

Resources: Metals & Mining
Initiation of Coverage
Lake Resources NL | LKE.AX - AUD0.31 - ASX | Buy
Stock Data

52-Week Low - High	AUD0.02 - AUD0.46
Shares Out. (mil)	1,011.70
Mkt. Cap.(mil)	AUD313.63
3-Mo. Avg. Vol.	27,374,800
12-Mo.Price Target	AUD0.60
Cash (mil)	AUD0.1
Tot. Debt (mil)	AUD0.0

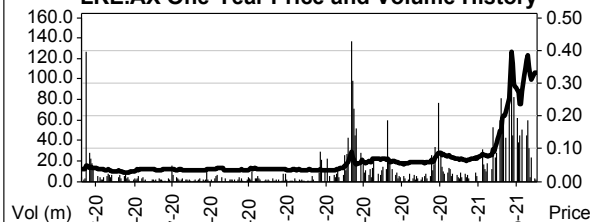
Cash (mil): Cash is as of last reported semi-annual period and does not include subsequent equity transactions or expenditures.

Revenue (\$AUD millions)

Yr Jun	—2019—	—2020—	—2021E—
		Curr	Curr
1Half	0.0A	0.0A	0.0E
2Half	0.0A	0.0A	0.0E
YEAR	0.0A	0.0A	0.0E

EPS \$AUD

Yr Jun	—2019—	—2020—	—2021E—
		Curr	Curr
1Half	0.00A	0.00A	0.00E
2Half	(0.01)A	0.00A	0.00E
YEAR	(0.01)A	(0.01)A	0.00E

LKE.AX One-Year Price and Volume History


LKE: A Purer, Cleaner Lithium; Initiate with Buy

We are initiating coverage of LKE.AX with a Buy rating and AUD\$0.60 price target. We believe that LKE is on the cusp of developing its Kachi project and that the company's assets should trade at a premium due to the low environmental impact of its process. Additionally, we believe there is significant upside for the company through exploration at its other assets.

A cleaner lithium production process. We believe that as demand for EVs increases it is likely consumers will become focused on the entire supply chain of the car they are purchasing. We believe EV manufacturers see this demographic shift on the horizon and have begun to look to invest in lithium production from sources that have the lowest environmental impact. We believe this will lead to significantly higher valuations for lithium companies that either have a low-impact production process or that are located in first world countries that require higher environmental standards. We also believe that the process Lake Resources is planning to use at Kachi has one of the lowest environmental impacts possible based on currently available technologies. We discuss this in further detail later in this report.

ESG investors likely to assign a premium. Given our view that LKE's process has a low environmental impact, we believe it should trade at a premium to conventional brine projects. Our initial valuation of the company is based on the company's PFS. Normally at PFS-stage, we would assign a valuation of 30-50% of after-tax NPV, but in the case of LKE we have elected to assign a valuation of 60% because of our anticipation of a market premium.

Lithium prices on the move. On the industry front, lithium prices have begun to rebound as the temporary surplus of lithium supply seen in 2019 and 2020 appears to be diminishing. We remain bullish in the medium-to-long-term on lithium prices as demand for lithium for EVs appears on track to significantly outpace lithium supply growth over the next five years. We provide an update on the lithium market in our section titled "Lithium Market Update and Outlook" later in this report.

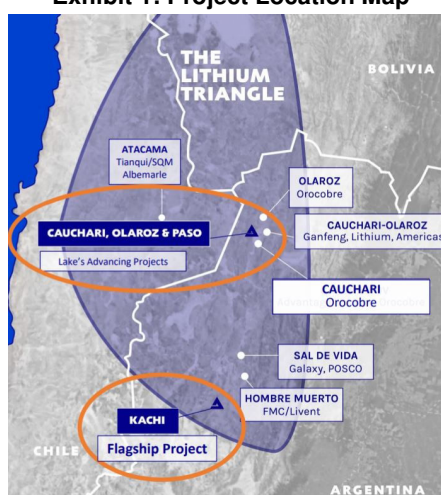
SUMMARY

We are initiating coverage of Lake Resources (LKE.AX) with a Buy rating and an AUD\$0.60 price target. We believe LKE is on the cusp of developing its Kachi project and that it should trade at a premium to its peers due to the company's lower environmental impact development plans. Additionally, we see further upside through the exploration and development of the company's secondary assets.

