

Kachi Phase One DFS Results Investor Presentation

December 19, 2023

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Forward Looking Statements

Certain statements contained in this presentation, including information as to the future financial performance of the projects, 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 announcement 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.

Compliance Statement

The information contained in this presentation relating to financial forecasts, production targets, exploration results, Measured, Indicated and Inferred resource estimates, project execution, infrastructure and testing work, has been derived from the information in Lake's Kachi Project Phase One Definitive Feasibility Study Results and Lake's Ore Reserve Statement both announced on ASX on 19 December 2023 and mineral resource update announced on ASX on 22 November 2023. Lake confirms that it is not aware of any information that materially affects the information included in Lake's Kachi Project Phase One Definitive Feasibility Study Results and Lake's Ore Reserve Statement both announced on ASX on 19 December 2023 and mineral resource update announced on ASX on 22 November 2023 and all material assumptions contained in that announcement continue to apply and have not materially changed. On this basis, Lake confirms that the Competent Person's findings in Lake's Kachi Project Phase One Definitive Feasibility Study Results and Lake's Ore Reserve Statement both announced on ASX on 19 December 2023 and, in respect of Lake's mineral resource, in the mineral resource update announced on ASX on 22 November 2023, have not changed nor been modified in any material respects since those announcements.

Kachi Phase One DFS Highlights

Investment Highlights (\$ USD)

- Post-tax NPV of \$2.3 billion and IRR of 21%
- Annual average EBITDA of \$635 million
- \$1.38 billion of Capex¹
- \$6.05 / kg LCE of Opex

Project Highlights

- Total resource estimated at more than 10.6 Mt LCE, a globally significant resource²
- Defined and de-risked 25-year mine life supported by maiden Ore Reserve statement
- Mine Plan represents less than 12% of the Measured and Indicated Resource over the 25-year Life of Mine (“LoM”) and clear pathway to further expansion

Process Design Highlights

- Demonstration plant campaigns from Oct 2022 to Nov 2023, processed 5.2 million of litres of brine and produced over 200,000 litres of lithium chloride eluate³
- Project has produced in excess of 1,300kg of >99.5% purity lithium carbonate
- Process plant is conservatively designed for >75% lithium recovery

1. Level of Capex required from final investment decision to plant performance testing. Refer to Lake's Kachi Project Phase One Definitive Feasibility Study Results announced on ASX on 19 December 2023 for more details.

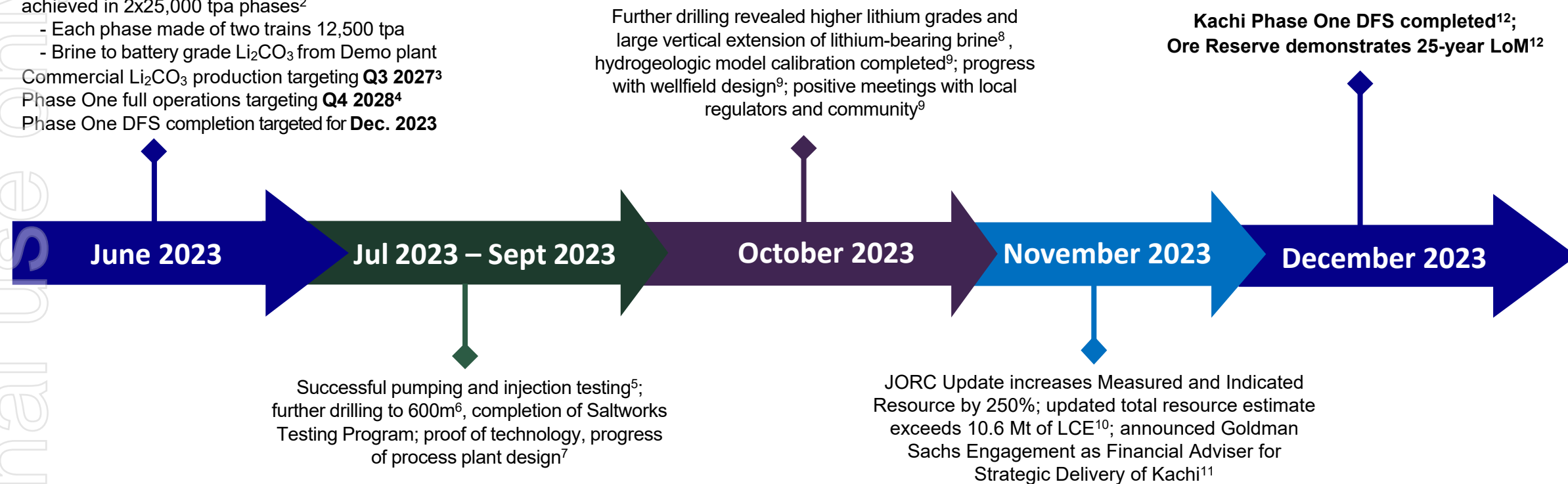
2. Refer to ASX announcement dated 22 November 2023.

