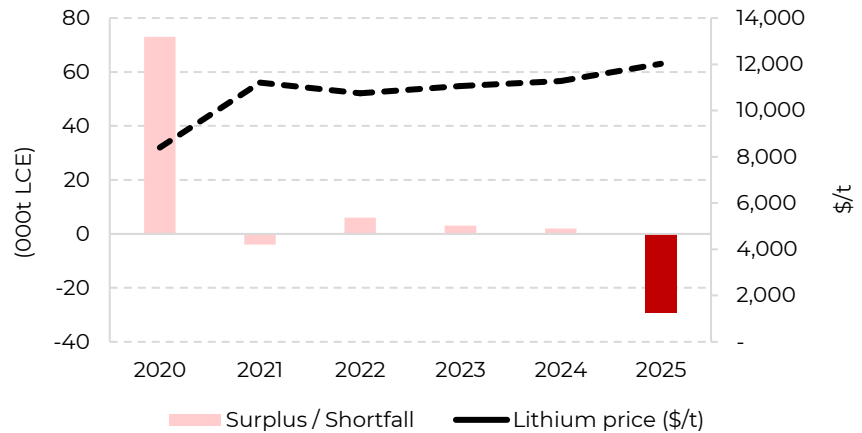


Source: S&P Capital IQ Pro

Modular and scaleable projects like Kachi will become imperative to the supply chain

Current supply unable to keep up with rising demand causing supply crunch. Through 2020, global production outweighed demand and put downward pressure on prices (Figure 9). With EV sales expected to surge, global Li supply based on current production levels simply cannot meet the levels required in 2025, putting an upward pressure on prices. With struggling supply levels, the modular and scaleable nature of the Kachi project makes it an imperative part of the global supply chain.

Figure 9: Lithium demand compared to cobalt and nickel



Source: S&P Capital IQ Pro

Expansion studies to double production to 51,000tpa LCE underway.

Less than 20% of the current resource is planned to support the production rate of 25,500tpa LCE over 25 years assumed in the PFS. A 1,600m drilling program is underway at four wells to support a conversion of resources to reserves for the DFS. Drilling will also enable the conversion of inferred resources to the measured and indicated categories so that expansion studies can evaluate whether production can be ramped up to 51,000tpa LCE in the future.

Fully-funded – unique aspect for early-stage projects. Management now has three avenues to fund the initial US\$544M capital requirement for the project: 1) Expression of Interest (EOI) from two Export Credit Agencies, UK Export Finance (UKEF) and Export Development Canada (EDC), to provide debt funding for 70% of capital requirements (including expansion capital), 2) potential option conversions due later this year (~A\$60M) and in 2022, and 3) the US\$50M in funding expected from Lilac Solutions once the 25% earn-in is complete. We do not see management tapping into the equity markets to fund initial capex, although the avenue does remain open for future/additional capital requirements.

Supported by upside potential of its other projects. The Cauchari, Olaroz and Paso projects are all located in the Lithium Triangle. When these holdings are combined with the Kachi project, Lake holds approximately 2,200 sq. km (550,000 acres) in the area. The projects are located in the neighbourhood of Ganfeng Lithium and Lithium Americas Corp.'s (TSX:LAC, Not Rated) Cauchari-Olaroz project, which hosts the world's largest lithium brine resource (23Mt LCE) and has an annual production target of 40,000tpa LCE. They are also close to Orocobre

Drilling has returned similar results to nearby mines and projects

Resources (TSX:ORL, Not Rated) operating Olaroz lithium brine mine. While no exploration work has been undertaken at Olaroz or Paso, drilling conducted in 2019 at Cauchari confirmed a high-grade discovery returning 493 mg/L over 343m, with the highest result returning 540 mg/L. These results are like drillholes reported from the adjoining areas owned by Lithium Americas and Orocobre, highlighting the upside potential present at the project. Sampling results from Cauchari are pending, with a scoping study also planned for the project.

Led by a strong and experienced leadership team. Mr. Promnitz, Managing Director, has led Lake Resources for the past five years with natural resource sector experience in South America and South-East Asia. Mr. Crow, Chairman and Non-Executive Director, has global experience in financial services with a focus on investor relations and capital markets. Dr. Lindsay, Executive Technical Director, has over 25 years of experience in technical roles in South America and has led companies from inception to development and subsequent acquisition. We believe Lake's management and leadership team are committed to advancing the Kachi project to the next stage of its development.

Valuation

We have assigned a price target of A\$1.25/sh based on our discounted cash flow (DCF) valuation method (Figure 10). This valuation is based solely on the Kachi project given its development status (PFS-stage) and the future revenue potential from lithium carbonate production for Lake. Given the early-stage nature of the rest of the company's projects (Cauchari, Olaroz, Paso and Catamarca), we do not ascribe any value to these assets. Our estimates may change based on any exploration work conducted at these assets which may show its future value potential to Lake.

