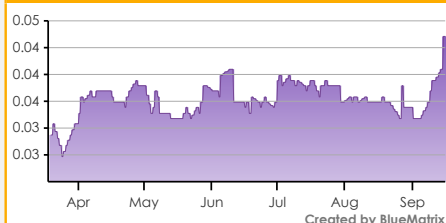


16 September 2020

Metals & Mining

52-WEEK HIGH	AUc2.2
52-WEEK LOW	AUc6.1
PRICE	AUc4.7
MARKET CAP (M)	AUD37
NET CASH (MLN)	AUD2.55

Share Price



Major Shareholders

Top 30 Holders, HNWI, hold 35%

Primary Index	ASX
	Q320: Hazen results
Next Key Announcement	Q420: Novonix results

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Sustainable Lithium Extraction from Disruptive Technology

Lake Resources is using disruptive technology to sustainably extract lithium from brines to produce high-purity and high-value lithium products at low-cost.

Lake's lithium carbonate product offers battery manufacturers a green and clean alternative to traditional sources of lithium. Lake's product fits with the increasingly strict environmental and social requirements of many end-users of lithium-ion batteries, as well as those of more environmentally conscious investors.

The company is currently in the process of taking its lithium-bearing brines all the way through the manufacturing process into battery cell production, something that separates the company from its peer group.

Lake is also using direction extraction technology to produce lithium chloride from its Kachi Lithium Brine Project, located in the Catamarca Province of Argentina (Figure 1).

The pilot plant, located in California, is operated by Lilac Solutions (private), a company backed by several billionaires, known for building innovative business.

The pilot plant commenced operations in late June and completed the first round of operations in July. The chloride product produced is now being converted into battery-quality lithium carbonate by independent assay laboratory, Hazen Research Inc (private), based in Colorado.

The first battery-quality lithium carbonate samples are expected to be produced within weeks. These initial samples of lithium carbonate will then be submitted for independent testing in batteries by the respected development laboratory, Novonix Limited (ASX:NVX).

Novonix is highly thought of in the battery industry and is used by recognised battery makers. Novonix will produce NMC622-based lithium-ion battery test cells using Lake's battery quality lithium carbonate.

By taking its lithium bearing brine all the way through to battery cell production, Lake is demonstrating that this disruptive, rapidly scalable technology can produce a suitable battery-grade lithium product that can be cost-competitive with existing lithium producers.

Battery production is a major de-risking event for the company that should give investors and offtakers confidence in the company's ability to produce a quality product.

Lake will continue to produce lithium chloride from the pilot plant with subsequent samples being produced to supply potential off-takers and other interested parties, to help secure the funding for the development of a commercial-scale operation. A pilot plant is planned to be operated at the site.

The company is planning to complete a definitive feasibility study (DFS) by H121 and the indicative timeframe for first commercial production is tentatively expected to be 2023 at this stage.

Lake has appointed advisors to secure debt funding of up to US\$25m to fund the definitive feasibility study and a marketing programme for the product from the Kachi Project.

Stephen Promnitz - Managing Director

Promnitz is an energy/resources and finance executive with 30 years' experience in technical, commercial and financial roles with resources companies and investment banks/advisory firms.

Stuart Crow - Non-Executive Chairman

Crow has over thirty years experience in the mining sector, financial services, corporate finance, investor relations, international markets, salary packaging and stock broking.

Nick Lindsay - Non-Executive 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.

Lake Resources has more in common with a water processing and chemical production business than it does with a conventional mine development business.

No excavators, trucks or explosives will be used in the day-to-day running of the operation. Instead, the company will extract the brine using pumps and then process it using direct extraction, which means its environmental footprint (c.0.5km²) on the local area will be insignificant compared to a mining operation (c.5 km²).

