ASX ANNOUNCEMENT

30 April 2020

COMPELLING PRE-FEASIBILITY STUDY FOR LAKE'S KACHI PROJECT

- **Compelling Pre-Feasibility Study (PFS) results for Lake's Kachi Lithium Brine to produce sustainable, high purity, low impurity lithium carbonate to attract premium pricing to meet growing demand from battery makers.**
- **Long-life, low cost operation with annual production target of 25,500 tonnes of battery grade lithium carbonate by direct extraction using efficient Lilac Solutions technology, based on the Indicated Resource of 1.0 million tonnes LCE[1] at 290 mg/L lithium (22% of current total resource).**
- **Unlevered post-tax NPV_8 of US$748 million (A$1,180m) and IRR of 22%; with EBITDA of US$155 million (A$245m) in first full year of production, using forecast of US$11,000/t Li_2CO_3 CIF Asia.**
- **High margin project with EBITDA margin (operating margin) of 62%, using forecast prices.**
- **Competitive capital cost (capex) estimate of US$544 million including contingency, and operating cost (opex) of US$4178/tonne Li_2CO_3.**
- **Next steps involve delivering product samples from the pilot plant to potential off-takers, targeting lower up-front costs, and further resource development to extend project life. Financing and off-take discussions continue.**

Lithium explorer and developer **Lake Resources NL (ASX: LKE; OTC:LLKKF)** has completed a compelling and robust Pre-Feasibility Study (PFS) into the technical and economic viability of Lake's Kachi Lithium Brine Project in Catamarca, Argentina. The study demonstrates the project's potential to deliver high purity product required by battery makers, based on a sustainable and scalable process (refer project details in Tables 1, :2 and 3).

The study focused on the engineering and costing of preferred process design options supported by direct lithium extraction test work by Lilac Solutions, with Hatch appointed to provide engineering and design services.

Lake's Managing Director Steve Promnitz said: "*This is a major milestone for Lake that allows us to ramp up project development initiatives. The PFS highlights the cost competitive nature and scale of the flagship Kachi Project using direct extraction, but has the benefit of producing high purity product capable of attracting premium pricing, while being a leader in sustainable lithium desired by Tier-1 electric vehicle makers. The PFS together with samples from the pilot plant will help advance discussions with off-takers and financiers."*

Lilac Solution's CEO Dave Snydacker said: *"Kachi is a globally important lithium project with its large brine resource and environmentally-friendly process. With this PFS, we have demonstrated a non-utilities OPEX of US$2,500 per tonne of lithium carbonate. The remaining 40% of OPEX is primarily due to energy from natural gas at US$21/mmBTU. Given the excellent solar resource on site, we have a great opportunity to incorporate solar PV and reduce OPEX. Looking at the capital cost structure, we see that 51% of CAPEX is related to site works and contingency, so opportunities exist for cost reduction in upcoming engineering studies. The Lilac team is excited to continue working closely with Lake to progress the development of Kachi."*

Financing discussions are underway. The potential for premium pricing for a preferred high purity product assist this process. The results and the data of the PFS provide a solid basis for these discussions as well as for a definitive feasibility study (DFS).

Financially Robust Project

The key conclusions of the PFS of the Kachi Lithium Brine Project's commercial viability are presented in Table 1. The unlevered project delivers an attractive prospective financial performance, with conservative long term future price assumptions of US$11,000/t for battery grade lithium carbonate, with a pre-tax NPV_8 of US$1050 million and an 25% IRR and post-tax NPV_8 of US$748 million and an 22% IRR based on an annual production target of 25,500 tpa LCE which is supported by the Indicated Mineral Resource for an initial 25 years. The annual EBITDA for the project is US$155 million, with life of project EBITDA of US$3,890 million.

Production Parameters	Units	Values	
Construction Period (from end DFS)	years	2	
Project Life	years	25	
Production Rate – Lithium Carbonate	tonnes LCE per year	25,500	
Mineral Resource (Indicated) fully utilised	Million tonne LCE	1.01	
Lithium Grade to Direct Extraction Plant	Mg/L	250	
Production Rate – Brine Extracted	Million m^3/year	23	
Recovery	%	83.2	
Key Financial Parameters			
Capital Investment (at start-up)	US$ million	544	
Operating Cost (annual)	US$ million	107	
Cash Cost (Opex, C1)	US$/tonne LCE	4178	
Cash Cost (AISC)	US$/tonne LCE	5100	
IRR pre-tax	%	25%	
IRR post-tax	%	22%	
NPV_8 (NPV @ 8% discount rate) Pre-tax	US$ million	1050	[A$1660m]
NPV_8 (NPV @ 8% discount rate) Post-tax	US$ million	748	[A$1180m]
Payback period from 1st product delivery	years	5	
Sales, annual	US$ million	280	[A$442m]
Sales, life of project	US$ million	7,030	[A$11,105m]
EBITDA, annual	US$ million	155	[A$245m]
EBITDA, life of project	US$ million	3,890	[A$6,145m]
US Dollars in constant 2020 terms (real)			*[USD/AUD 0.633]*

Table 1: Key Project Metrics and Financial Parameters

Operating and capital costs are presented on Tables 2 and 3. These are in October 2019 United States dollars, and estimated to an accuracy of about *minus* 20% to *plus* 30%. Australian dollars are for comparison only. Capital costs exclude owner's costs whereas operating costs exclude corporate overheads, taxes and royalties. All costs associated with the direct extraction process were provided by Lilac Solutions, with the remainder based on engineering designs supported by OEM quotation, industry enquiries and supplier databases.

Capital Cost area	US$M	%
Direct Costs:	***399***	***73%***
Wellfield	25	5%
Processing	161	30%
Site infrastructure	18	3%
Site works (construction)	195	36%
Indirect Costs:	***145***	***27%***
EPCM	54	10%
Owner's costs	Excluded	
Contingency	91	17%
Total	**544**	

Table 2: Summary Capital Cost Estimate Breakdown

Operating Cost Factor	US$M/y	US$/t LCE	%
Labour	10	394	10%
Utilities (electricity, gas, water)	42.9	1,677	40%
Reagents	16.1	630	15%
Consumables	22.4	876	21%
Maintenance	4.7	185	4%
General & Administration	10.6	416	10%
Total	**106.8**	**4,178**	**100%**
Corporate costs, royalties and taxes excluded			

Table 3: Summary Annual Operating Cost Estimate Breakdown by Factor

Note: PFS completed to an approximate -20 +30% level of accuracy for capital and operating costs

Project Location and Mineral Resource

The Kachi Lithium Brine project is based on the Salar de Carachi Pampa, which is part of the endorheic Carachi Pampa basin, located in La Puna region of north-western Argentina. More specifically, it approximately 50 km south of the town of Antofagasta de la Sierra, in the Province of Catamarca and 100km south of the lithium brine operation at Hombre Muerto, owned by Livent (previously FMC).

The explored area of the salar was 175 km^2, hosted in a 700 to 880 metre deep fault-bounded north-west orientated depression filled with brine saturated sands, interbedded with silt and clay, capped by a salt crust and small lake. It is partially obscured by a basalt shield volcano and associated debris fan.

Lake Resources controls 100% of the project, which comprises 70,000 hectares of mineral concessions over the salar through its wholly owned Argentine subsidiary Morena del Valle Minerals S.A. Previously untested, Lake drilled 3150 metres in 15 holes into the salar, down to 400 metres depth, resulting in a maiden JORC resource reported to the ASX on 27 November 2018 of:

- 1.0 million tonnes LCE[1] at 290 mg/L lithium (Indicated), and
- 3.4 million tonnes LCE at 210 mg/L lithium (Inferred).

This resource remains open at depth and laterally, and further drilling is expected to expand and upgrade it. It has low impurities as indicated by a Mg/Li ratio of 3.8 to 4.6, and an average drainable porosity at 8%. The 25,500 tpa LCE production target for the PFS was based on the full utilization (100%) of the JORC Indicated Resource. No Inferred Resource was used in the study.

Plant Design and Extraction Method

The plant design targets production of 25,500 tpa of battery grade lithium carbonate through the treatment of brine with direct lithium extraction technology based on ion exchange (IX) with the concept shown in Figure 1. The process involves the annual treatment of about 23 million cubic metres of brine at 250 g/L lithium, with an overall plant recovery of 83.2%. The eluate from the process is further concentrated and purified and fed into a conventional lithium carbonate plant. No solvent extraction plant is required to remove boron. While the study was based on 24,000 mg/L feedstock to the lithium carbonate plant (LCP), subsequent development by Lilac has shown that concentration to 60,000 mg/L lithium feedstock is possible for shipping of the lithium concentrate off site. No evaporation ponds are used. The lithium-depleted brine is free of any contaminants and can be reinjected underground to support the salar's water balance and protect the environment.

The purified lithium concentrate was reacted with sodium carbonate to produce lithium carbonate. The plant layout is shown on Figure 2. Extraction test work has demonstrated that a 99.9% lithium carbonate product with low impurities (battery grade) can be produced by the Lilac process (Table 4) within several hours of extraction as opposed to 18 to 24 months for conventional evaporative concentration processes.