Figure 10: DCF valuation for Lake Resources

Asset	Status	Resource (LCE)	Valuation Method	Fair Value Estimate		%
				A\$ M	A\$/sh	
Kachi (100%-owned)	Development	4.4Mt	DCF at 5%	2,470.31	1.78	101%
Cauchari (100%-owned)	Exploration	0.00	NA	0.00	0.00	0%
Olaroz (100%-owned)	Exploration	0.00	NA	0.00	0.00	0%
Paso (100%-owned)	Exploration	0.00	NA	0.00	0.00	0%
Catamarca (100%-owned)	Exploration	0.00	NA	0.00	0.00	0%
Project NAV		4.40		2,470.31	1.78	101%
<u>Corporate adjustments:</u>						
Cash				26.00	0.02	1%
Debt				0.00	0.00	0%
Inventory				0.00	0.00	0%
G&A				(62.40)	(0.04)	-3%
Equity Investments				0.00	0.00	0%
Corporate NAV				2,433.91	1.75	100%
Multiple					0.7x	
Target price					1.23	

Source: Company Reports, RCS Estimates

The Kachi project. Almost all of our NAVPS estimate is derived from Kachi project (A\$1.78/sh). We value Kachi based on the future production potential of lithium carbonate based on spot lithium prices of US\$15,500/t and processing capacity of 25,500tpa LCE starting in Q4/24. We assume LOM of 25 years, recoveries of 83.2% and project debt of ~US\$380M at 5% interest to cover the capex requirement of US\$544M (a summary of assumptions used can be found in Figure 11). We assume that the rest of the capex is covered by Lilac's US\$50M funding of the project, the option conversions coming due in 2023 and 2024, and equity financing if required. Based on the operating costs provided in the PFS (Figure 18) we discount the attributable cash flows (75%-ownership) of the project to arrive at our fair value estimate of ~A\$2,470M or NAVPS_{5%} estimate of A\$1.78/sh. We currently do not account for the expansion case of 51,000tpa LCE production at this time, but as more information becomes available, may adjust our estimates.

Corporate adjustments. We include value for Lake's cash balance of A\$26M. We assume G&A costs of ~A\$4M/year, which gives us an NPV of -A\$62M.

To account for project and execution risk, we use a multiple of 0.7x, which we typically apply to PFS-stage companies in our portfolio. **Using Lake's fully diluted share count of ~1,387M shares, we arrive at our fair value estimate for the company of ~A\$2,434M or NAVPS of A\$1.23. We round up our NAVPS to arrive at our target price of A\$1.25/sh.**

Figure 11: Summary of assumptions used in our DCF model

	Units	Values
Assumptions used		
Production begins		Q4/24
Project life	Years	25
Production rate	tpa	25,500
Mineral resource (indicated)	Mt	1.01
Lithium grade	Mg/L	250
Production rate (brine extracted)	M m ³ /year	23
Recovery	%	83.2
Spot Li price	US\$/t	15,500
Capital required	US\$M	540
Annual operating cost	US\$M	107
Cash cost	US\$/t	4178
Tax rate	%	20

Source: Company Reports, RCS Estimates

Relative Valuation

Lake resources currently trades at a discount to its peer group on a P/NAV basis at **0.41x** vs. peers at **~1.17x** (Figure 12). The company's peer group consists of other global lithium carbonate developers and producers. We note that on an EV/t LCE basis, Lake resources trades at a discount to peers (**C\$123.3/t** vs. peers at **C\$158.9/t**). As Lake de-risks and advances the Kachi project towards production, or begins exploration work at its other early-stage assets, we expect this valuation gap to close.

Figure 12: Peer comparison

Company	Ticker	Price (C\$/sh)	YTD Perf.	Shares (M)	Mkt. Cap C\$M	Cash C\$M	Debt C\$M	EV C\$M	Resources LCE Mt	EV/t C\$	Consensus P/NAV	
Lake Resources NL	ASX:LKE	\$0.51	603%	1105.0	\$566.7	\$24.4	\$0.0	\$542.3	4.4	\$123.3	0.41x *	
Ultra Resources Inc.	TSXV:ULT	\$0.20	117%	108.4	\$21.1	\$0.5	\$0.0	\$20.7	NA	NA	NA	
Standard Lithium Ltd.	TSXV:SLI	\$9.00	216%	163.2	\$1,469.2	\$30.3	\$4.6	\$1,443.5	3.1	\$459.7	1.8x	
Neo Lithium Corp.	TSXV:NLC	\$5.05	154%	150.8	\$761.8	\$57.0	\$0.0	\$704.8	7.0	\$100.7	0.7x	
Alpha Lithium Corporation	TSXV:ALLI	\$0.66	-12%	124.3	\$82.0	\$32.2	\$0.0	\$49.9	NA	NA	NA	
E3 Metals Corp.	TSXV:ETMC	\$1.87	117%	57.2	\$106.9	\$13.6	\$0.3	\$93.6	7.0	\$13.4	NA	
International Lithium Corp.	TSXV:ILC	\$0.08	78%	247.5	\$19.8	\$0.0	\$6.4	\$26.2	NA	NA	NA	
Bearing Lithium Corp.	TSXV:BRZ	\$0.22	57%	96.8	\$21.3	\$2.5	\$0.0	\$18.8	2.1	\$8.9	NA	
Pure Energy Minerals Limited	TSXV:PE	\$1.70	139%	33.2	\$56.5	\$0.4	\$0.0	\$56.1	0.2	\$257.2	NA	
Lithium Americas Corp.	TSX:LAC	\$26.57	66%	121.2	\$3,220.5	\$626.0	\$197.5	\$2,792.1	24.6	\$113.6	1.0x	
Median									\$56.1	5.1	\$107.1	0.99x
Average									\$578.4	7.3	\$158.9	1.17x

* Based on RCS NAVPS estimate

Source: Company Reports, RCS Estimates

In Sep/21, Chinese battery maker Contemporary Amperex Technology Co. Ltd. (CATL) offered to buy Millennial Lithium Corp. (TSXV:ML, Not Rated) for C\$376.8M (C\$3.85/sh all-cash offer). This outbids the offer made by CATL's competitor, Ganfeng Lithium for C\$352.3M (C\$3.60/sh). Based on CATL's offer we estimate the acquisition cost for the asset at C\$64.3/t (based on 2P reserves and M&I+I resources) or C\$76.6/t (based on M&I+I resources). With demand for lithium increasing, we see M&A activity heating up in the lithium sector in the near-term.