Conventional brine processing operations use solar evaporation ponds to extract the lithium, which causes disruption to the landscape over huge areas (c.15 km²). An evaporation operation has a series of stages, that concentrate different chemical fractions within the brine, and gradually remove others. This whole process is slow and can take between nine and 24 months, depending on climatic conditions.

Lake's direct extraction technology is different; it will allow the company to process its brines in an efficient, short-duration (c.2 hours), with a low environmental impact and using a low-operational risk method that selectively extracts the lithium, producing a high-purity product.

Importantly, this method does not change the chemistry of the brine, so it can be returned to the aquifer, making it even more environmentally sound when compared to conventional evaporation methods. It is a tried and tested water treatment process that has now been adapted for lithium extraction.

A recently completed pre-feasibility study of the Katchi Project demonstrated robust economics, including a post-tax NPV₈ of US\$748mln and a post-tax IRR of 22%. This indicates the projects potential to be cost-competitive and to produce a product that could obtain premium pricing.

Lake also owns three earlier-stage brine exploration projects, Cauchari, Olaroz and Paso, all of which are also strategically located within the Lithium Triangle, Argentina (Figure 1).

The Lithium Triangle Area that has seen over US\$540mln of transactional activity in just the past four years, making it one of the most in-demand and high-value areas globally for lithium projects.

Lithium Brine Project Portfolio

Lake has the largest lithium concession holding in Argentina, with a number of 100%-owned tenements that cover an area over 2,000 km² of concessions, including 118,000 ha of lithium brine concessions, dominantly within the Lithium Triangle Area (Figure 1).

The Lithium Triangle Area accounts for around 29% of global lithium resources, and around 40% of global lithium produced from brines.

Kachi Lithium Brine Project

The Kachi Lithium Brine Project is located in the Catamarca Province of Argentina (Figure 1). The project consists of 37 mining leases covering an area of 700 km² (70,000 ha)(Figure 2).

Resources

Lake acquired its interest in the Kachi Project and its other brine projects in November 2016 as part of a reverse takeover of private company Lith NRG Pty

Figure 1 - Location of Lake's Projects


Source: Lake Resources

[illegible]

Figure 3 - Kachi Resource

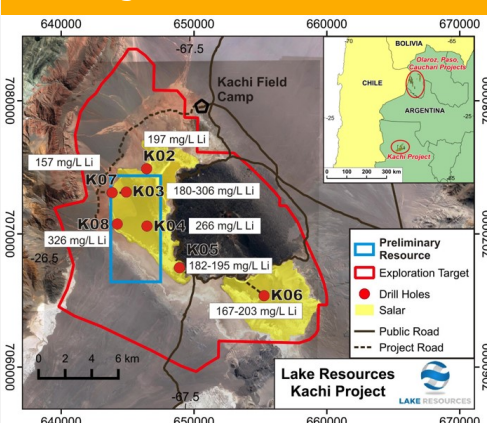


Figure 4 - Brine Peer Group

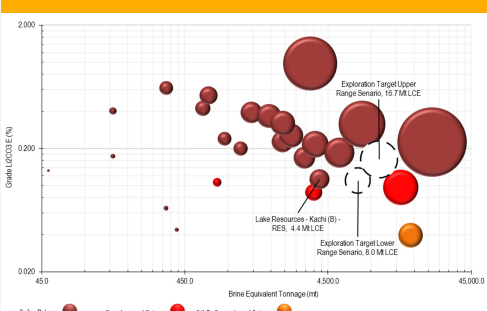
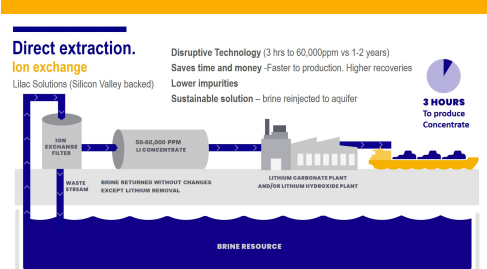


Figure 5 - Direct Extraction



Following the success of the initial test work, Lake has transported a much larger sample, around 20,000 litres of brine (Figure 10), from the Kachi Project to Lilac's pilot plant, in Oakland, California.