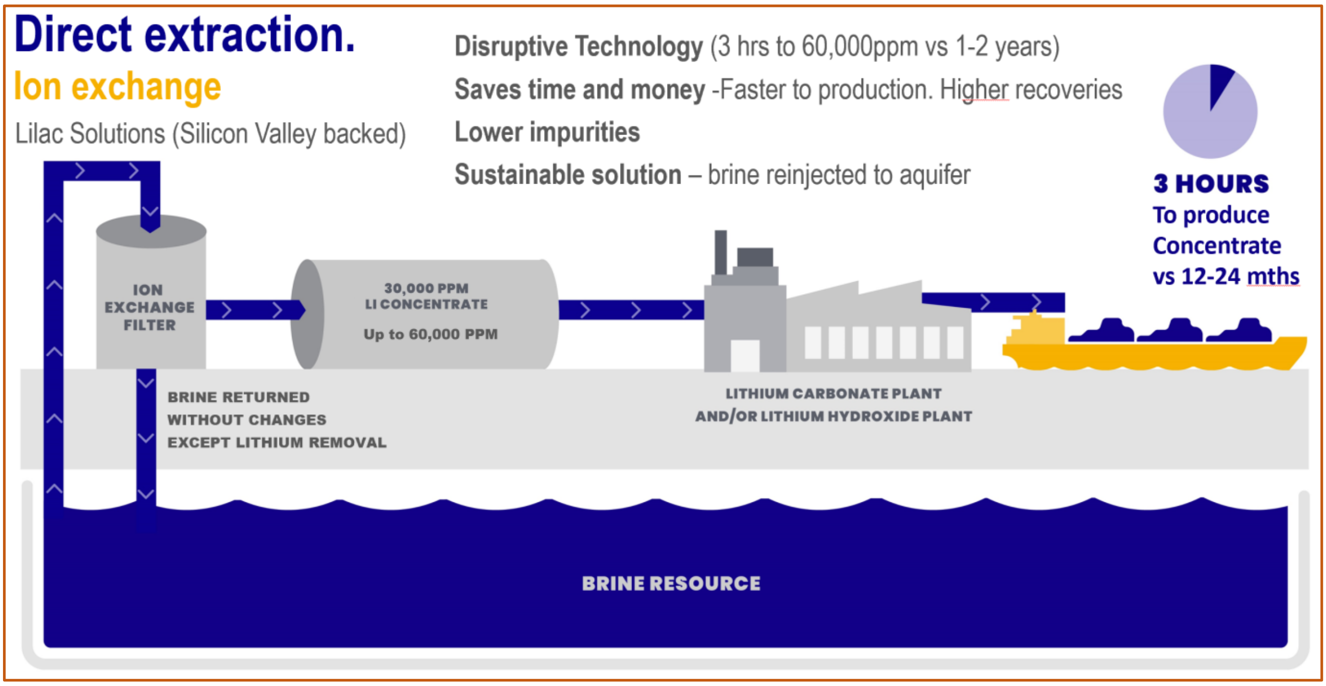
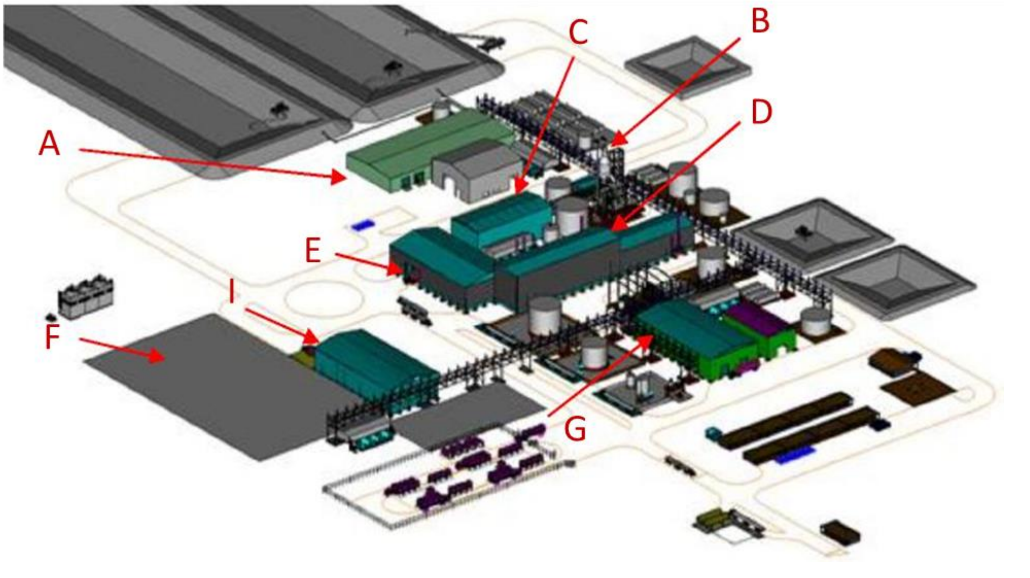


Figure 1: Lilac Solutions direct extraction concept using direct lithium extraction



Area	Description
A	Direct extraction (Lilac IX plant)
B	Eluate concentration
C	Impurity removal
D	Lithium production
E	Bagging plant and product storage
F	Chlor-alkali plant
G	Warehouse, reagents and water treatment
I	Salt storage for Chlor-Alkali plant

Figure 2: Layout of the Kachi Lithium Carbonate Plant

Component	Analysis, wt%	Target wt%
Li	99.9	99.5 min
Na	0.024	0.025 max
Mg	<0.001	0.008 max
Ca	0.0046	0.005 max
Fe	<0.001	0.001 max
Si	<0.001	0.003 max
B	<0.001	0.005 max

Table 4: Chemical specifications of lithium carbonate produced by direct lithium extraction

Next Steps

With this PFS, a robust engineering and cost case has been demonstrated. Further engineering studies will be focused on reducing operating and capital costs for the project. The operating cost can be reduced by partially replacing gas with a solar PV and storage system for 8-12 hours per day. The capital cost can be reduced by optimizing the plant layout to minimize earth works, concrete, and steel and by completing a pilot project to reduce contingency.

The next steps involve delivering product samples from the pilot plant modules to potential off-takers and further engineering work to reduce up-front capital and on-going operating costs. Further resource development would extend project life. Studies will be initiated to consider staged development commencing indicatively at 10,000 tpa LCE.

The PFS provides a solid basis for a definitive feasibility study and Lake is confident of progressing the project further based on these latest results.

Footnotes:
[1] *LCE = lithium carbonate equivalent, which is calculated as lithium metal content times 5.323*

For further information please contact:
Steve Promnitz, Managing Director
+61 2 9188 7864
steve@lakeresources.com.au

Follow Lake on Twitter: https://twitter.com/Lake_Resources
Follow on LinkedIn: https://www.linkedin.com/company/lake-resources/
Website: http://www.lakeresources.com.au

For media queries, please contact:
Anthony Fensom, Republic PR, +61 (0) 407 112 623 , anthony@republicpr.com.au
Henry Jordan, Six Degrees Investor Relations: +61 (0) 431 271 538

Cautionary Statements

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Forward Looking Statements

Certain statements contained in this report, including information as to the future financial performance of the Kachi Lithium Brine Project are forward-looking statements. Such forward-looking statements are necessarily based upon a number of estimates and assumptions that, while considered reasonable by Lake Resources N.L. are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies; involve known and unknown risks and uncertainties and other factors that could cause actual events or results to differ materially from estimated or anticipated events or results, expressed or implied, reflected in such forward-looking statements; and may include, among other things, statements regarding targets, estimates and assumptions in respect of production and prices, operating costs and results, capital expenditures, reserves and resources and anticipated flow rates, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions and affected by the risk of further changes in government regulations, policies or legislation and that further funding may be required, but unavailable, for the ongoing development of Lake's projects. Lake Resources N.L. disclaims any intent or obligation to update any forward-looking statements, whether as a result of new information, future events or results or otherwise. The words "believe", "expect", "anticipate", "indicate", "contemplate", "target", "plan", "intends", "continue", "budget", "estimate", "may", "will", "schedule" and similar expressions identify forward-looking statements. All forward-looking statements made in this report are qualified by the foregoing cautionary statements. Investors are cautioned that forward-looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein. Lake does not undertake to update any forward-looking information, except in accordance with applicable securities laws.

Competent Person Statement

The information contained in this report relating to Exploration Results, Mineral Resource estimates, and the associated Indicated Resource, which underpins the production target utilised in the Pre-Feasibility Study, have been compiled by Mr Andrew Fulton. Mr Fulton is a Hydrogeologist and a Member of the Australian Institute of Geoscientists and the Association of Hydrogeologists. Mr Fulton has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a competent person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Andrew Fulton is an employee of Groundwater Exploration Services Pty Ltd and an independent consultant to Lake Resources NL. Mr Fulton consents to the inclusion in this presentation of this information in the form and context in which it appears. The information in this presentation is an accurate representation of the available data to date from initial exploration at the Kachi Lithium Brine project.

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1 INTRODUCTION

1.1 Location

The Kachi Lithium Brine Project is located in the Puna region of north western Argentina in Catamarca Province at an elevation of 3,000 metres, approximately 45 km south of the town of Antofagasta de la Sierra and 22 km west of the town of El Peñon (Figure 3).

The Company owns 100% of the project, which covers 70,000 hectares (170,000 acres) with 37 mineral exploration leases held through Lake's Argentine subsidiary, Morena del Valle Minerals SA. The leases are held over the centre and southern extension of the Caracchi Pampa salt lake or, 'Salar de Carachi Pampa', which occurs in the lowest point of a large internal drainage area known as the Carachi Pampa basin.