Located in the Lithium Triangle in Argentina, the project hosts one of the top ten resources in the world

Assets

The Kachi lithium brine project (100%-owned)

The Kachi project is in north-western Argentina and is part of the Carachi Pampa basin. It is located 50km to the south of the town of Antofagasta de la Sierra (Figure 13) in the province of Catamarca, and 100km south of the Hombre Muerto brine operation owned by Livent Corp. (NYSE:LTHM, Not Rated).

Figure 13: Location of the Kachi project



Source: S&P Capital IQ Pro

Ownership

Lake Resources acquired the Kachi project in 2016 and currently owns a 100% of the project which covers an area of approximately 70,000 ha. The 37 leases held by the company covers the centre and southern extension of the 'Salar de Carachi Pampa' or the Carachi Pampa salt lake, the lowest point of the large Carachi Pampa basin.

In Sep/21 Lake entered into an earn-in and partnership agreement with Lilac Solutions, a direct lithium extraction technology company based in California. Per the terms of the agreement, Lilac is to contribute its technology, engineering teams and construct an on-site demonstration plant to earn a maximum 25 percent stake in the project in the following stages:

Stage 1 – 10%

Lilac will earn 10% on committing to fund, at its cost, the completion of testing of its technology for the project in accordance with an agreed timeline.

Stage 2 – 10%

Lilac will earn a further 10% on satisfying all agreed testing criteria using the demonstration plant at project in accordance with an agreed timeline.

Stage 3 – 5%

Lilac may earn a further 5% on refined lithium chemical product from Kachi achieving the highest agreed qualification standards with certain potential offtake partners.

Other Key Terms of the Agreement:

- Lilac will provide technology services and its proprietary ion-exchange materials for the life of the project, subject to meeting the testing criteria, and certain agreements being finalized and entered into.
- Lake will be the manager of the Kachi project.
- Lilac will appoint David Gelinas, Lilac’s current CFO, as a Director to Kachi Lithium Pty Ltd.
- Both Lake and Lilac will have pre-emptive rights in respect of each other’s interests.
- Once Lilac has earned its 25 percent interest, Lake and Lilac will contribute proportionately to funding development of the Kachi project. Conventional dilution clauses will apply in the case of non-compliance.
- Lake has certain buy back rights if Lilac does not meet agreed testing criteria, or if an acceptable services agreement cannot be agreed with Lilac within an agreed timeline.

Geological Setting

The Salar de Carachi Pampa is located within a large hinterland water catchment that focuses water flows into the closed drainage intermontane, 9,500 sq. km Carachi Pampa basin of about 9,500 (Figure 14). It drains the lithium bearing volcanic rocks of the Cerro Galan volcano and associated hot springs, which is also interpreted to be the source of lithium for Hombre Muerto operation located about 110km north of Kachi.

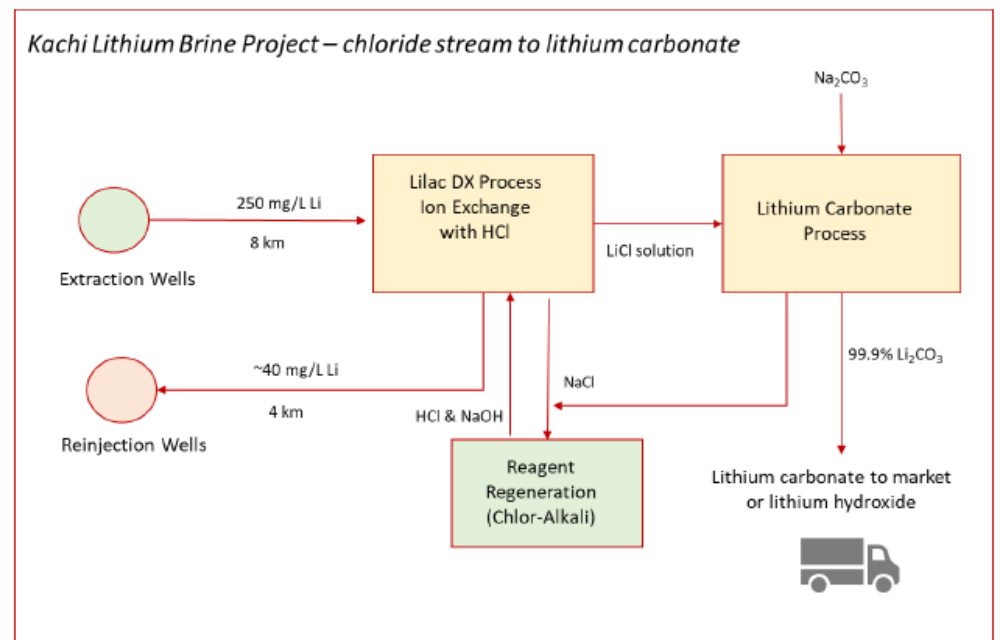
The Carachi Pampa basin is bounded to the east and west by NNE-SSW trending mountain ranges that have been raised by reverse faults to expose a basement sequence of rocks that rise to an elevation of 5,100 metres. The ranges are formed from Ordovician Falda Cienaga Formation comprising green-grey turbidites in outcrop, Permian Pataquia Formation, a red-bed sedimentary unit, and beige-green Eocene-aged Geste Formation of continental fluvial sediments. The Carachi Pampa salt lake is rhomboidal in shape with a NW-SE long-axis, and covers a known surface area of about 135 sq. km. A Pliocene basaltic shield volcanic cone overlies the basin infill sediments with lave flow, scoria, and air fall basaltic debris, creating a veneer over the sediments and covering an area of approximately 70 sq. km.