3. Refer to ASX announcement dated 26 September 2023.

Execution of Phase One DFS

Announcement of de-risked project plan

- Construction of plants with total target capacity of 50,000 tpa achieved in 2x25,000 tpa phases²
 - Each phase made of two trains 12,500 tpa
 - Brine to battery grade Li_2CO_3 from Demo plant
- Commercial Li_2CO_3 production targeting **Q3 2027**³
- Phase One full operations targeting **Q4 2028**⁴
- Phase One DFS completion targeted for **Dec. 2023**



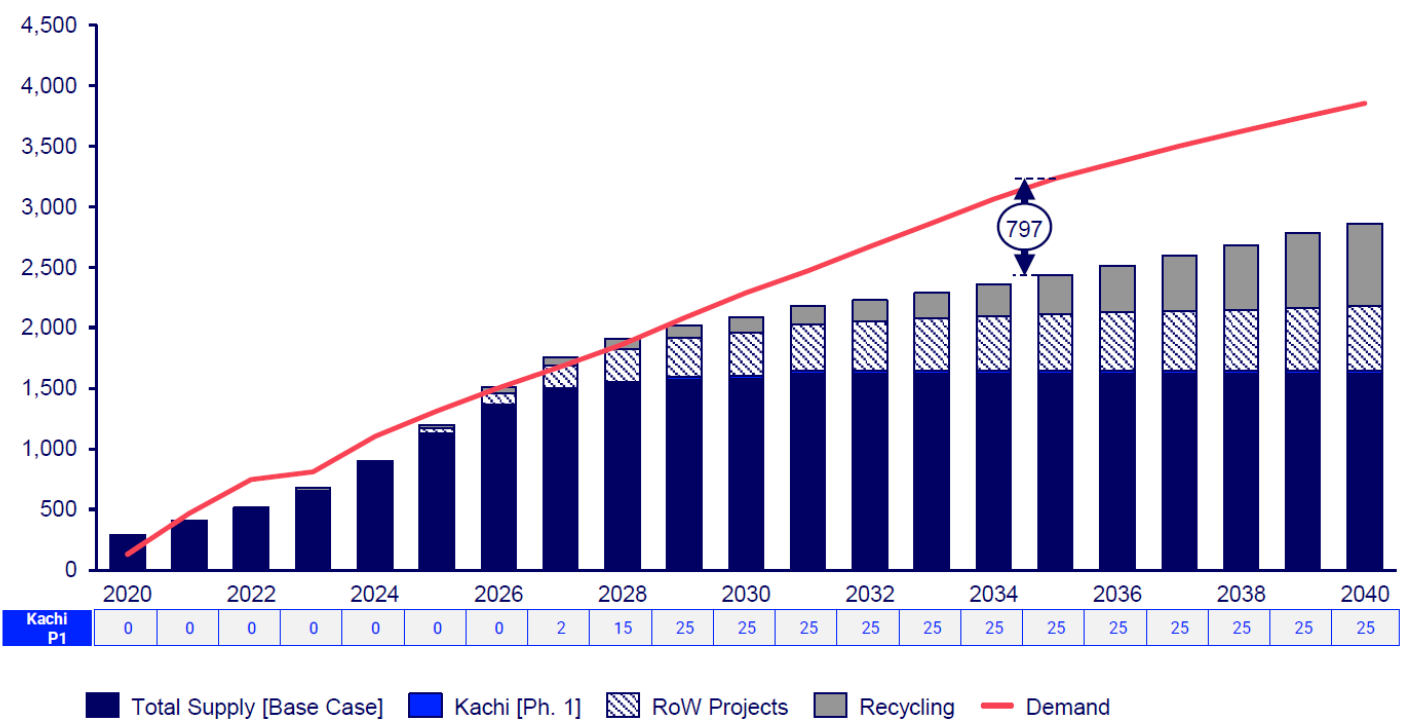
Tpa = tonnes per annum
DFS = Definitive Feasibility Study