Figure 6 - 99.9% lithium carbonate

Source: Lake Resources

Figure 7 - Bench Scale Product

Chemical Component	Actual (wt%)	Target
Lithium (Li)	99.9	99.5 Min
Sodium (Na)	0.024	0.025 Max
Magnesium (Mg)	<0.001	0.008 Max
Calcium (Ca)	0.0046	0.005 Max
Iron (Fe)	<0.001	0.001 Max
Silicon (Si)	<0.001	0.003 Max
Boron (B)	<0.001	0.005 Max

Source: Lake Resources

This pilot plant is designed to produce 30-60,000 mg/l of lithium chloride concentrate, which is more than ten times the concentration of conventional evaporation processes.

The concentrate can then be converted into a carbonate or a hydroxide product, depending on market conditions at the time, as well as offtake partners requirements. In the pre-feasibility study a carbonate product was assumed.

Lake expects the direct extraction process to be in the lowest-cost quartile globally, with high-recoveries (80% to 90%) compared to conventional brine operations in that typically have recoveries below 50%.

The direct extraction processing route could also potentially slash production times to a few hours, compared with nine to 24 months for standard evaporation processes to produce a suitable concentrate.

Stage 2 - Lithium Carbonate Production

An initial batch of the concentrated lithium chloride product produced by Lilac has been transported to Hazen Research Inc, which is a well-regarded and established, independent assay laboratory based in Colorado. Hazen is converting the lithium chloride to battery quality lithium carbonate using conventional carbonate processing methods.

The first battery quality lithium carbonate samples are expected to be produced by Hazen in mid-September.

Stage 3 - Battery Cell Manufacture

Once the initial battery-quality lithium carbonate samples are produced by Hazen, they will then be transported to Novonix Limited, a respected independent battery testing and development laboratory based in Nova Scotia.

Novonix will use the lithium carbonate from Kachi, together with commercial battery cathode precursor materials to produce NMC622-based lithium-ion battery test cells.

Novonix is currently developing 'million-mile' battery technologies with revolutionary anode and cathode materials and innovative designs. It currently manufactures and sells high-precision battery testing equipment to battery makers and OEMs, including Panasonic; CATL; Samsung; SK Innovation; Apple; Bosch; Honda and Dyson.

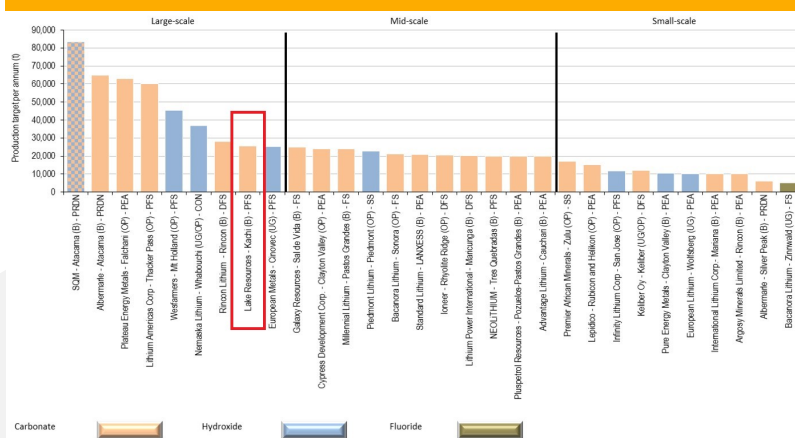
The first batch of lithium carbonate will be processed into NMC622 lithium-ion batteries by Novonix over a period of at least four months, with initial test results expected around two months after the cathode material is produced.