PROJECTS OVERVIEW

LKE's flagship asset is the Kachi project located in northwest Argentina at the southern end of the Lithium Triangle. The company also has three brine projects in the heart of the lithium triangle and a pegmatite project in the Catamarca Province of Argentina. Ultimately, we believe the majority of the company's current market value is assigned to the Kachi project and that there is significant potential to generate shareholder value through exploration at its other projects.

Exhibit 1: Project Location Map



Source: LKE Presentation January 19, 2021

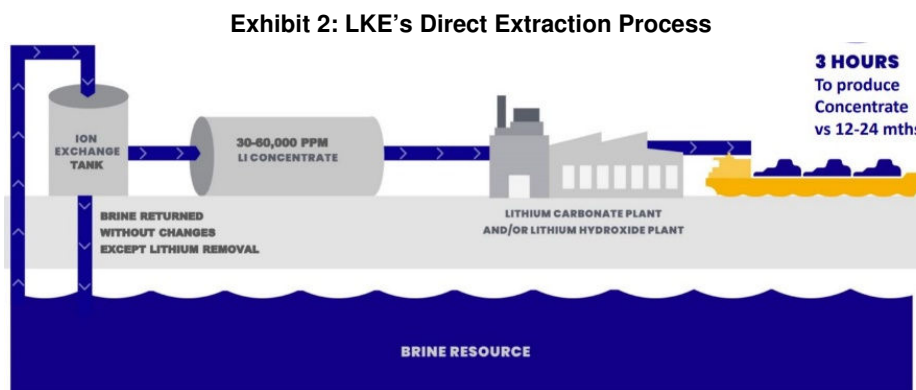
Kachi closing in on a development decision.

As noted above, Kachi is the company's flagship asset. The project is located in the Catamarca Province of Argentina at the southern end of the Lithium Triangle. In November of 2018, Lake announced a JORC compliant resource of 1.0 million tonnes LCE in the indicated category and another 3.4 million tonnes of LCE in the inferred category. In 2020, the company released a PFS that showed an after-tax NPV of USD\$748 million and post-tax IRR of 22%.

The PFS also called for an initial capital budget of USD\$544 million, an operating cost of \$4,178 per tonne LCE, and an initial mine life of 25 years, which only consumes the indicated portion of the company's resource estimate. The company is now in process on a DFS with an estimated cost of USD\$10 million. As part of the DFS, the company is operating a pilot facility in California and a demonstration plant on site to produce five tonnes of lithium carbonate. The company's goal is to complete the DFS and an ESIA during 2021 and be in position to fund and develop Kachi by year end.

Kachi to produce purer lithium with a cleaner process.

While Kachi's economics clearly justify its development, we believe the environmental side of the story is significantly more important. While most of the developed lithium assets in the lithium triangle produce using solar evaporation ponds, LKE intends to use a proprietary direct extraction process. The company has partnered with Lilac Solutions, which is providing the direct extraction technology for the project. The direct extraction process works by pumping lithium brine to the surface and then extracting lithium before returning the majority of the brine back to the ground. A simplified flow sheet for the process is shown in Exhibit 2.



There are a number of key benefits to using direct extraction compared to traditional evaporation ponds. First and foremost, this process has a significantly lower environmental impact. We note that in evaporation most of the brine water is lost via evaporation, while direct extraction returns 99% of the brine to the ground. We also note that the footprint of a direct extraction facility is significantly smaller than that of an evaporation facility (potentially up to 90% smaller based on LKE's estimates).

Other benefits include: lower variations in products, little to no impact from weather, equipment is modular and thus, scalable, higher purity lithium with less deleterious minerals, a shorter cycle (three hours compared to years), and potential for application in non-dry climates. Given the significant benefits that direct extraction has as compared to traditional evaporation, we believe that it is likely that direct extraction will become the dominant process for producing lithium from brine resources in the future. In our view, companies like LKE simply need to demonstrate proof of concept at a commercial scale before the industry looks to move in that direction.

Other projects provide further upside potential.