1. Refer to ASX announcement dated 19 June 2023. 2. 25,000 tpa as pertaining to Phase Two refers to Lake's intention to construct a plant with an additional capacity of 25,000 tpa and is not a production target, nor predictions of what the Phase Two plant will produce. Further information will be available upon completion of the Phase Two DFS. 3. When first train (12,500 tpa) in Phase One commences operation. Refer to Lake's Kachi Project Phase One Definitive Feasibility Study Results announced on ASX on 19 December 2023. 4. When second train (12,500 tpa) in Phase One commences operation. Refer to Lake's Kachi Project Phase One Definitive Feasibility Study Results announced on ASX on 19 December 2023. 5. Refer to ASX announcement dated 15 August 2023. 6. Refer to ASX announcement dated 22 August 2023. 7. Refer to ASX announcement dated 26 September 2023. 8. Refer to ASX announcement dated 26 September 2023. 9. Refer to ASX announcement dated 31 October 2023. 10. Refer to ASX announcement dated 22 November 2023. 11. Refer to ASX announcement dated 29 November 2023. 12. Refer to ASX announcements dated 19 December 2023.

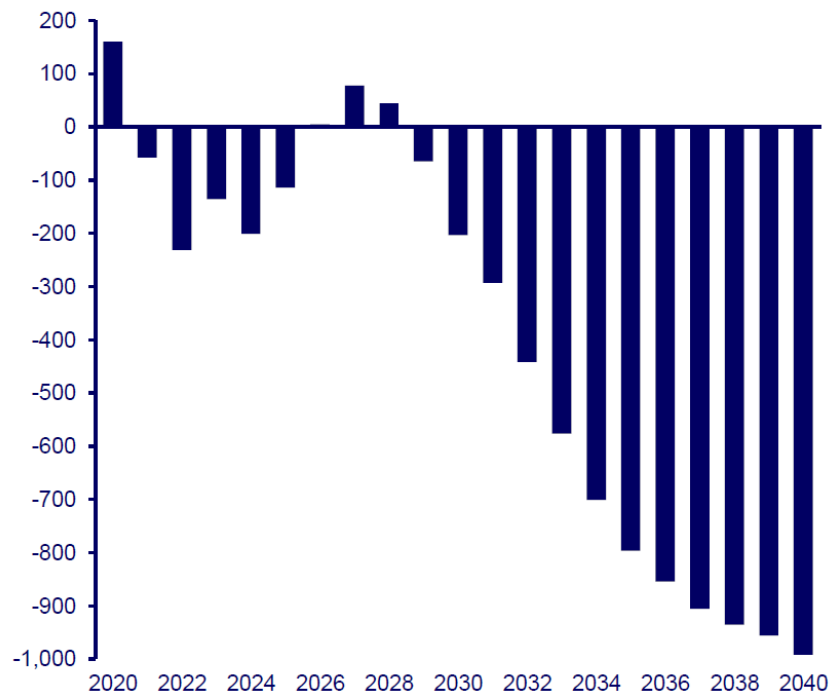
While the lithium market as a whole may not reach sustained deficit until 2031, the battery grade market is anticipated to be significantly tighter