Stage 4 - Offtake Agreements

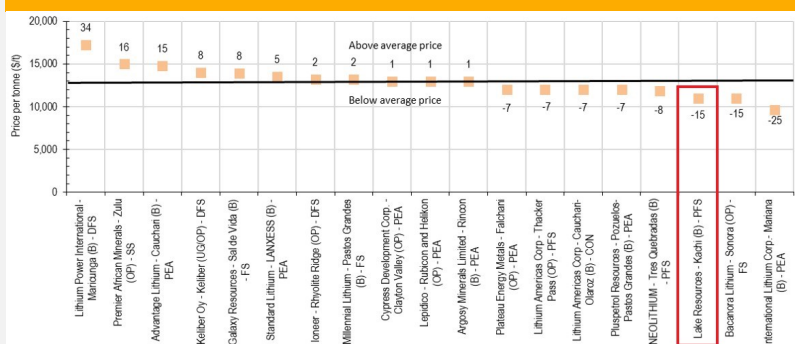
By working with Novonix and using its pilot cell line and proprietary advanced diagnostic tools, Lake is ensuring that the performance of its product from Kachi can be evaluated for conformity with lithium-ion battery standards.

This gives potential offtakers and related parties the opportunity to make direct and relevant comparisons of its performance to familiar cell chemistries, giving them confidence the quality of the product from Kachi.

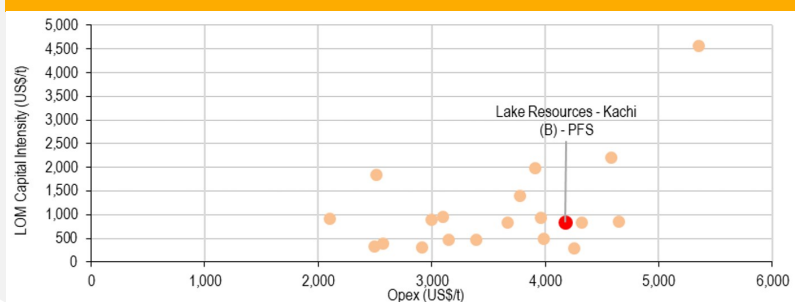
This should make discussions with potential offtakers more favourable putting Lake in a prime position to secure the required development funding.

Figure 8 - Production Levels from Lithium Projects

Source: Mining and Metals Research Corporation

Figure 9 - Prices Used in Economic Studies

Source: Mining and Metals Research Corporation

Figure 10 - Carbonate Project's LOM Capex Intensity & Opex

Source: Mining and Metals Research Corporation

Pre-feasibility Study

The Pre-feasibility Study (PFS) for Kachi returned a post-tax NPV₈ of US\$748mln and a post-tax IRR of 22%.

In the PFS, Lake assumed production of around 25,500t of lithium carbonate over the 25-year mine life, making it a large-scale lithium operation (Figure 8).

Compared with its carbonate peer group, Lake is very conservative in the price assumptions it makes in its PFS. It uses a carbonate price of US\$11,000/t, which is 15% below the average price used by its peers, and at the bottom of the price use curve (Figure 9).

Despite using a low carbonate price compared with its peer group, Lake believes it will produce a premium product that will command a higher price.

Compared with its carbonate peer group the Kachi Project is in the mid-range of its peers for life of mine capex intensity, US\$853/t (Figure 10), with initial development capex of US\$544mln.

Around 51% of the capex in the PFS is related to site works and contingency, so Lake has the opportunity to reduce this in upcoming optimisation engineering studies.

Kachi is in the upper-range of the peer group for opex, with a C1 opex of US\$4,178/t (Figure 10) and an AISC of US\$5,100/t. However, based on the conservative carbonate price used in the economic study of US\$11,000/t, Kachi would have a significant margin of 62%.