While Kachi is significantly more advanced than Lake's other projects, we still believe they offer potential value and upside to investors. The company owns three projects (Cauchari, Olaroz, and Paso) in the heart of the lithium triangle in the Jujuy Province of Argentina. These projects neighbor the existing evaporation production operations of Orocobre (ORE.AX-NC) and the in development Lithium Americas (LAC-Neutral) and Ganfeng JV. Given these projects neighbor existing brine resources, we believe it is likely they could also contain significant lithium deposits. In order to unlock this potential, the company intends to spend AUD\$1.0 million on exploration at the projects in 2021. Based on the results of this work, we would anticipate an increase in future exploration budgets.

We also note that the company owns the Catamarca project in the Catamarca Province, which is a pegmatite style deposit. The region has a history of small scale production of lithium spodumene. Ultimately, we believe this project is last in the queue for the company as it would not be amenable to brine extraction technologies. For the combination of these assets and the future optionality they provide, we assign a value of AUD\$50 million.

FUNDING ANALYSIS

As of June 30, 2020, LKE had AUD\$0.1 million in cash and no debt. Subsequent to June 30, 2020, the company completed two financings and received cash from options exercises totaling AUD\$25.2 million. Thus, we believe the company is well funded to complete its DFS on the Kachi project. Following the completion of the DFS, we anticipate the company could look to fund the development of Kachi through a combination of debt, equity, and potentially offtake agreements.

LITHIUM MARKET UPDATE AND OUTLOOK

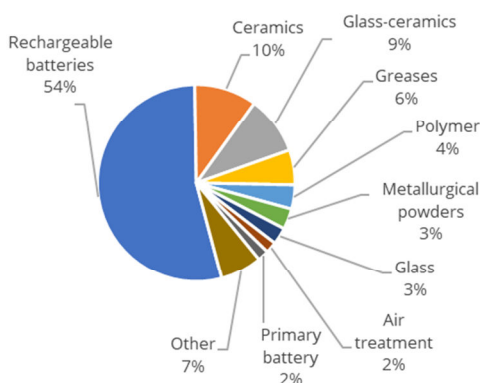
We believe a significant aspect of the potential value of LKE is related to how the company fits into the overall lithium market. In this section, we discuss types of production and the environmental impact of each from our point of view. Additionally, we provide an update on current pricing and our future pricing expectations. We note that our general outlook on lithium is premised on the electric vehicle (EV) market. Ultimately, we believe it is important to understand the implications of forecasted EV growth and its potential impact on supply and pricing of lithium.

Lithium market is now dominated by batteries.

As of 2019, rechargeable batteries made up 54% of lithium demand worldwide (see exhibit 3 below). With lithium demand now dominated by rechargeable batteries and the fastest growing use for rechargeable batteries being EVs, we believe it is clear that EV demand will drive future demand increases for lithium. However, we believe some of the expectations around the adoption of EVs and the subsequent increase in demand for lithium fail to factor the potential for lithium or another mineral to be a gating factor in the supply of electric vehicles. Some forecasts call for an increase in total lithium demand of over 1,500% by 2030 from a current market size of approximately 600,000 tonnes per year. Even if the prices of minerals needed for the manufacturing of EVs increase significantly, the responsiveness of supply is likely to be slow, in our opinion.

Based on our experience in the mining sector, we believe that it takes approximately 10 years to bring a project from discovery to production (assuming the project doesn't find a fatal flaw or significant roadblock during that 10-year period). Thus, we believe the forecasts for 2030 EV demand are significantly overstated. We note that even if every project that is currently at resource-stage or later was developed between now and 2030 production of lithium would still likely fall short of 2030 demand forecasts from EV industry experts, in our opinion. We also note that it is significantly unlikely that all of these projects will reach production in the next 10 years for a variety of reasons. Ultimately, this drives our bullish outlook for the price of lithium as we believe it is likely that lithium demand will outpace supply growth over the next decade.

Exhibit 3: 2019 Lithium Demand by End Use



Source: Roskill report "Lithium: Outlook to 2030, 17th Edition"

Sources of lithium point to changes in the future.