Ion exchange technology is used to develop a high-purity (99.97%) lithium carbonate product

Mining Operations & Recovery

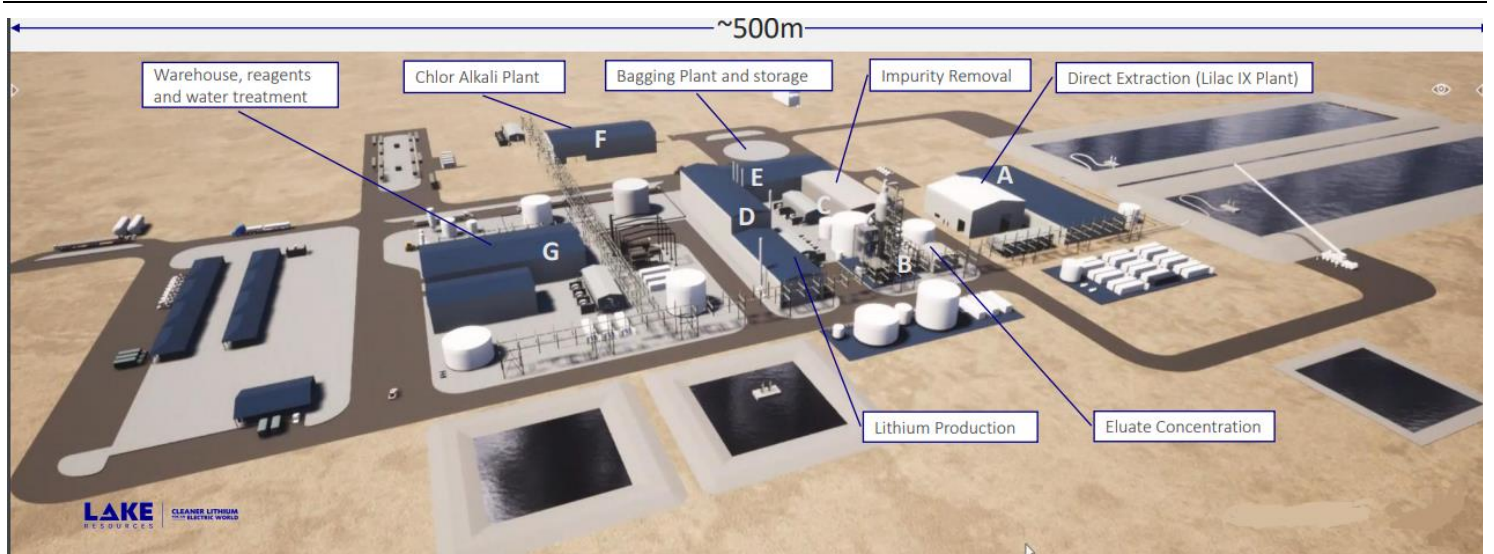
Prior to direct extraction, the brine is extracted from the salar and piped to a brine storage pond. The brine is filtered to remove suspended solids, and then processed in the direct lithium extraction (DLE) plant, which recovers and concentrates lithium to an eluate stream using ion exchange. Lithium-depleted brine from the direct extraction plant is reinjected into the salar. We expect this to be well away from where brine is being extracted from the salar, although given the sheer size of the salar, don't expect dilution to be a major issue. A simplified process flowsheet is shown in in Figure 15 and proposed plant design is shown in Figure 16.

Figure 15: Process flowsheet



Source: Company Reports

Figure 16: Proposed plant design



Source: Company Reports

After direct lithium extraction, the eluate stream is further concentrated by reverse osmosis (RO), making it suitable for further processing to lithium carbonate. While the PFS was predicated on a concentrated eluate of 24,000 mg/L subsequent work has shown that 60,000 mg/L is possible for shipping off-site. The concentrated eluate is purified and then treated by the staged addition of sodium carbonate, with a solid precipitate of lithium carbonate separated by filtration. The product is dried, milled and packaged for sale.

Major reagents consumed include sodium carbonate, sodium hydroxide and hydrochloric acid. Major consumables include natural gas for electrical power, and steam production, and fresh water for washing. Alternatives for electrical power are being considered, including solar photo-voltaic generation with battery storage.

The PFS considered the treatment plant with and without reagent generation by the chlor-alkali process. Based on tests and studies the decision was made to include a chlor-alkali plant, even though technically, the process is not part of the project flowsheet. The chlor-alkali plant's purpose is to produce reagents on-site for the direct extraction process that would otherwise have to be trucked long distances from chemical manufacturers. The chlor-alkali process is well established, and in this case will utilise salt (NaCl) obtained locally along with recycled plant process water to generate sodium hydroxide and hydrochloric acid by electrolysis.