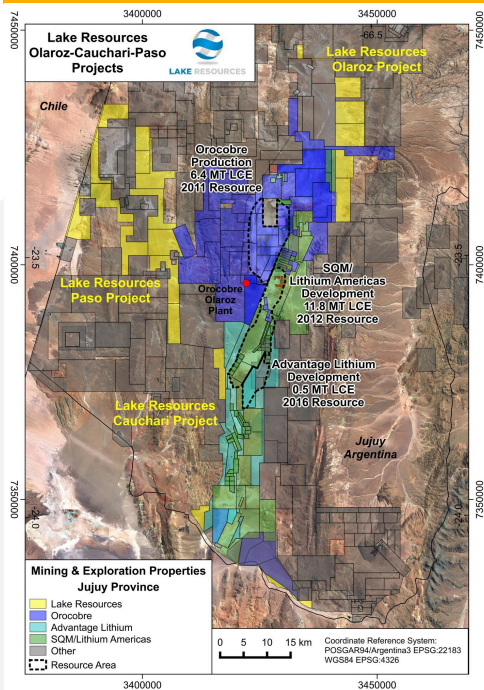
Lake also has the potential to reduce this opex as around 40% of the opex cost comes from energy. In the PFS the plant is assumed to be powered by trucked gas at a cost of US\$21/MMBTU.

Given the excellent solar resource on site, Lake is investigating the potential to use a combination of solar, wind and gas, which should not only reduce the opex but also further improve the projects environmental credentials.

Over the life of mine, Lake estimates that the mine will generate an EBITDA of US\$3.89bn and an average EBITDA of US\$155mln.

The Cauchari, Paso and Olaroz Lithium Brine Projects

Figure 11 - The Lake's Concessions



Source: Lake Resources

Introduction

The Cauchari, Paso and Olaroz Lithium Brine Projects are located in the Jujuy Province of Argentina (Figure 1). These projects, covering a combined area of 480 km² or 48,000 hectares (Figure 11) in two adjacent basins, have seen a large amount of transactional activity over the past four years.

Strategic Location

The Cauchari, Paso and Olaroz Lithium Brine Projects are strategically located in proximity to:

- Orocobre's 66.5%-owned Olaroz operation
- Orocobre's recently-acquired Advantage Lithium Corp
- Ganfeng Lithium's 51%-49% joint venture with Lithium Americas, known as the Cauchari-Olaroz Project

Basins with Large Resource Bases

While Lake's projects in this Cauchari-Olaroz Basin area are pre-resource, in terms of development stage, the basins contain a large resource base that has been established by the other companies working in the area.

Orocobre's Olaroz Project has a total JORC 2012 and NI 43-101 compliant mineral resource estimate of 6.4 Mt LCE at a grade of 690 mg/l (0.37% LCE) and currently has the capacity to produce around 17,500 tonnes of battery-grade lithium carbonate (>99.5% Li₂CO₃), and 25,000 tonnes of primary grade lithium carbonate (>99.0% Li₂CO₃).

Orocobre's Cauchari Project has a total NI 43-101 compliant mineral resource estimate of 4.3 Mt LCE at a grade of 475 mg/l (0.25% LCE).

Ganfeng Lithium's Cauchari-Olaroz Project has a total NI 43-101 compliant mineral resource estimate of 24.6 Mt LCE at a grade of 592 mg/l (0.32% LCE).

Initial Results

Initial drilling at Lake's Cauchari Project demonstrated the presence of significant lithium-bearing brines in the licence area with results demonstrating brines over a 506-metre interval. Within the 506-metre intersection, is a 343-metre intersection averaging 493 mg/l lithium with a Li/Mg ratio of 2.9.

Next Steps

Lake is currently awaiting approvals for the planned drill holes at the Olaroz and Paso Projects, timing of these approvals is uncertain at this stage.

Transactional Activity in the Lithium Triangle

Since 2016 there has been over US\$540mln of transactions (Figure 12) in the Lithium Triangle (Figure 1), which demonstrates how sought after the brine projects in this area are. The most recent transaction was Orocobre acquiring Advantage Lithium for 14% of the projects NPV.