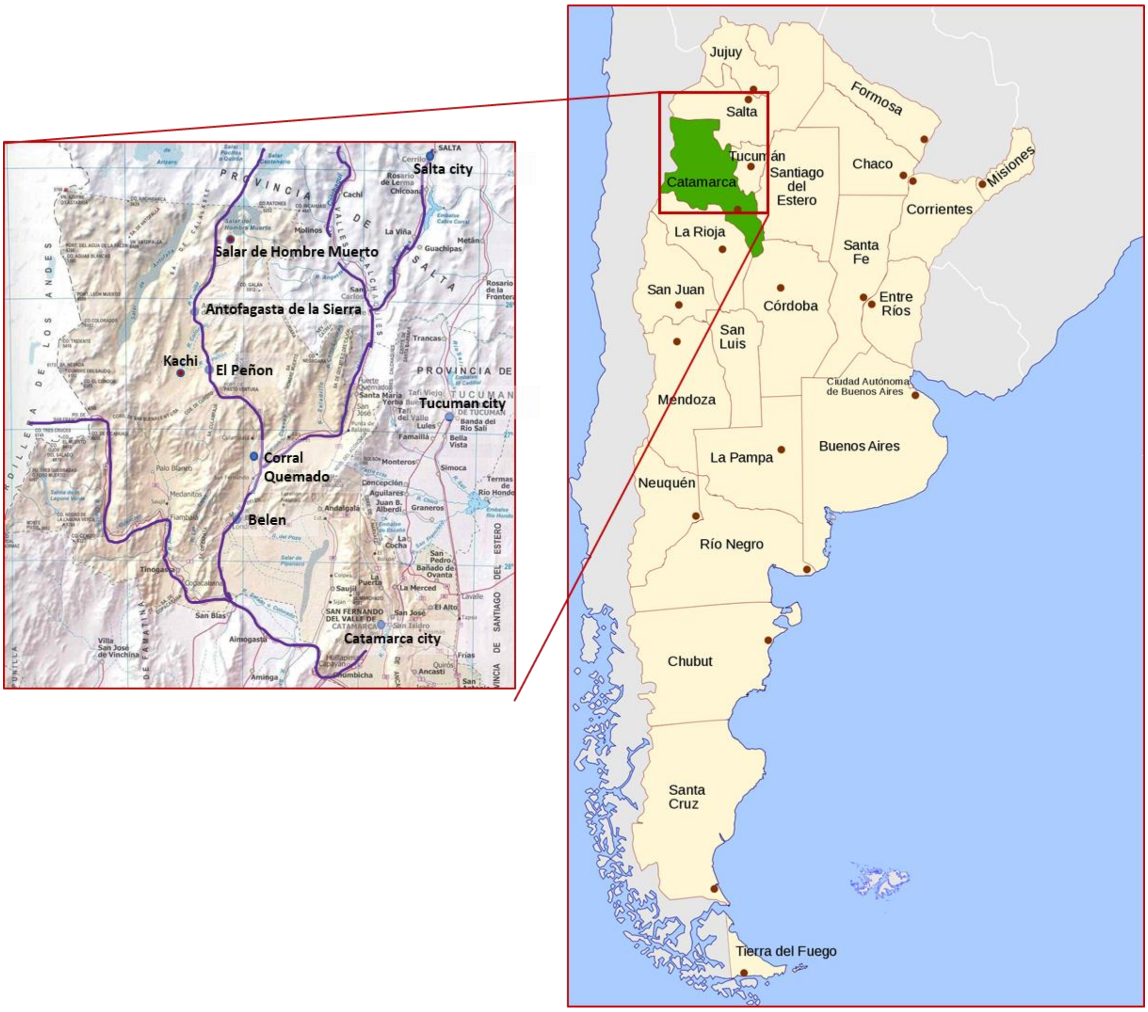


Figure 3 Project location within north western Argentina

1.2 Geological Setting

The Salar de Carachi Pampa is located within a large hinterland water catchment that focuses water flows into the closed drainage intermontane Carachi Pampa basin of about 9,500 km^2 (Figure 4). In particular, it drains the lithium bearing volcanic rocks of Cerro Galan volcano and associated hot springs, which is also interpreted to be the source of lithium for the Livent's Fenix lithium brine project production at Salar de Hombre Muerto, about 110 km 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 km^2. 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 km^2.

To the south of the salar, ignimbrites, and unconsolidated pyroclastic sediments of the Cerro Blanco Pyroclastic Complex are thought to partially cover brine-saturated basinal sediments.

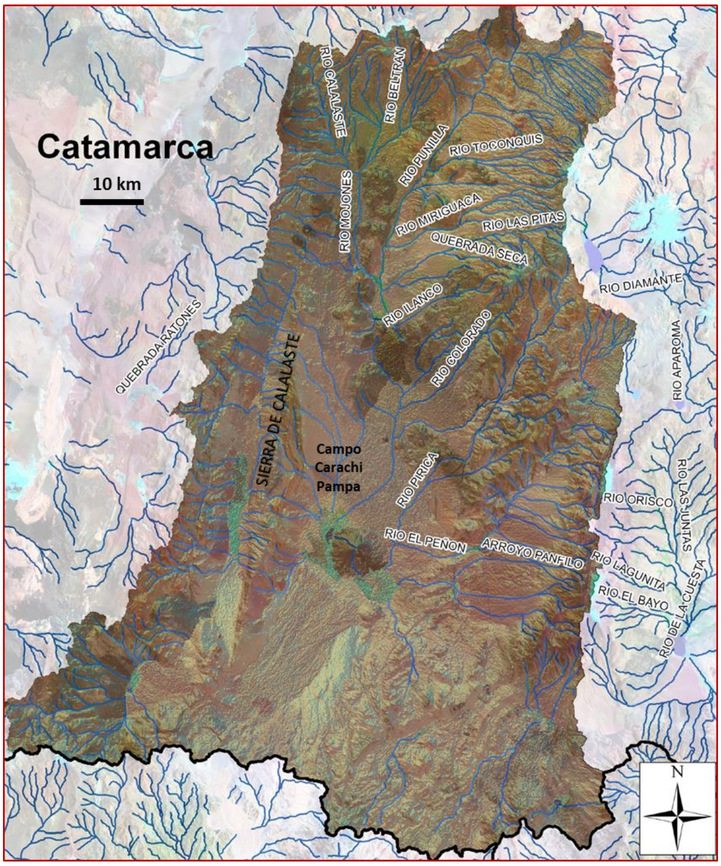


Figure 4: Carachi-Pampa basin surface drainage

1.3 Environmental Compliance

The principal environmental concern for the project is to protect the wetland ecosystem and water balance of the Carachi Pampa basin, as well as the touristic (scenic) value of the southern sectors of the salar and fresh water lake.

Compliance with the environmental regulations of Catamarca Province and Argentina, as well as international norms is central to the company's environmental management strategy. Baseline studies and an Environmental Impact Report ("EIR") for the exploration and pilot plant operation have been essential to maintaining exploration and development work to date. For commencement of production, the large number of permits will be required, which are preceded by an updated and more comprehensive EIR, an operations environmental management plan, community relations plan, and project closure plan.

1.4 Exploration and Mineral Resource

The company drilling totaled 3150 metres in 15 brine investigation drill holes to depths up to 403 metres across principal target areas of the salt lake under license (Figure 5). Drill results are summarised in Table 5.

Exploration Hole	Drilling Method	Easting	Northing	Total Depth, m	Assay Interval, m	Lithium, mg/L	Magnesium, mg/L	Potassium mg/L
Northern Area								
K07D01	Diamond	643829	7073100	76	10 - 34	157		3330
K03D02	Diamond	644880	7073149	150	74 - 92	180	1740	4435
K03R03	Rotary	644898	7073147	242	213 - 237	306*	1307*	5998*
K03R12	Rotary	644885	7073132	400	358 - 400	267*	1180*	5180*
K02D13	Diamond	646432	7074897		60	217	3557	4438
					64 - 108	182	2884	3620
					269 - 298	204	2163	4100
					313 - 343	252	1411	4987
Southern Area								
K06D04	Diamond	655320	7065352	167	95 - 113	203	766	3321
K06R05	Rotary	655273	7065354	87	68 - 85	167	1000	3160
K06R06	Rotary	655307	7065374	180	Not Sampled			
K06R07	Rotary	655326	7065362	189	159 – 179	191	1009	961
K06D08	Diamond	655326	7065362	405	69 -70	194	958	3171
					120 - 121	191	873	3199
					165-166	170	880	3650
					205-206	164	894	3590
					258-259	164	888	3560
					354-405	170	877	3670
K05D09	Diamond	648899	7067469	139	62	83	1229	965
					108	222	1325	4360
K05D11	Diamond	648902	7067491	391	157	95	1460	1926
					188	215	919	3596
					224 - 248	175	876	3065
					289	143	1088	2251
					300.5	116	1035	1782
					291 - 334	234	3199	4980
					349 - 391	185	1955	3892
K08R14	Rotary	644218	7070750	364	301 - 361	326*	1232*	6038*
K04R15	Rotary	646454	7070594	350	290 - 350	265*	1154*	4993

*Coordinates are WGS84 Z19 South. * Average for multiple samples during extended air lift*