Capital and Operating Costs Outlined by Updated PFS

In April 2020, Lake Resource provided a PFS for the Kachi project. This PFS was revised in March 2021 based on increased lithium prices (US\$15,500/t vs. US\$11,000/t) thereby increasing the economics of the project. The PFS outlines a 25,500t LCE/year operation with a LOM of 25 years based on recoveries of 83.2%. With the revised lithium prices, the post-tax NPV_{8%} of the project is estimated to be US\$1,580M. Capital and operating costs for the project are outlined in Figure 17 and 18.

A revised PFS outlined a post-tax NPV_{8%} of US\$1,580M for the project

Figure 17: Capital costs per 2021 PFS based on 25,500tpa LCE production

Capital costs	US\$M	%
Wellfield	25	5%
Processing	161	30%
Site infrastructure	18	3%
Site works (construction)	195	36%
Total direct costs	399	73%
EPCM	54	10%
Contingency	91	17%
Total capital costs	544	100%

Source: Company Reports

Figure 18: Operating costs per 2021 PFS based on 25,500tpa LCE production

Operating costs	US\$M	US\$/t LCE	%
Labour	10	394	9%
Utilities	42.9	1677	40%
Reagents	16.1	630	15%
Consumables	22.4	876	21%
Maintenance	4.7	185	4%
G&A	10.6	416	10%
Total operating costs	106.7	4178	100%

Source: Company Reports

The plant has a licensed capacity of 2M lb U₃O₈ per year

The Cauchari lithium brine project (100%-owned)

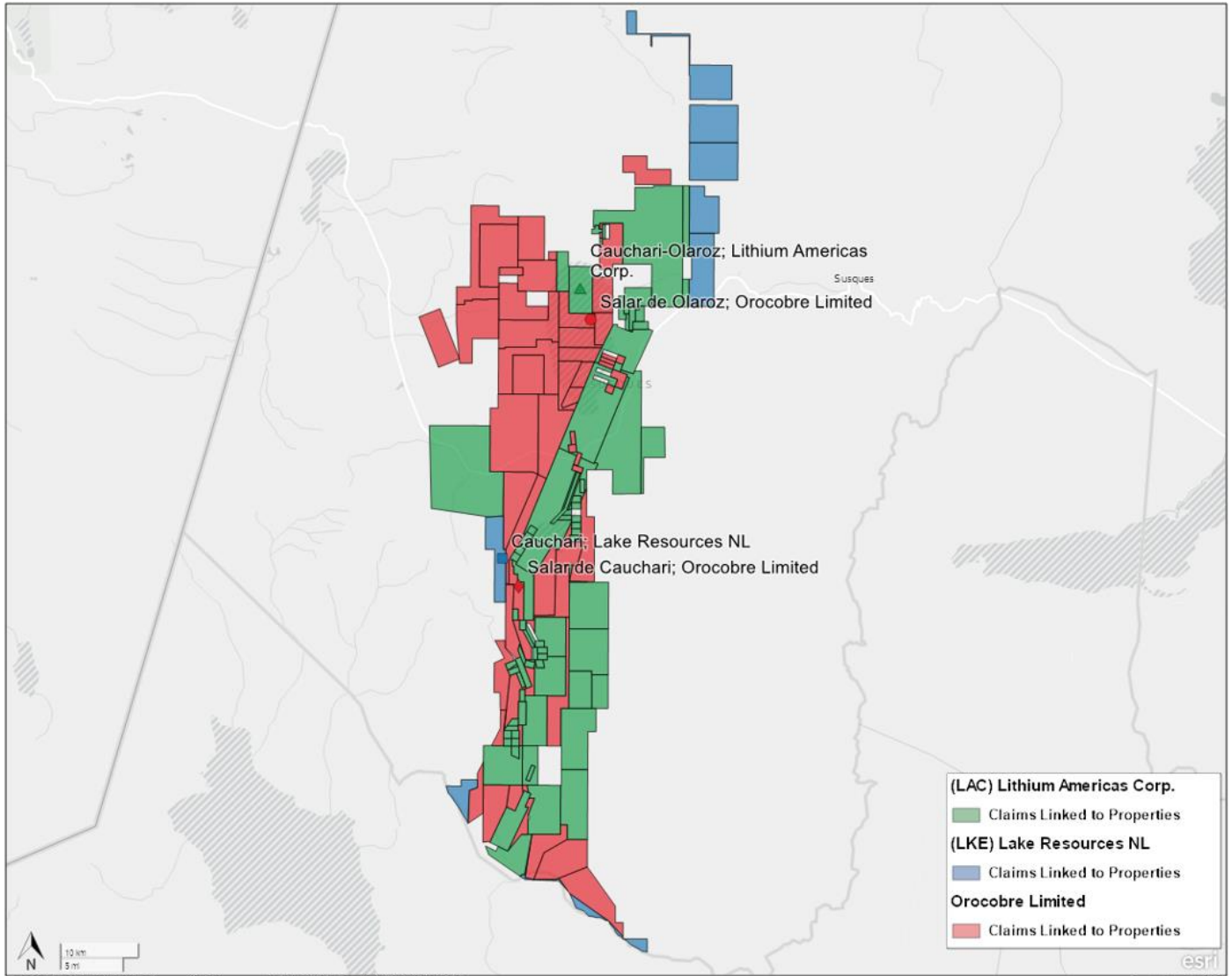
The Cauchari project is in the Jujuy province of Argentina. The project covers 480 sq. km in the Lithium Triangle and is in the neighbourhood of Ganfeng Lithium and Lithium Americas Corp.'s (TSX:LAC, Not Rated) Cauchari-Olaroz project, which hosts the world's largest lithium brine resource (23Mt LCE). The licenses covered by Cauchari are also contiguous to known lithium bearing brine assets (Figure 19) belonging to Ganfeng/Lithium Americas and Orocobre Resources (ASX:ORE).