Currently, there are two main sources of lithium production in the world. The first is lithium brine production. Today, lithium brine production is accomplished by pumping lithium brines to the surface in dry climates and then allowing the brine to evaporate leaving behind lithium concentrate. We note there are a number of issues with this production methodology. First, the production is inconsistent due to unpredictable weather conditions. Second, the end product is a concentrated form of lithium, but it is also a concentrated form of any other minerals that were in the brine and thus, can require additional processing to remove these deleterious minerals. Lastly, the process tends to produce inconsistent products that require further processing in many cases and in some cases the projects fail to produce "battery-grade" lithium.

The second main source of lithium production is through conventional mining. Whether it be a hard-rock asset or a clay project, conventional mining requires significant upfront development capital. Additionally, deposits rarely have consistent grades throughout, which tends to drive inconsistent concentrate and thus, fluctuations in end products. While there have been less instances of conventional mining projects providing below battery-grade products once in production, there have been more cases of these projects failing to reach production.

Additionally, both of the above forms of supply have significant environmental impacts. Brine projects lead to significant reductions in water in regions that already have lower supplies of fresh water. Conventional mining runs the risks of tailings issues and tend to leave behind large open pits. As a result, there is a clear need for alternative sources of production that provide lower environmental impacts and more consistent results. Some alternative sources that have gained traction in recent years include recycling and seawater processing, but these sources are unlikely to grow at a rate necessary to support the growing EV industry.

This brings us to the direct extraction technology that LKE intends to use. Direct extraction technology involves pumping lithium brines to the surface, extracting lithium from the brine in a closed loop tank system, and then returning the brine to the ground. While this type of technology has not been deployed at commercial scale, it has been tested at pilot scale by a handful of companies including LKE. Ultimately, we believe this technology could become the dominant form of lithium production in the world in the future.

We note that this process has a number of benefits compared to both conventional and evaporation processes. First, the process has a significantly smaller surface footprint. Second, the process uses chemistry to extract only lithium and as such, produces a cleaner and purer form of lithium that EV manufacturers need for their batteries. Third, the process is scalable as it can be easily replicated to grow production as demand warrants. Lastly and perhaps most importantly, the process is likely to have the lowest environmental impact of the three main future sources. We note that Lake Resources is on the forefront of commercializing this process and that the company has a first-mover advantage in the lithium triangle, in our view.

Pricing finally recovering, but 2020 growth was below expectations.

Given the backdrop of continued demand growth in EVs in the future, it is likely that lithium prices will see upward pressure, in our view. In the longer-term, we believe the price of lithium carbonate will average \$12,000 per tonne, while we estimate a price of \$14,000 per tonne for lithium hydroxide. We note this is significantly above current reported prices of approximately \$6,000 and \$7,000, respectively. However, we note that EV sales growth was muted in 2020 due to the pandemic. We also use the term “reported” because lithium price realizations are not readily available and that the quality of lithium products is not consistent. Thus, there tends to be large variations in reported pricing.

While we use these prices for the basis of evaluating lithium projects, we note it is likely that lithium development companies will look to sign offtake agreements with battery manufacturers, which would then stabilize the pricing they receive. However, if our view that EV demand will significantly outpace lithium production growth over the next 10 years comes to fruition, it is likely that there will be periods where spot prices of lithium spike significantly above our medium-and-long-term forecasts. We believe this provides further upside for lithium stocks compared to our estimates and valuations.

MANAGEMENT

Stephen Promnitz (Managing Director): Mr. Promnitz joined LKE in 2016 as Managing Director. Before joining Lake, he was CEO of Indochine Mining and 21C Kingsgate Consolidated and held senior finance positions with Westpac and Citi. Mr. Promnitz has a Bachelor of Science with Honors from Monash University.

Stuart Crow (Chairman and Non-Executive Director): Mr. Crow has over 25 years of experience in the public markets and in particular energy.

Nick Lindsay (Technical Director): Mr. Lindsay has over 25 years of resources experience in South America, particularly in Argentina, Chile, and Peru. Previously, he was Managing Director of Laguna Resources and is currently CEO of Manuka Resources Ltd. (MKR.AX-NC). Mr. Lindsay has a Bachelor of Science degree with Honors in Geology, a PhD in Metallurgy and Materials Engineering, and an MBA.