Table 5: Details of drill hole locations and assay results

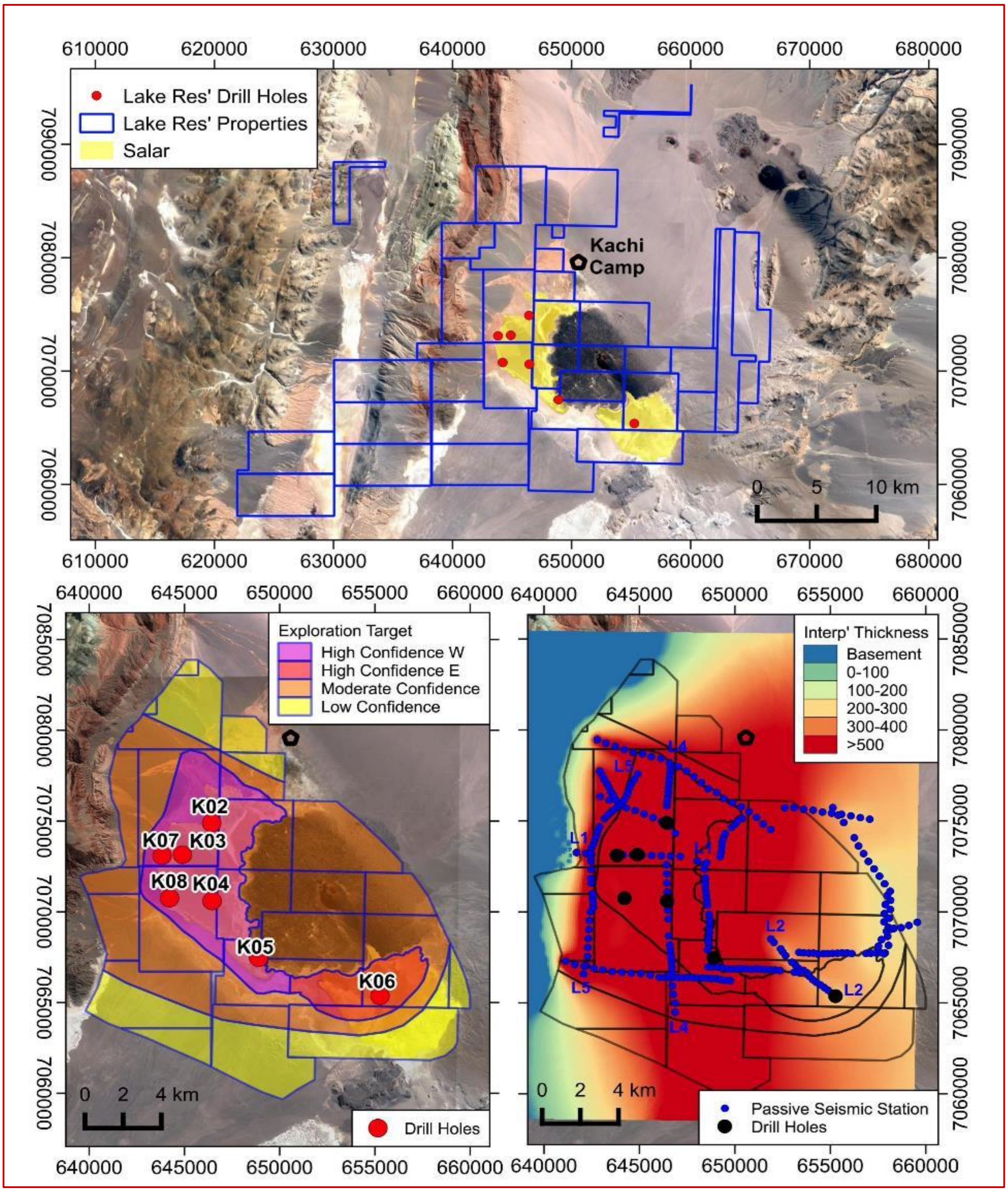


Figure 5: Drill holes and seismic lines used in the resource estimation

The resource drill program comprised diamond drill holes, rotary wells and installation of test production bores. It revealed thick permeable sand dominated sediments that are expected to continue below current drilling depth limits and beyond the surface dimensions of the salar. Table 6 summarises the resource reported in accordance with the JORC Code (2012) and as estimated by a Competent Person as defined by that code.

The total Mineral Resource comprises a brine volume of 3.8 km^3, with an average drainable porosity of 8%, and mean lithium grade of 211 mg/L, for a total lithium content of 826,000 tonnes, or 4.4 million tonnes LCE. Of this, the production target of the PFS utilised the Indicated Resource of 1.01 million tonnes LCE at an average grade of 289 mg/L lithium. No inferred resources were used. A diluted lithium grade 250 mg/L was used as feedstock to the direct extraction plant in the engineering study.

KACHI LITHIUM BRINE PROJECT	MINERAL RESOURCE ESTIMATE					
JORC Code 2012 Edition	**Indicated**		**Inferred**		**Total Resource**	
Area, km^2	17.1		158.3		175.4	
Aquifer volume, km^3	6		41		47	
Brine volume, km^3	0.65		3.2		3.8	
Mean drainable porosity %	10.9		7.5		7.9	
Element	Li	K	Li	K	Li	K
Weighted mean concentration, mg/L	289	5,880	209	4,180	211	4,380
Resource, tonnes	188,000	3,500,000	638,000	12,500,000	826,000	16,000,000
Lithium Carbonate Equivalent (LCE), tonnes	**1,005,000**		**3,394,000**		**4,400,000**	
Potassium Chloride, tonnes	6,705,000		24,000,000		30,700,000	

Lithium is converted to lithium carbonate (Li2CO3) with a conversion factor of 5.32
Potassium is converted to potassium chloride (KCl) with a conversion factor of 1.91

Table 6: Mineral resource estimate for the Kachi Lithium Brine Project – JORC Code 2012 Edition

To the best knowledge of the author of the resource report, these material resources are not affected by any known issues since the original publication to the ASX on 27 November 2018 (*Maiden 4.4 Mt LCE resource estimate – Kachi Lithium Brine Project*). The JORC Table 1 pertaining to exploration results and the resource statement may be found below as Appendix 1. On-going attention is being paid to environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant subjects. There are no known mining, metallurgical, infrastructure, or other factors, which may materially affect this resource.

2 PROCESS DESIGN & COSTINGS

2.1 Flowsheet

The simplified schematic of the flowsheet for the project is shown in Figure 6. The flowsheet comprises two sections:

1. Direct lithium extraction as per Lilac Solutions Inc, uses ion exchange to produce a lithium-enriched eluate;
2. Lithium carbonate plant converts the eluate into refined lithium carbonate.

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 extraction 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 (Figure 7). The pertinent reactions are:

Loading: $Li^{+}_{brine} + H\text{-}R_{IX} \rightarrow H^{+} + Li\text{-}R_{IX}$ where R = IX resin

Stripping: $Li\text{-}R_{IX} + H^{+} \rightarrow Li^{+}_{eluate} + H\text{-}R_{IX}$ where H^+ is delivered as HCl

i.e. $Li\text{-}R_{(s)} + HCl_{(aq)} \rightarrow LiCl_{(aq)} + H\text{-}R_{(s)}$

After direct extraction, the eluate stream is further concentrated by reverse osmosis (RO), making it suitable for further processing to lithium carbonate. The PFS was predicated on a concentrated eluate of 24,000 mg/L although subsequent work by Lilac shows 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, packaged for sale. The pertinent reactions are:

$$2LiCl_{(aq)} + Na_2CO_{3(aq)} \rightarrow Li_2CO_{3(aq)} + 2NaCl_{(aq)}$$

$$Li_2CO_{3(aq)} \rightarrow Li_2CO_{3(s)}$$

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.

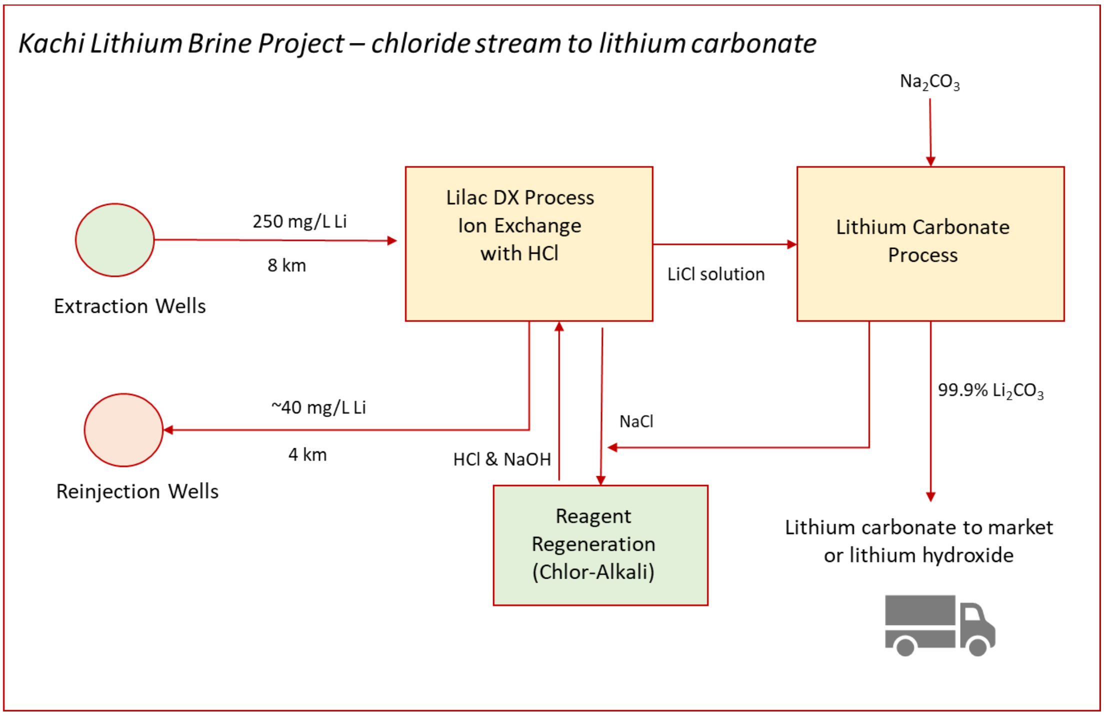


Figure 6: Simplified schematic of proposed lithium carbonate plant flowsheet

In the PFS, process design considered the treatment plant with and without reagent generation by the chlor-alkali process. Trade-off resulted in a decision in favour of including a chlor-alkali plant even though technically, the process is not part of the project flow-sheet but an adjunct. Its 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 and recycle plant process water to generate sodium hydroxide and hydrochloric acid by electrolysis.