Exploration

The project was drilled for the first time in 2019. High fluid flows of conducive brines were intercepted and sampled. Drilling results confirmed a high-grade discovery at Cauchari returning 493 mg/L over 343m, with the highest result returning 540 mg/L. These results are similar to drillholes reported from the adjoining areas owned by Ganfeng/Lithium Americas and Orocobre Resources. Lithium Americas' Cauchari-Olaroz project has an annual production target of 40,000t.

Approximately 50,000 samples have been taken from the project and are to be sent for testing. This will be followed by the commencement of a scoping study and eventually a resource statement and PFS for the project. Timelines for these studies have not been provided.

Figure 19: Location of Lake's Cauchari project in Argentina contiguous to other mining claims



Source: S&P Capital IQ Pro

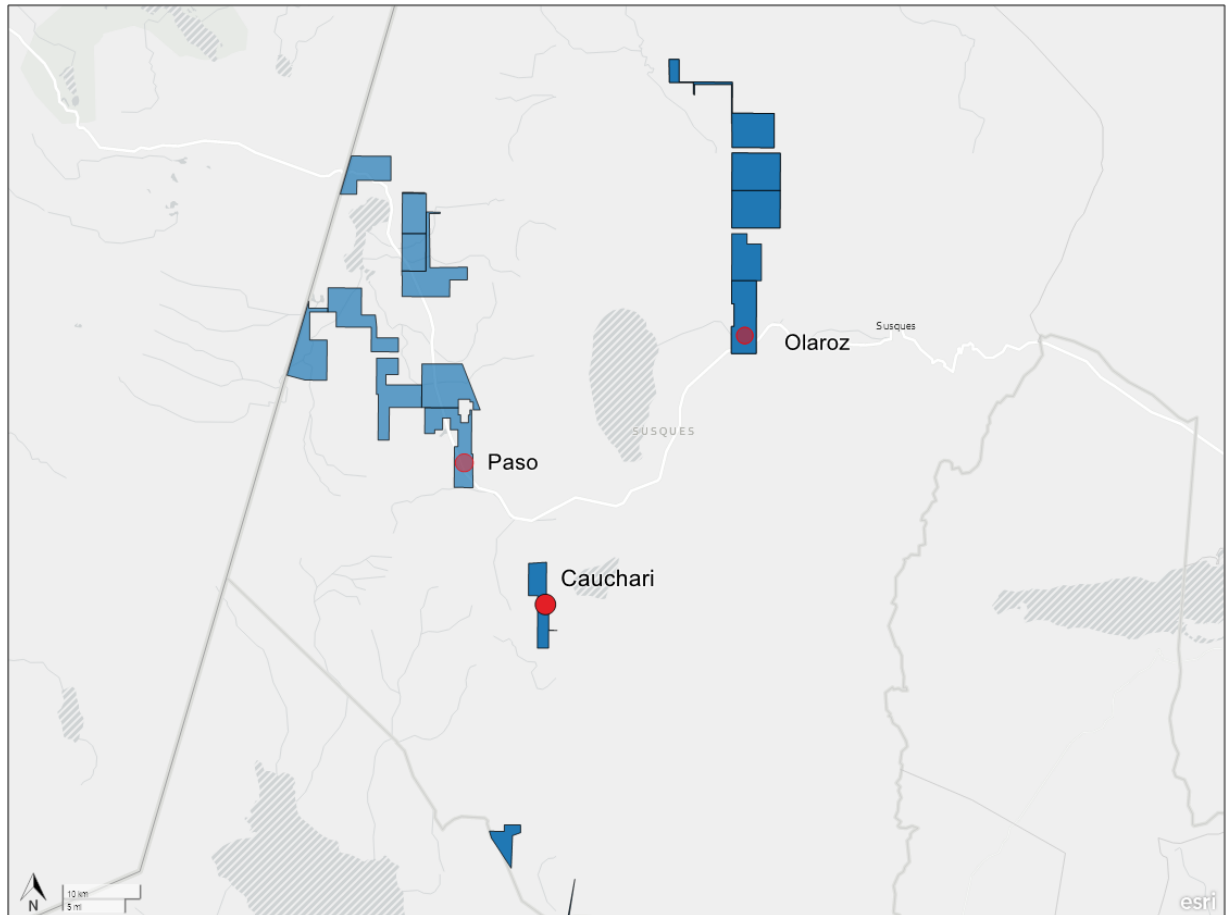
Early-stage projects with exploration potential due to its proximity to the Salar de Olaroz project

The Olaroz and Paso lithium brine projects (100%-owned)

The Olaroz and Paso projects are also located in Jujuy province, adjoining Orocobre’s Salar de Olaroz project (Figure 20).

Olaroz has the potential to become another stand-alone project for Lake Resources after the successful discovery at the Cauchari project. Drilling is planned for Olaroz, although timing is still unclear. We see this project being developed once progress has been made at Cauchari.