- Deficits could emerge in the near term, and extend to ~1Mt LCE by 2040, with Kachi's anticipated ~25Ktpa of Phase One battery grade carbonate production likely to have sufficient demand headroom in the long-term

Battery Grade Lithium Chemical Balance (All Projects, Kt LCE)

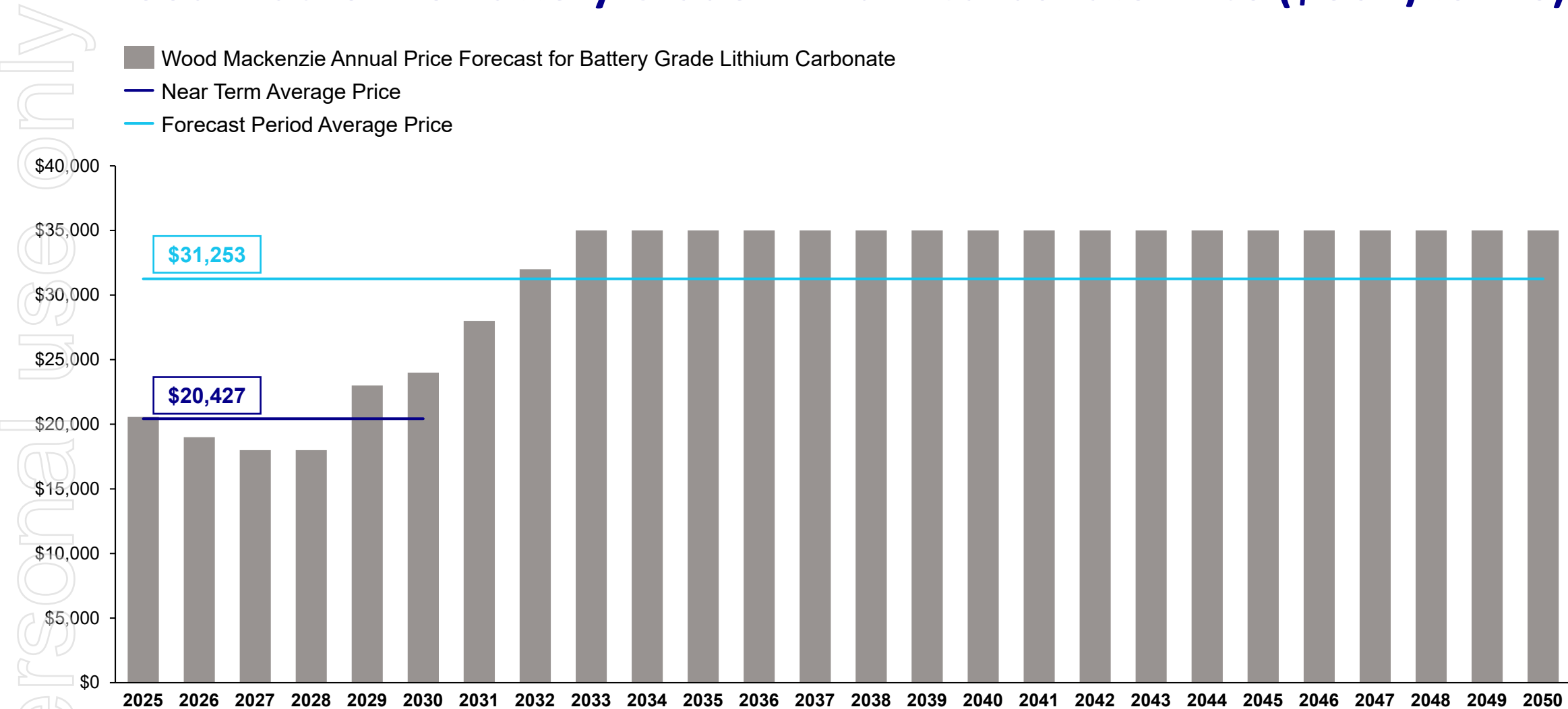


Net Balance (All Projects, Kt LCE)