The overall reaction is:

$$2NaCl_{(aq)} + 2H_2O_{(l)} \rightarrow Cl_{2(g)} + H_{2(g)} + 2NaOH_{(aq)}$$

Followed by the formation of gaseous hydrochloric acid in a furnace:

$$H_{2(g)} + Cl_{2(g)} \rightarrow 2HCl_{(g)}$$

2.2 Capital Costs

Capital costs have been prepared for the lithium processing plant by Lake Resources, with direct extraction costs provided by Lilac Solutions, and the remainder based on engineering designs supported by OEM quotations, industry enquiries and supplier databases. The costs are reported in United States dollars, base dated to October 2019, with a deterministic accuracy of minus 20% to plus 30%. The capital cost for the initial development of the facilities at the Kachi Lithium Brine Project include extraction and processing, logistics, and associated infrastructure, and is estimated at US$544 million. This includes contingency and EPCM costs of US$145 million (27%). Owner's costs are excluded.

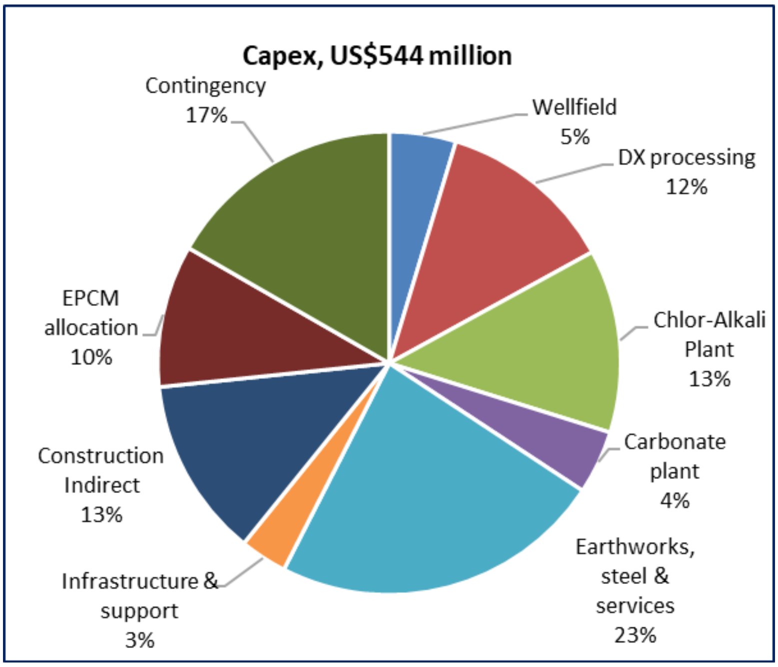


Figure 7: Areas of capital expenditure for the Kachi Lithium Brine Project

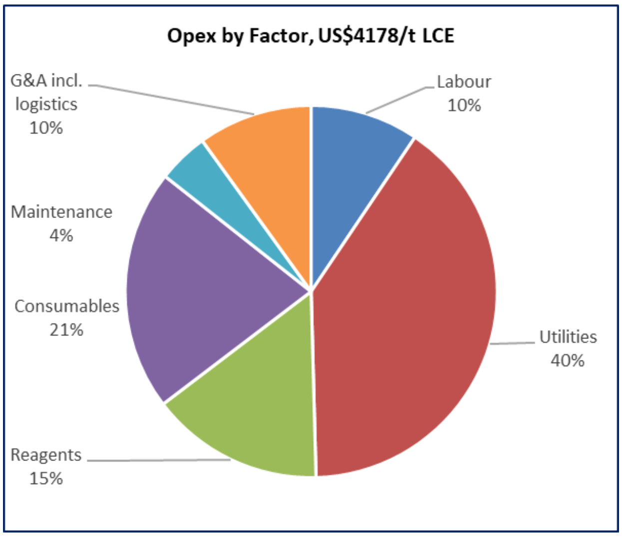
CAPEX by Area	Value, US$M	%
Wellfield (extraction & reinjection)	25.3	4.6
Direct Extraction Processing	67.3	12.4
Chlor- Alkali Plant (reagent regeneration)	69.7	12.8
Carbonate Plant	24.1	4.4
Earthworks, construction materials & services	126.6	23.3
Infrastructure & support	17.9	3.3
Construction Indirect	68.3	12.6
EPCM Allocation	54.1	9.9
Owner's Costs	Excluded	-
Contingency	90.9	16.7
Total Capital Costs	**544.4**	**100**

Table 7: Capital cost estimate summary (to -20 + 30% accuracy)

2.3 Operating Costs

The operating cost has been prepared for producing approximately 25,500 tpa of battery grade lithium carbonate. The costs are based on an overall availability of 90% (7,446 hours operation per annum). With respect to areas, the combined DX process and chlor-alkali plant account for over 45% of the direct cost, with their major contributors being power and reagents.

The operating cost estimate has been prepared in United States dollars with base date October 2019, and accuracy estimated deterministically at -20% to 30%. The operating costs are summarised in Figure 8 and Table 8.



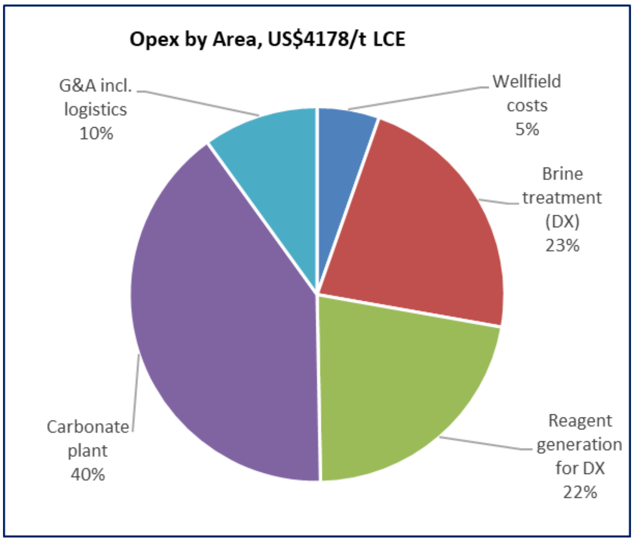


Figure 8: Areas and factors of operating expenditure

Operating Cost Factor	Cost per year	Cost per tonne
	US$M/y	US$/t LCE
Labour	10.1	394
Utilities (electricity, gas & water)	42.9	1,677
Reagents	16.1	630
Consumables	22.4	876
Maintenance	4.7	185
General & Administration	10.6	416
Total	**106.8**	**4,178**

Table 8: Operating cost summary (to -20 + 30% accuracy)

3 PROJECT ECONOMICS

The lithium carbonate price used in this study are based on the steady production of 25,500 tpa LCE for 25 years (Figure 9), at a constant US$11,000 (CIF Asia) price for battery grade lithium carbonate. Economic outcomes are summarised in Table 9, with cash flows in Figure 10.

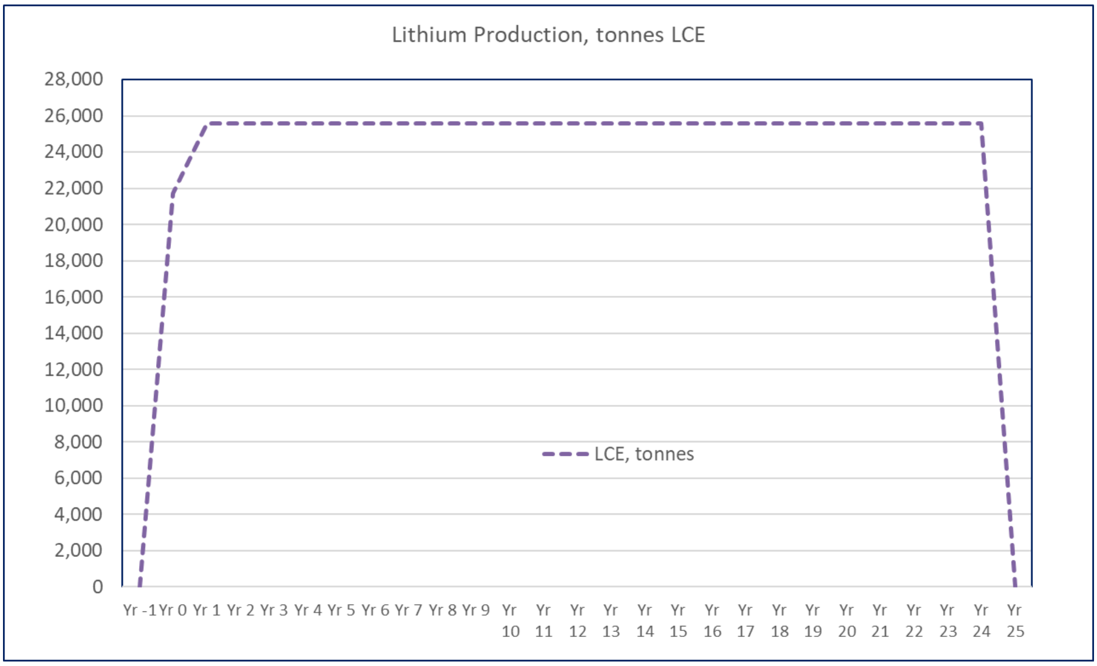


Figure 9: Production profile, based on Indicated Resource only.