Paso covers 290 sq. km with initial sampling indicating elevated results. Work is underway to secure dill permits to provide further information on potential lithium brine bearing aquifers.

Figure 20: Location of Olaroz and Paso projects in Argentina


Source: S&P Capital IQ Pro

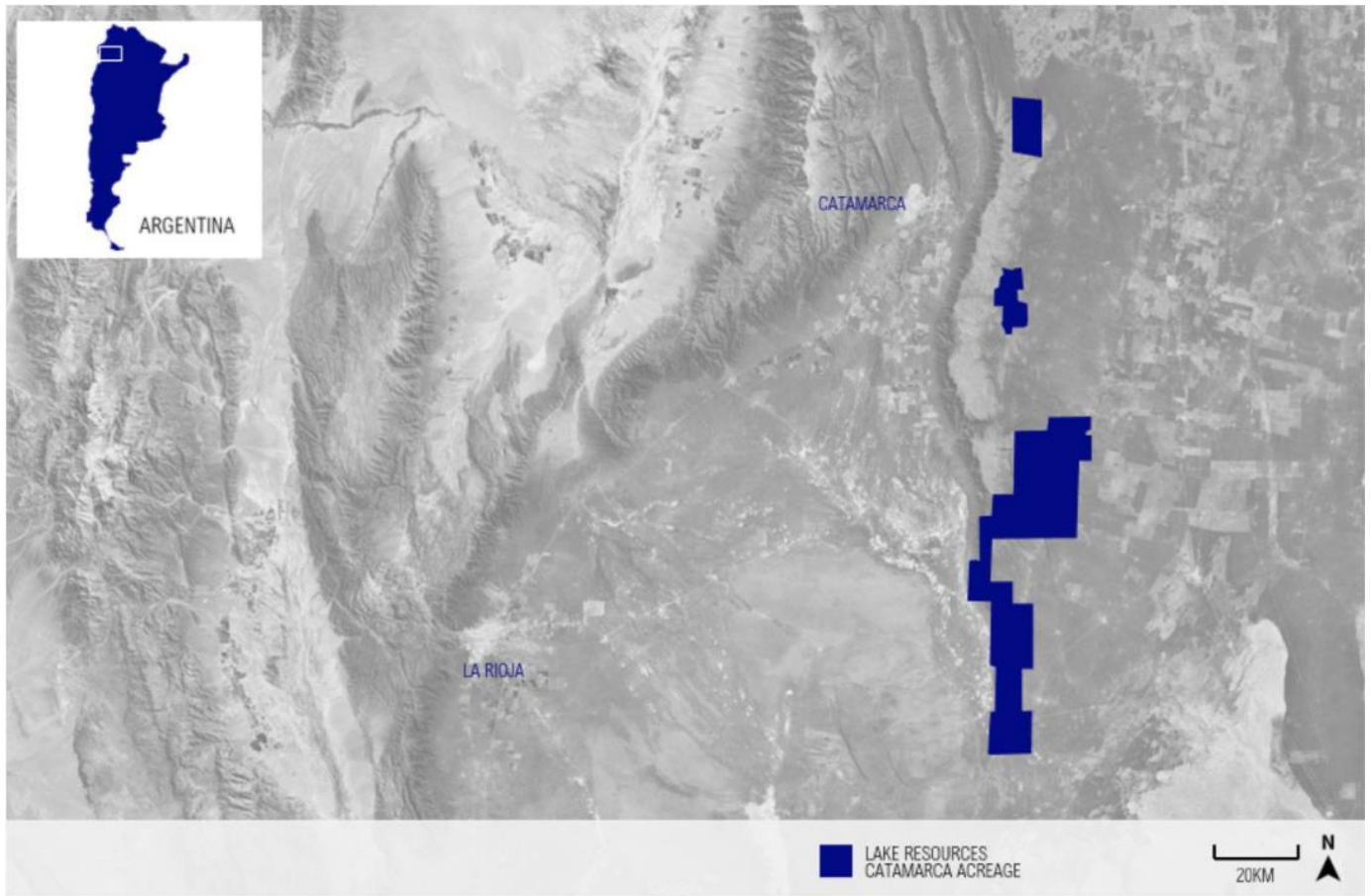
The Catamarca pegmatite project (100%-owned)

The Catamarca project covers 720 sq. km in Argentina's Catamarca province (Figure 21). This region is known historically for small-scale production from lithium bearing spodumene pegmatites.

Exploration

While no exploration activities have occurred at the project, exploration activities conducted in the vicinity, at nearby mining claims and leases have yielded positive results. In 2016, Latin Resources Ltd. (ASX:LRS, Not Rated) conducted sampling on its leases in the same belt, on old mine workings, with results returning 4.9% to 7.1% LiO₂. Drilling conducted over this area in 2017 yielded high grades over narrow widths returning intercepts of 2.98% LiO₂ over 3.0m, 1.62% LiO₂ over 5.2m, 2.40% LiO₂ over 6.0m and 2.17% LiO₂ over 7.0m. While these are positive results from a neighbouring property, Lake Resources has not indicated any plans to explore the Catamarca project.

Figure 21: Locan of the Catamarca project in Argentina



Source: Company Reports

Risks

Exploration, development, and mining projects are inherently risky investments given the large initial expenses that are required in advance of any potential revenue. Our view is based on publicly available information and conversations with management. We note that our estimates and view are not without political, social, technical, geological, or financing risks typical for production-stage or developing, critical mineral companies. For Lake Resources, four risks are of note.