VALUATION

We base our valuation of LKE on a sum of the parts analysis. Ultimately, we anticipate shifting our valuation to a DCF model once the company provides a DFS and updates its anticipated timeline to production. For our sum of the parts analysis, we assume a value of 60% of the PFS NPV of Kachi or AUD\$574.5 million. To this we add an estimated fiscal year end 2021 cash balance of AUD\$18.6 million and add AUD\$50 million for LKE's other projects and exploration potential. Thus, we arrive at a total valuation of AUD\$643 million or AUD\$0.60 per fully diluted share (1.07 billion). Thus, we are initiating coverage with a Buy rating and AUD \$0.60 price target.

Factors that could impede LKE from reaching our price target include, but are not limited to: unanticipated capital raises, project delays, capital overruns, underperformance of the lithium price, disappointing financial studies, or other unforeseeable events.

RISKS

Political risk. Natural resource companies are subject to significant political risk. Although most mining jurisdictions have known laws, potential exists for these laws to change. LKE has similar political risk to other companies in the lithium triangle in Argentina.

Commodity price risk. All natural resource companies have some form of commodity price risk. This risk is not only related to final products, but can also be in regards to input costs and substitute goods. LKE's most significant commodity price risk is to that of lithium, but the company is also likely to have other commodity price risks like to that of the price of energy.

Operational and technical risk. Natural resources companies have significant operational and technical risks. Despite completing NI 43-101 compliant (or similar) resource estimates, deposits can still vary significantly compared to expectations. Additionally, numerous unforeseeable issues can occur with operations and exploration activities. LKE has similar operational and technical risks to other direct extraction technology companies.

Pre-revenue risk. Currently, LKE is a pre-revenue company. There can be no guarantee that LKE will ever produce revenue or reach cash flow positive. As such, it is likely the company will need to raise additional capital.

Market risk. Although most natural resource companies are more closely tied to individual commodity price performance, large business cycle forces or economic crises can impact a company's valuation significantly. LKE has similar market risk to other lithium development companies.

Cautionary Note to US Investors: Estimates of Measured, Indicated and Inferred Resources

"Measured Mineral Resources" and "Indicated Mineral Resources." US investors are advised that although these terms are required by Canadian regulations, the US Securities and Exchange Commission (SEC) does not recognize them, and describes the equivalent as "Mineralized Material." US investors are cautioned not to assume that these terms are any form of guarantee.

"Inferred Mineral Resources." US Investors are advised that while this term is required by Canadian regulations, the SEC does not recognize it. "Inferred Mineral Resources" are not delineated with a great deal of certainty and should not be considered likely to be brought into production in whole or in part.

COMPANY DESCRIPTION

Lake Resources NL is an exploration and development company focused on developing its three lithium brine projects and one hard rock lithium project in the Lithium Triangle in Argentina. Lake holds a lithium lease which covers 180,000 hectares, which is 100% owned. The Company's project includes Olaroz - Cauchari and Paso Lithium Brine Projects, Kachi Lithium Brine Project and Catamarca Lithium Pegmatite Project. In Olaroz - Cauchari and Paso Lithium Brine Projects Lake holds mining leases over 45,000 hectares in two areas in Jujuy Province, in North West Argentina. The Kachi Project is a consolidated package of 54,000 hectares of mining leases owned 100% by Lake. The Kachi Lithium Brine Project is located in Catamarca province. Catamarca Lithium Pegmatite Project holds 72,000 hectares of potential lithium bearing pegmatites in Ancasti, Catamarca Province. *Source: Refinitiv as of 2/16/21*