At 100% equity (unlevered), the project after-tax net present value (NPV) at a discount rate of 8.0% is US$748 million, with an internal rate of return (IRR) of 22% based on initial investment capital of US$544 million, and an annual average production of 25,500 tonnes of lithium carbonate over a 25 year mine life. The average annual EBITDA is US$155 million.

Financial outcomes			**Value**
Product	BG Li_2CO_3	tonnes/year	25,500
Prices CIF Asia	BG Li_2CO_3	US$/t LCE	11,000
EBITDA	US$M annual		155
	US$M life of project		3,890
Net Present Value @ 8.0%	US$M pre-tax		1,050
	US$M post-tax		748
Internal Rate of Return	IRR pre-tax		25%
	IRR post tax		22%
Pay back	Year		5
Investment capital	US$M		544

Table 9: Summary of economic outcomes in constant 2020 dollars

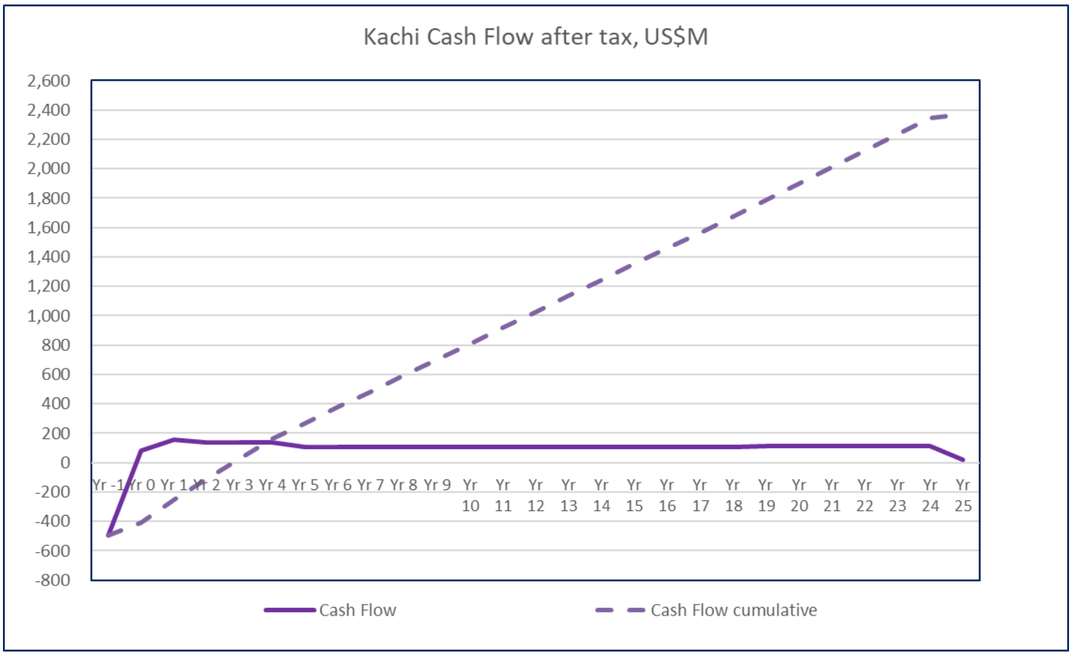
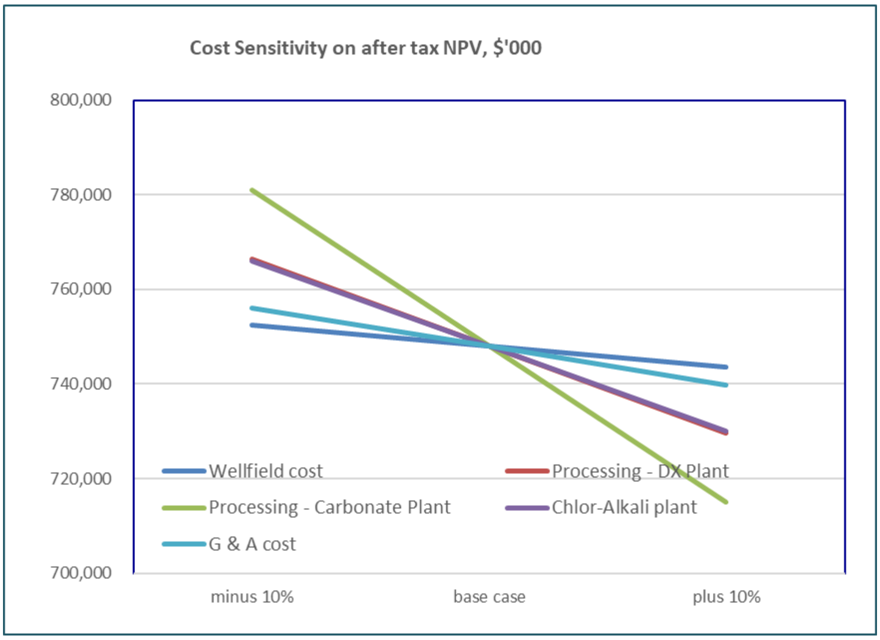


Figure 10: Time series of cash flows (undiscounted)

Sensitivity analysis on selected production area, cost and revenue factors has been undertaken and is shown in Figure 11. The analysis shows that project NPV is most sensitive to revenue factors *viz* price, grade and recovery.



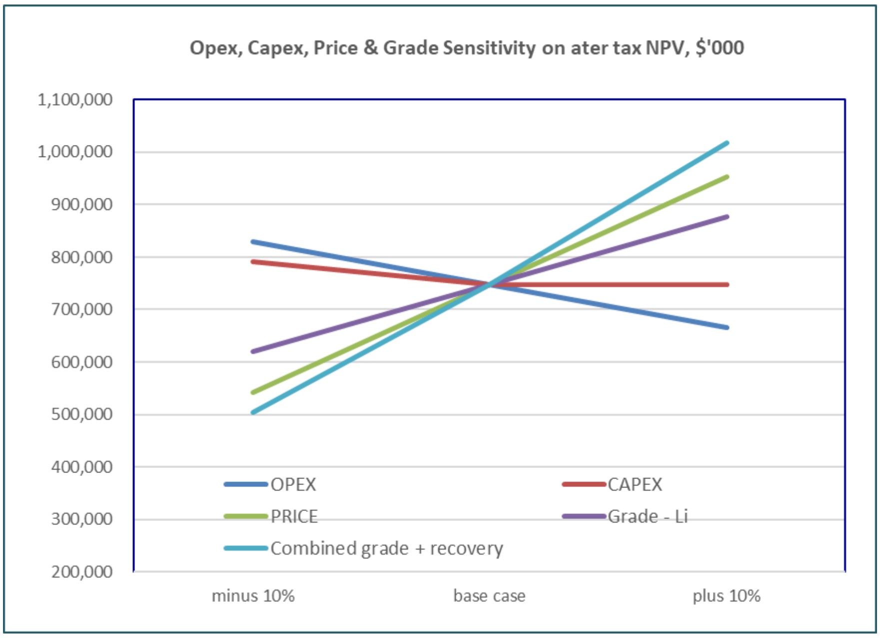


Figure 11: After-tax NPV sensitivity to production areas, cost, and revenue

4 CONCLUSION

The Kachi Lithium Brine Project is based on an annual production of 25,500 tpa LCE for 25 years, which fully utilises the Indicated Resource. No Inferred Resources were used in the study. The project study demonstrates strong economic metrics, and provides a very attractive baseline from which Lake Resources will continue to develop the project with a definitive feasibility study (DFS). The timeline to production from completion of the DFS, including detailed engineering and construction is expected to take two years.

On-going engineering studies are to include improvements in extraction technology and the incorporation of solar PV into the energy mix, which are expected to result in lowering of capital and operating costs. Studies are also to be conducted into a staged approach for development from 10,000 tpa LCE, with a later expansion to 25,500 tpa LCE as the commercial plant is optimised.