Source: Wood Mackenzie
Only Wood Mackenzie assumptions for Kachi Phase One volumes are referenced. Refer to Lake's Kachi Project Phase One Definitive Feasibility Study Results announced on ASX on 19 December 2023.

Wood Mackenzie Battery Grade Lithium Carbonate Price (\$USD/tonne)

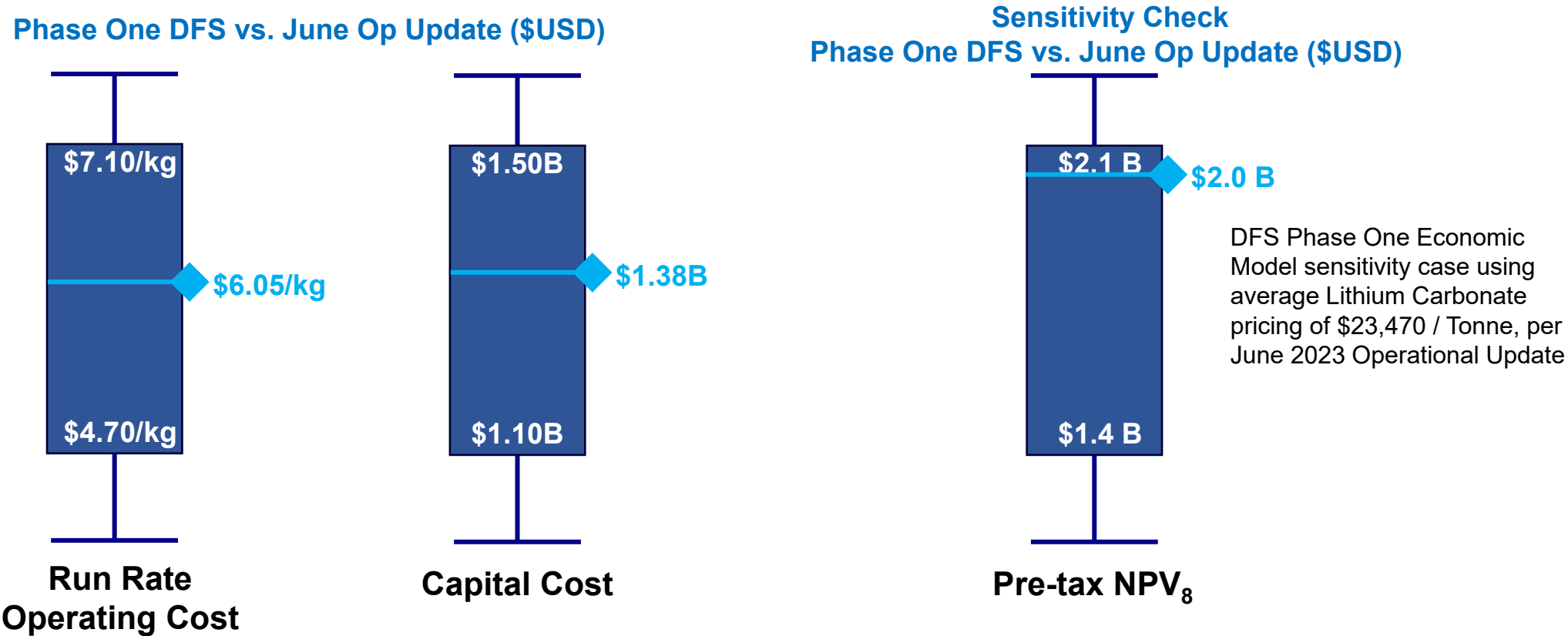


Source: Wood Mackenzie. Refer to Lake's Kachi Project Phase One Definitive Feasibility Study Results announced on ASX on 19 December 2023. Weighted average for DFS Phase One model \$33,000 / tonne over the LoM,