1. **Geopolitical/jurisdictional risks** – Some of these risks may be out of the control of the company, including royalty and taxation levels, land agreement liabilities, regulatory, environmental and permit requirements and timing, global trade wars and political instability. We note that all of Lake Resources' assets are located in Argentina, a country with high levels of geopolitical and jurisdictional risks.
2. **Technical risks** – This covers a wide variety of issues that we see associated with resource companies including exploration, development and exploitation strategies and methods. It would cover such issues as accuracy of geological interpretation, resource/reserve estimates and economic studies and inputs such as commodity prices, cost and grade fluctuations, assay reconciliation, metallurgical issues, and exploration success. Our positive view relies on using existing technical data, recent exploration results and to a limited extent, expected positive results from future drilling. Future results may differ and negatively impact our assumptions.
3. **Corporate risks** – These may include project execution by management, investor relations effectiveness, or market sentiment. Management pedigree and performance are paramount, and market sentiment may also be an issue. While we expect the lithium market to continue to improve through 2021, our estimates may be negatively impacted by a change in market sentiment.
4. **Financial risks** – These may occur at the project or corporate level, including variation in valuation parameters/metrics, commodity price or foreign exchange fluctuations, access to credit including debt, equity financing or potential for shareholder dilution.

As new information becomes available, we may refine our numbers and update our risks.

Appendix A: Board of Directors

Stephen Promnitz – Managing Director

Mr. Promnitz has led Lake since 2016, bringing natural resources and energy experience with a focus on South America and South-East Asia. He has held senior manager, senior corporate finance as well as CEO roles of global resource companies including Rio Tinto, WMC, Westpac and Citigroup. Mr. Promnitz has a Bachelor of Science Honours (Natural Resources) from Monash University and is fluent in Spanish.

Stuart Crow – Chairman and Non-Executive Director

Stuart has global experience in financial services, corporate finance, investor relations, international markets, salary packaging and stock broking. Mr. Crow is passionate about assisting emerging listed companies to attract investors and capital and has owned and operated his own businesses.

Nick Lindsay – Executive Technical Director

Dr. Lindsay has over 25 years' experience in Argentina, Chile and Peru in technical and commercial roles in the resources sector with major and mid-tier companies, as well as start-ups. A fluent Spanish speaker, he has successfully taken companies in South America, such as Laguna Resources which he led as Managing Director, from inception to listing, development and subsequent acquisition. Dr. Lindsay is currently CEO of Manuka Resources Ltd., an unlisted company, having previously held the position of President – Chilean Operations for Kingsgate Consolidated Ltd. He is a member of the AusIMM and the AIG and holds a Bachelor of Science (Honours) in Geology, a PhD in Metallurgy and Materials Engineering as well as an MBA.

Robert Trzebski – Non-Executive Director

Dr Trzebski was appointed a Non-Executive Director in 2019. An international mining executive, he has substantial operational, commercial and technical experience in global mining markets including Argentina. He is currently Chief Operating Officer of Austmine Ltd. and holds a degree in Geology, a PhD in Geophysics, a Masters in Project Management, and has more than 30 years' professional experience in project management and mining services. Dr Trzebski is a fellow of the Australian Institute of Mining and Metallurgy and is fluent in Spanish, German and English. .

Amalia Sáenz – Non-Executive Director

Ms. Sáenz was appointed a Non-Executive in July 2021. An experienced energy and natural resources lawyer based in Buenos Aires, Ms. Sáenz is assisting Lake and its local team in Argentina in engaging with local stakeholders and preparing for the development of clean lithium in Argentina. Ms. Sáenz is a partner at the law firm, Zang, Bergel & Viñes in Buenos Aires, where she leads the firm's energy and natural resources practice. A leading member of the Association of International Petroleum Negotiators, Ms. Sáenz has extensive experience in energy and resources, including mergers and acquisitions, financings, joint ventures and operating agreements in Argentina. She has also worked in Central Asia and the United Kingdom, gaining experience in exploration and production development across international borders and cultures.

Peter Nielsen – CFO/Joint Company Secretary

Mr. Nielsen is a Chartered Accountant with more than 20 years' experience in all facets of financial management, asset management and leadership. He has served in a range of positions including as CFO, company secretary, finance manager and other senior executive positions for a number of listed and unlisted companies in the energy and natural resources sector. These have included Barrick, Xstrata and Round Oak. He has been involved in reducing operational expenses through cost analysis, performance improvements and contract negotiations, acquisitions of up to \$80M and managed revenues in excess of \$5Bn .

David A. Talbot | MD, Mining Analyst
Koby Kushner | Research Associate
Alina Islam | Research Associate
Daniel Kozielowicz | Research Associate
Elie Khazzaka | Research Associate

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Disclosure Statement

Updated October 8, 2021

Recommendation / Target Change			Red Cloud Securities has this percentage of its universe assigned as the following:	
Date	Rating	Target C\$/sh	Status	%
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2021-05-14	NA	NA	BUY (S)	23%
2021-07-08	NA	NA	HOLD	0%
2021-07-15	NA	NA	SELL / Tender	0%
2021-07-30	NA	NA	NA	6%
2021-08-04	NA	NA	Under Review	1%

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Company Name	Ticker Symbol	Disclosures
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