APPENDIX 1. JORC (2012) TABLE 1 REPORT

Criteria	Section 1 - Sampling Techniques and Data
Sampling techniques	• Brine samples were taken from the diamond drill hole with a bottom of hole spear point during advance and using a straddle packer device to obtain representative samples of the formation fluid by purging a volume of fluid from the isolated interval, to minimize the possibility of contamination by drilling fluid then taking the sample. Low pressure airlift tests are used as well. The fluid used for drilling is brine sourced from the drill hole and the return from drillhole passes back into the excavator dug pit lined to avoid leakage. • The brine sample was collected in a clean plastic bottle (1 litre) and filled to the top to minimize air space within the bottle. A duplicate was collected at the same time for storage and submission of duplicates to the laboratory. Each bottle was taped and marked with the sample number. • Drill core in the hole was recovered in 1.5 m length core runs in core split tubes to minimize sample disturbance. • Drill core was undertaken to obtain representative samples of the sediments that host brine.
Drilling techniques	• Diamond drilling with an internal (triple) tube was used for drilling. The drilling produced cores with variable core recovery, associated with unconsolidated material, in particularly sandy intervals. Recovery of these more friable sediments is more difficult with diamond drilling, as this material can be washed from the core barrel during drilling. • Rotary drilling has used 8.5" or 10" tricone bits and has produced drill chips. • Brine has been used as drilling fluid for lubrication during drilling.
Drill sample recovery	• Diamond drill core was recovered in 1.5m length intervals in the drilling triple (split) tubes. Appropriate additives were used for hole stability to maximize core recovery. The core recoveries were measured from the cores and compared to the length of each run to calculate the recovery. Chip samples are collected for each metre drilled and stored in segmented plastic boxes for rotary drill holes. • Brine samples were collected at discrete depths during the drilling using a double packer over a 1 m interval (to isolate intervals of the sediments and obtain samples from airlifting brine from the sediments within the packer). • As the brine (mineralisation) samples are taken from inflows of the brine into the hole (and not from the drill core – which has variable recovery) they are largely independent of the quality (recovery) of the core samples. However, the permeability of the lithologies where samples are taken is related to the rate and potentially lithium grade of brine inflows.
Logging	• Sand, clay, silt, salt and cemented rock types was recovered in a triple tube diamond core drill tube, or as chip samples from rotary drill holes, and examined for geologic logging by a geologist and a photo taken for reference. • Diamond holes are logged by a senior geologist who also supervised taking of samples for laboratory porosity analysis as well as additional physical property testing. • Logging is both qualitative and quantitative in nature. The relative proportions of different lithologies which have a direct bearing on the overall porosity, contained and potentially extractable brine are noted, as are more qualitative characteristics such as the sedimentary facies and their relationships. When cores are split for sampling they are photographed.
Sub-sampling techniques and sample preparation	• Brine samples were collected by packer and spear sampling methods, over a metre. Low pressure airlift tests are used as well to purge test interval and gauge potential yields. • The brine sample was collected in one-litre sample bottles, rinsed and filled with brine. Each bottle was taped and marked with the sample number.
Quality of assay data and laboratory tests	• The Alex Stewart Argentina/Nor lab SA in Palpala, Jujuy, Argentina, is used as the primary laboratory to conduct the assaying of the brine samples collected as part of the sampling program. The SGS laboratory in Buenos Aires has also been used for both primary and check samples. They also analysed blind control samples and duplicates in the analysis chain. • The Alex Stewart/Norlab SA laboratory and the SGS laboratory are ISO 9001 and ISO 14001 certified, and are specialized in the chemical analysis of brines and inorganic salts, with experience in this field. This includes the oversight of the experienced Alex Stewart Argentina S.A. laboratory in Mendoza, Argentina, which has been operating for a considerable period.

	• The quality control and analytical procedures used at the Alex Stewart/Norlab SA laboratory or SGS laboratory are considered to be of high quality and comparable to those employed by ISO certified laboratories specializing in analysis of brines and inorganic salts.
Verification of sampling and assaying	• Field duplicates, standards and blanks will be used to monitor potential contamination of samples and the repeatability of analyses. Accuracy, the closeness of measurements to the "true" or accepted value, will be monitored by the insertion of standards, or reference samples, and by check analysis at an independent (or umpire) laboratory. • Duplicate samples in the analysis chain were submitted to Alex Stewart/Norlab SA or SGS laboratories as unique samples (blind duplicates) during the process • Stable blank samples (distilled water) were used to evaluate potential sample contamination and will be inserted in future to measure any potential cross contamination • Samples were analysed for conductivity using a hand-held Hanna pH/EC multiprobe. • Regular calibration using standard buffers is being undertaken.
Location of data points	• The diamond drill hole sample sites and rotary drill hole sites were located with a hand-held GPS. • The properties are located at the junction of the Argentine POSGAR grid system Zone 2 and Zone 3 (UTM 19) and in WGS84 Zone 19 south.
Data spacing and distribution	• Brine samples were collected over 1m intervals every 6 m intervals within brine producing aquifers, where this was possible.
Orientation of data in relation to geological structure	• The salt lake (*salar*) deposits that contain lithium-bearing brines generally have sub-horizontal beds and lenses that contain sand, gravel, salt, silt and clay. The vertical diamond drill holes will provide a better understanding of the stratigraphy and the nature of the sub-surface brine bearing aquifers
Sample security	• Samples were transported to the Alex Stewart/Norlab SA laboratory or SGS laboratory for chemical analysis in sealed 1-litre rigid plastic bottles with sample numbers clearly identified. Samples were transported by a trusted member of the team. • The samples were moved from the drillhole sample site to secure storage at the camp on a daily basis. All brine sample bottles sent to the laboratory are marked with a unique label not related to the location.
Review (and Audit)	• No audit of data has been conducted to date. However, the CP has been onsite periodically during the programme. The review included drilling practice, geological logging, sampling methodologies for water quality analysis and, physical property testing from drill core, QA/QC control measures and data management. The practices being undertaken were ascertained to be appropriate.
Criteria	**Section 2 - Mineral Tenement and Land Tenure Status**
Mineral tenement and land tenure status	• The Kachi Lithium Brine project is located approximately 100km south-southwest of Livent' (FMC's) Hombre Muerto lithium operation and 45km south of Antofagasta de la Sierra in Catamarca province of north western Argentina at an elevation of approximately 3,000m asl. • The project comprises approximately 70,462 Ha in thirty seven mineral leases (minas) of which five leases (9,445 Ha) are granted for drilling, twenty two leases are granted for initial exploration (44,328 Ha) and ten leases (16,689 Ha) are applications pending granting. • The tenements are believed to be in good standing, with statutory payments completed to relevant government departments.
Exploration by other parties	• Marifil Mines Ltd conducted sparse near-surface pit sampling of groundwater at depths less than 1m during 2009. • Samples were taken from each hole and analysed at Alex Stewart laboratories in Mendoza Argentina. • Results were reported in an NI 43-101 report by J. Ebisch in December 2009 for Marifil Mines Ltd. • NRG Metals Inc commenced exploration in adjacent leases under option. Two diamond drillholes intersected lithium bearing brines. The initial drillhole intersected brines from 172-198m and below with best results to date of 15m at 229 mg/L Lithium, reported in December 2017. The second hole, drilled to 400 metres in mid-2018, became blocked at 100 metres and could not be sampled. A VES ground geophysical survey was completed prior to drilling. A NI 43-101 report was released in February 2017. • No other exploration results were able to be located
Geology	• The known sediments within the *salar* consist of salt/halite, clay, sand and silt horizons, accumulated in the *salar* from terrestrial sedimentation and evaporation of brines. • Brines within the Salt Lake are formed by solar concentration, interpreted to be combined with warm geothermal fluids, with brines hosted within sedimentary units. • Geology was recorded during the diamond drilling and from chip samples in rotary drill holes.

Drill hole Information	• 15 drill holes completed, totalling 3150 metres with varying depths up to 403 metres. • Lithological data was collected from the holes as they were drilled and drill cores or chip samples were retrieved. Detailed geological logging of cores is ongoing. • All drill holes are vertical, (dip -90, azimuth 0 degrees).
Data aggregation methods	• Assay averages have been provided where multiple sampling occurs in the same sampling interval.
Relationship between mineralisation widths and intercept lengths	• Mineralisation interpreted to be horizontally lying and drilling perpendicular to this.
Diagrams	• A drill hole location plan is provided showing the locations of the drill platforms. Individual drill locations are provided in Table 1.
Balanced reporting	• Brine assay results are available from 15 drill holes from the drilling to date, reported here.
Other substantive exploration data	• There is no other substantive exploration data available regarding the project.
Further work	• Further water well drilling is planned to expand the resource and test pumping rates.
Criteria	**Section 3 – Estimation and Reporting of Mineral Resources**
Database integrity	• Data was transferred directly from laboratory spreadsheets to the database. • Data was checked for transcription errors once in the database to ensure coordinates, assay values, and lithological codes were correct • Data was plotted to check the spatial location and relationship to adjoining sample points • Duplicates and standards have been used in the assay process • Brine assays and porosity test work have been analysed and compared with other publicly available information for reasonableness • Comparison of original and current datasets were made to ensure no lack of integrity
Site visits	• The Competent Person visited the site multiple times during the drilling and sampling program • Some improvements to procedures were made during visits by the Competent Person
Geological Interpretation	• The geological model is continuing to develop. There is a high level of confidence in the interpretation of the exploration results to date. There are relatively consistent geological units with relatively uniform clastic sediments • Any alternative interpretations are restricted to smaller scale variations in sedimentology, related to changes in grain size and fine material in units • Data used in the interpretation includes rotary and diamond drilling methods • Drilling depths and geology encountered has been used to conceptualise hydro-stratigraphy • Sedimentary processes affect the continuity of geology, whereas the concentration of lithium and potassium and other elements in the brine is related to water inflows, evaporation and brine evolution in the Salt Lake.
Dimensions	• The lateral extent of the resource has been defined by the boundary of the Company's properties. The brine mineralisation subsequently covers 175 km2 • The top of the model coincides with the topography obtained from the Shuttle Radar Topography Mission (SRTM). The original elevations were locally adjusted for each borehole collar with the most accurate coordinates available. The base of the resource is limited to a 400 m depth. The basement rocks underlying the Salt Lake sediments have been intercepted in drilling • The resource is defined to a depth of 400 m below surface, with the exploration target immediately extending beyond the aerial extent of the resource
Estimation and modelling techniques	• No grade cutting or capping was applied to the model • No assumptions were made about correlation between variables. Lithium and potassium were estimated independently • The geological interpretation was used to define each geological unit and the property limit was used to enclose the reported resources.
Moisture	• Moisture content of the cores was not Measured (porosity and density measurements were made), but as brine will be extracted by pumping not mining this is not relevant for the resource estimation. • Tonnages are estimated as elemental lithium and potassium dissolved in brine.
Cut-off parameters	• No cut-off grade has been applied