The transaction value per attributable tonne of LCE of these deals varies between US\$4/t LCE and US\$174/t LCE, with an average of US\$47/t LCE.

The transaction value per attributable hectare of ground of these deals varies widely between US\$234/ha and US\$26,353/ha with an average of US\$6,921/ha.

The large range in the transaction value per attributable hectare of ground of these deals means applying them to Lake's ground holding in the area, of 118,000 ha, gives a very wide range in valuations for the ground holding.

If we remove the two highest-value transactions, which are Lithium America's and Ganfeng Lithium deals, which appear to be outliers to the rest of the data, we get a range US\$234/ha and US\$6,956/ha and an average of US\$2,721/ha.

Using the average transaction value per hectare, excluding the outliers we get a valuation for Lake's ground holding of US\$321mln (A\$438mln). Using the lowest transactional value per hectare for the area, of US\$234/ha, we get a valuation of US\$28mln, which is A\$38mln. Applying the highest transaction value per hectare, excluding the outliers, US\$6,956/ha, the portfolio has a value of US\$821m (A\$1,119m).

Figure 12 - Transitions in the Lithium Triangle

Date of Transaction	Vendor	Acquirer	Project	Effective Interest	Value (US\$m)	Contained LCE in Total Resource (t)	Attributable value per tonne LCE (US\$/t)	Land package (ha)	Attributable value per hectare (US\$/ha)
Mar-16	Lithium Americas	SQM	Cauchari-Olaroz	50.0	25,000,000	11,752,000	4	83,993	595
Jun-17	Lithium Americas	Ganfeng Lithium	Cauchari-Olaroz	10.0	49,000,000	11,752,000	42	70,796	6,956
Jul-17	Lithium Americas	Bangchak Petroleum	Cauchari-Olaroz	8.2	32,000,000	11,752,000	33	70,796	5,512
Mar-17	Orocobre	Advantage Lithium	Cauchari	50.0	40,875,000	470,000	174	85,543	956
Dec-17	Orocobre	Advantage Lithium	Cauchari	25.0	5,000,000	470,000	43	85,543	234
Oct-18	SQM	Ganfeng Lithium	Cauchari-Olaroz	37.5	137,500,000	11,752,000	31	70,796	5,179
Oct-18	SQM	Lithium Americas	Cauchari-Olaroz	12.5	6,104,000	11,752,001	4	70,796	690
Aug-19	Lithium Americas	Ganfeng Lithium	Cauchari-Olaroz	12.5	160,000,000	24,575,400	52	60,712	21,083
Feb-20	Lithium Americas	Ganfeng Lithium	Cauchari-Olaroz	1.0	16,000,000	24,575,400	65	60,713	26,353
Apr-20	Advantage Lithium	Orocobre	Cauchari	49.0	69,000,000	6,300,000	22	85,543	1,647
Total					540,479,000	Average	47	Average	6,921
							Average excluding upper outliers		2,721

Source: Mining and Metals Research Corporation

Figure 13 - Capital Structure

Shares in issue	Options	Fully diluted
771,128,624	91,367,693	862,496,317

Source: Lake Resources

Figure 14 - Share price and volume



Source: Yahoo Finance

Capital Structure

Lake has 771mln shares in issue and 100 m options outstanding (Figure 13). The company has an open register with the top 30 holders, holding around 35% of the business.

Share price performance

Over the past twelve months Lake's share price has traded between A\$0.022 and A\$0.061 per share (Figure 14). In September last year, Lake's share price was A\$0.044. Over the following four months, the share price traded down to A\$0.025 before rising sharply to A\$0.049 in mid-February 2020.

Post-February, the share price has traded down to A\$0.028 in late-March 2020. Since March the shares have largely been flat trading between a range of A\$0.041 and A\$0.032, before rising to its current level of A\$0.047.

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