LKE Key Estimates

Amounts in AUD million	H1 2019A	H2 2019A	2019A	H1 2020A	H2 2020A	2020A	H1 2021E	H2 2021E	2021E
Revenue	-	-	-	-	-	-	-	-	-
Operating Expenses	1.2	1.6	2.8	2.2	2.2	4.4	1.7	1.7	3.4
Operating Income	(1.2)	(1.6)	(2.8)	(2.2)	(2.2)	(4.4)	(1.7)	(1.7)	(3.4)
Other Expenses	0.1	0.3	0.4	0.1	0.4	0.5	0.1	-	0.1
Pretax Income	(1.2)	(2.0)	(3.2)	(2.3)	(2.6)	(4.9)	(1.8)	(1.7)	(3.5)
Taxes	-	0.4	0.4	0.0	0.0	0.0	-	-	-
Net Income	(1.2)	(2.3)	(3.5)	(2.3)	(2.6)	(4.9)	(1.8)	(1.7)	(3.5)
Basic EPS	(\$0.00)	(\$0.01)	(\$0.01)	(\$0.00)	(\$0.00)	(\$0.01)	(\$0.00)	(\$0.00)	(\$0.00)
FD EPS	(\$0.00)	(\$0.01)	(\$0.01)	(\$0.00)	(\$0.00)	(\$0.01)	(\$0.00)	(\$0.00)	(\$0.00)

Source: LKE annual and semi-annual reports, ROTH Capital Partners estimates

Note: LKE reports under AASB and under a June Fiscal year.

Joseph Reagor

jreagor@roth.com

(949)-720-7106

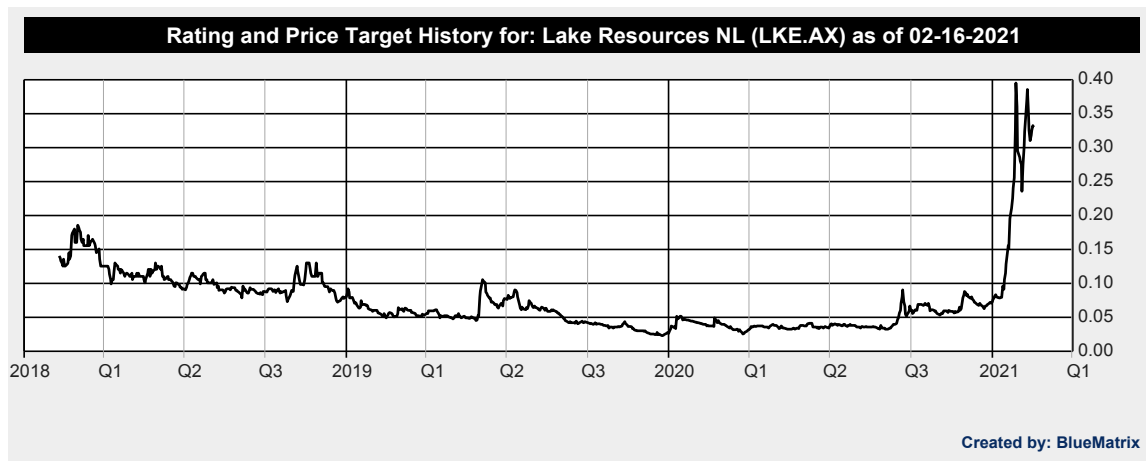
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Disclosures:

Within the last twelve months, ROTH has received compensation for investment banking services from Lake Resources NL.

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Each box on the Rating and Price Target History chart above represents a date on which an analyst made a change to a rating or price target, except for the first box, which may only represent the first note written during the past three years.

Distribution Ratings/IB Services shows the number of companies in each rating category from which Roth or an affiliate received compensation for investment banking services in the past 12 month.

Distribution of IB Services Firmwide

Rating	Count	Percent	IB Serv./Past 12 Mos. as of 02/17/21	
			Count	Percent
Buy [B]	306	78.46	186	60.78
Neutral [N]	52	13.33	21	40.38
Sell [S]	4	1.03	3	75.00
Under Review [UR]	28	7.18	20	71.43

Our rating system attempts to incorporate industry, company and/or overall market risk and volatility. Consequently, at any given point in time, our investment rating on a stock and its implied price movement may not correspond to the stated 12-month price target.

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Neutral: A rating, which at the time it is instituted and or reiterated, that indicates an expectation of a total return between negative 10% and 10% over the next 12 months.

Sell: A rating, which at the time it is instituted and or reiterated, that indicates an expectation that the price will depreciate by more than 10% over the next 12 months.

Under Review [UR]: A rating, which at the time it is instituted and or reiterated, indicates the temporary removal of the prior rating, price target and estimates for the security. Prior rating, price target and estimates should no longer be relied upon for UR-rated securities.

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