Mining factors or assumptions	• The resource has been quoted in terms of brine volume, concentration of dissolved elements, contained lithium and potassium and their products lithium carbonate and potassium chloride. • No mining or recovery factors have been applied although the use of the specific yield (drainable porosity) is used to reflect the reasonable prospects for economic extraction with the proposed mining methodology. (Recoveries of 83% lithium have been used in the PFS for the direct processing method) • Dilution of brine concentrations may occur over time and typically there are lithium and potassium losses in both the storage ponds and processing plant in brine extraction operations. However, potential dilution will be estimated in the groundwater model simulating brine extraction. • The conceptual mining method is recovering brine from the Salt Lake via a network of wells, the established practice on existing lithium and potash brine projects. • Detailed hydrological studies of the lake are being undertaken (groundwater modelling) to define the extractable resources and potential extraction rates.
Metallurgical factors or assumptions	• Lithium carbonate is targeted as the commercial product • It would be obtained by the brines being subjected to direct lithium extraction (ionic exchange and reverse osmosis) to produce a high grade LiCl eluate (30,000 to 60,000 mg/L lithium), which is processed in a conventional lithium carbonate plant by reaction with sodium carbonate: $LiCl + Na_2CO_3 \rightarrow Li_2CO_3 + NaCl$ • Process work has been undertaken by Lilac Solutions, which is an expert laboratory in the treatment of brines by ion exchange. • Bench tests include short and long-term tests using ion exchange media and brine from Kachi to establish recovery, reagent consumption, and engineering parameters used in the PFS • Analyses of solutions by ICP and includes the use of standards • The longevity of the ion exchange media has been tested over 1000 cycles, or six months • Lithium carbonate of high purity and low impurities has been produced which can be considered equivalent to metallurgical test work) is being carried out on the brine following initial test work. • Pilot plant module test-work has commenced using Kachi brine.
Environmental factors as assumptions	• Impacts of a lithium operation at the Kachi project would include surface disturbance from the installation of extraction/processing facilities and associated infrastructure, accumulation of various salt tailings impoundments and extraction from brine and fresh water aquifers regionally • Environmental management plan for the protection of wetlands, salt lakes, and surrounds • Consultation with communities in the area of influence of the project • Environmental impact analysis on-going
Bulk density	• Density measurements were taken as part of the drill core assessment. This included determining dry density and particle density as well as field measurements of brine density. Note that no mining is to be carried out as brine is to be extracted by pumping and consequently sediments are not mined • No bulk density was applied to the estimates because resources are defined by volume, rather than by tonnage
Classification	• The resource has been classified into the two possible resource categories based on confidence in the estimation. • A Measured resource would reflect higher density drilling, with porosity samples from drill cores and well constrained vertical brine sampling in the holes. • The Indicated resource reflects the higher confidence in the brine sampling in the rotary drilling and lower quality geological control from the drill cuttings. • The Inferred resource underlying the Measured and/or Indicated resource reflects the limited drilling to this depth together with the geophysics through the property • In the view of the Competent Person the resource classification is believed to adequately reflect the available data and is consistent with the suggestions of Houston et. al., 2011
Audits or reviews	• The Mineral Resource was estimated by the Competent Person.
Discussion of relative accuracy/ confidence	• An independent estimate of the resource was completed using a nearest neighbour estimate and the comparison of the results with the ordinary kriging estimate is below 0.3% for measured resources and below 3% for indicated resources which is considered to be acceptable. • Univariate statistics for global estimation bias, visual inspection against samples on plans and sections, swath plots in the north, south and vertical directions to detect any spatial bias shows a good agreement between the samples and the ordinary kriging estimates.

References

Houston, J., Butcher, A., Ehren, P., Evans, K., and Godfrey, L. (2011). The Evaluation of Brine Prospects and the Requirement for Modifications to Filing Standards. Economic Geology. V 106, p 1225-1239.

About Lake Resources NL (ASX:LKE)

Lake Resources NL (ASX:LKE, Lake) is a lithium exploration and development company focused on producing sustainable, high purity lithium by developing its flagship Kachi Project, as well as three other lithium brine projects and a hard rock project in Argentina, all owned 100%. The leases are in a prime location among major producers within the Lithium Triangle, where 40% of the world's lithium is produced at the lowest cost. Lake holds one of the largest lithium tenement packages in Argentina (~200,000Ha) which provides the potential for security of supply, and scalable as required.

Lake considers it is in a strong position to benefit from the market opportunity in electric vehicles and the batteries that power the energy revolution due to:

1. **High Purity Lithium Carbonate** samples (99.9%) with very low impurities, recently produced from the pilot plant using a direct extraction process (ion exchange), which can achieve premium pricing;

2. **Increased Engagement with Off-takers** as larger samples are produced, anticipated from Q2 2020 onwards, for off-takers to commence qualification testing to then engage to assist in financing;

3. **Kachi Project PFS**, which shows a large, long-life low-cost potential operation with competitive production costs at the lower end of the cost curve similar to current lithium brine producers. The Kachi project has a resource (announced Nov 2018) considered large enough for long term production and could be potentially scaled to a much larger project as required as leases cover an area 10 times Manhattan.

4. **Sustainable and Scalable Future Lithium Production**, demanded by the larger Electric Vehicle makers and an increasing number of battery/cathode makers, who need to show both the quality and provenance of battery materials for ESG/sustainability and carbon footprint reporting. The direct extraction process reinjects brine once the lithium has been removed using ion exchange beads without affecting the chemistry. This means a much smaller footprint and less water usage because evaporation ponds are not used.

The Kachi project covers 70,000 ha over a salt lake south of FMC/Livent's lithium operation in Catamarca Province. Drilling confirmed a large lithium brine bearing basin over 20km long, 15km wide and 400m to 800m deep. Drilling over Kachi produced a maiden indicated and inferred resource of 4.4 Mt LCE (Indicated 1.0Mt, Inferred 3.4Mt) (refer ASX announcement 27 November 2018).

A direct extraction technique has been tested in partnership with Lilac Solutions, supported by Bill Gates – led Breakthrough Fund and MIT's The Engine fund. A pilot plant module being commissioned, has shown 80-90% recoveries and lithium brine concentrations over 60,000 mg/L lithium. Battery grade lithium carbonate (99.9% purity) has been produced from Kachi brine samples with very low impurities (Fe, B, with <0.001 wt%). Test results have been incorporated into a Pre-Feasibility Study (PFS). The Lilac pilot plant module in California will produce samples for downstream participants in Q2 2020, prior to being transported to site to produce larger battery grade lithium samples. Discussions are advanced with downstream entities, mainly battery/cathode makers, as well as financiers, to develop the project.

The Olaroz, Cauchari and Paso brine projects are located adjacent to major world class brine projects either in production or being developed in the highly prospective Jujuy Province. The Olaroz-Cauchari project is located in the same basin as Orocobre's Olaroz lithium production and adjoins the Ganfeng Lithium/Lithium Americas Cauchari project, with high grade lithium (600 mg/L) with high flow rates drilled immediately across the lease boundary.

The Cauchari project has shown lithium brines over 506m interval with high grades averaging 493 mg/L lithium (117-460m) with up to 540 mg/L lithium. These results are similar to lithium brines in adjoining leases scheduled for production in late 2020 and infer an extension and continuity of these brines into Lake's leases (refer ASX announcements 28 May, 12 June 2019).

Significant corporate transactions have occurred in adjacent leases with development of Ganfeng Lithium/Lithium Americas Cauchari project as Ganfeng announced a US$397 million investment for 50% of the Cauchari project, together with a resource that had doubled to be the largest on the planet. Ganfeng then announced a 10-year lithium supply agreement with Volkswagen on 5 April 2019. Nearby projects of Lithium X were acquired via a takeover offer of C$265 million completed March 2018. The northern half of Galaxy's Sal de Vida resource was purchased for US$280 million by POSCO in June-Dec 2018. LSC Lithium was acquired in Jan-Mar 2019 for C$111 million by a mid-tier oil & gas company with a resource size half of Kachi. Orocobre has completed in April 2020 the acquisition of all shares in Advantage Lithium, valued at around C$75 million, which holds leases next to Lake at Cauchari. These transactions, except for the Advantage deal, imply an acquisition cost of US$55-110 million per 1 million tonnes of lithium carbonate equivalent (LCE) in resources.

For more information on Lake, please visit http://www.lakeresources.com.au/home/