Commitments from Operational Update

Reservoir	<ul style="list-style-type: none">■ Completion of Phase One DFS Field Test Work (end of pumping)■ Completed Groundwater Model	
Lithium Carbonate Demo Plant	<ul style="list-style-type: none">■ Completion of demo plant test work	
Power	<ul style="list-style-type: none">■ Power solution defined	
Funding	<ul style="list-style-type: none">■ Engaged Goldman Sachs as Financial Adviser to Kachi Project;■ Continued engagement with Export Credit Agencies and supporting commercial banks for project debt financing	
Kachi Phase One DFS	<ul style="list-style-type: none">■ Phase One DFS Complete	

Kachi Phase One DFS confirms expectations from June 2023 Operational Update



Capex, Opex and NPV₈ are within the bands from June Operational Update

Personal use only

Strong Community and Government Engagement

- Looking forward to building relationship with recently elected Federal government.
- Continued strong relationship with Catamarca government.
- Monthly meetings with local government and community to provide status updates of Kachi Project.
- Emphasis on training directly related to the future construction phase.
- Creating Scholarship Program, inclusive of financial aid, for students of tertiary and university level in El Peñón and Antofagasta de la Sierra.
- Educational activities in primary and secondary schools related to Kachi Project.
- Providing assistance to community with access to diesel, water and other necessary items, as well as improving communications and access to information.



Kachi Project Phase One DFS Highlights



>10.6 million tonnes LCE Mineral Resource

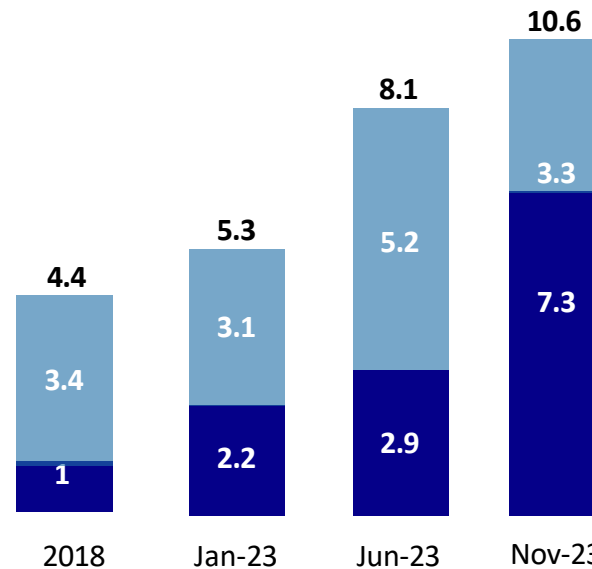
Kachi M&I resource estimate increased 250% since June 2023

Resource expansion from June 2023 update¹:

- Measured resource has increased **from 2.2 to 3.0 million tonnes LCE**
- Indicated resource has increased **from 0.72 to 4.3 million tonnes LCE**
- Inferred resource has decreased **from 5.2 to 3.3 million tonnes LCE**

Exploration Target¹:

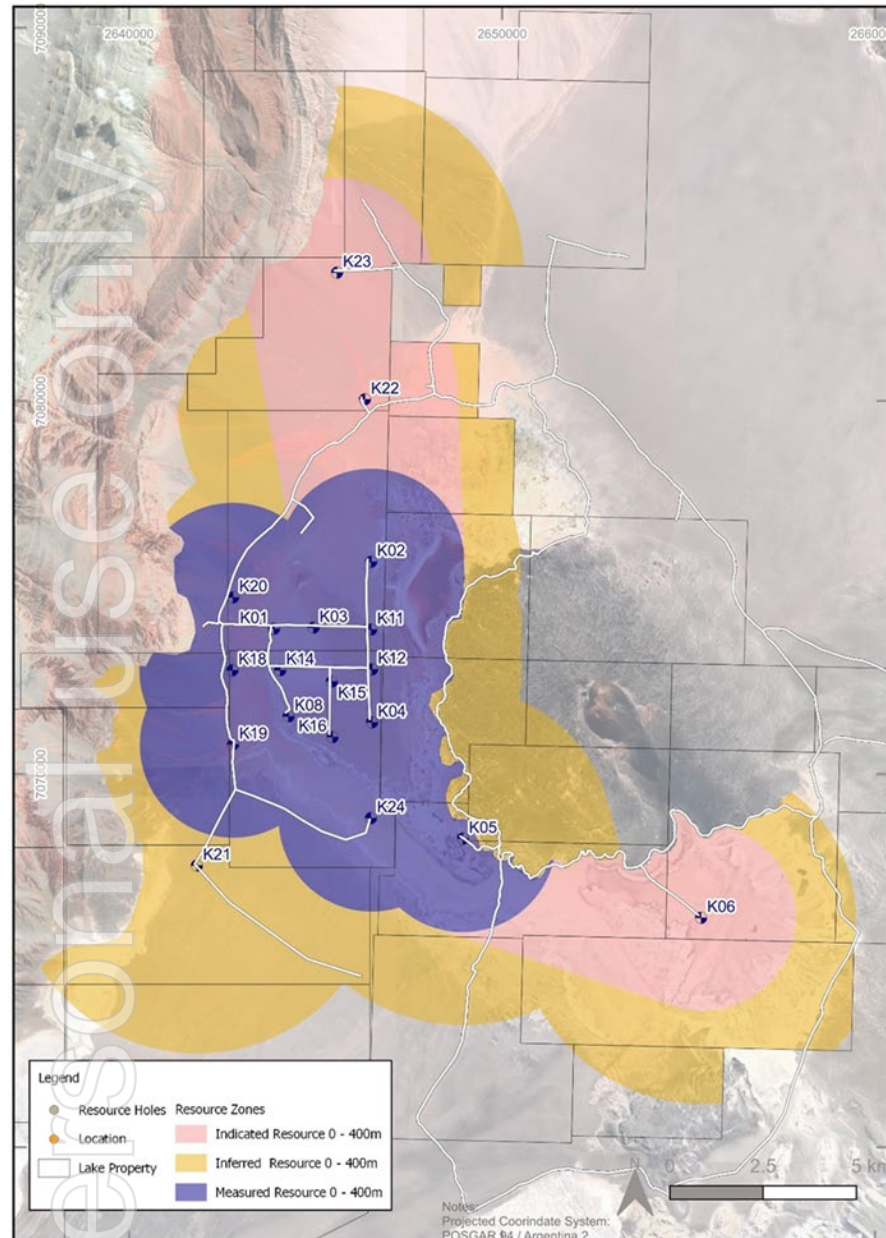
- High: 14.8 million tonnes LCE;
Low: 3.7 million tonnes LCE



■ Measured & Indicated ■ Inferred
Resources in Million Tonnes LCE

¹ Numbers are based on information in Lake's JORC update announced on 22 November 2023. Refer to the Appendix for details of individual categories of the mineral resource. All material assumptions contained in that announcement continue to apply and have not materially changed

Note: The potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the exploration target itself will be realized.



Maiden Ore Reserve Statement



Reserve Category	Years	Lithium (Tonnes)	LCE (Tonnes)	Average Lithium (mg/l)
Proved	1	3,600	18,900	259
Proved	2-7	28,500	151,400	257
Probable	8-25	85,400	454,100	245
Total	1-25	117,400	624,400	

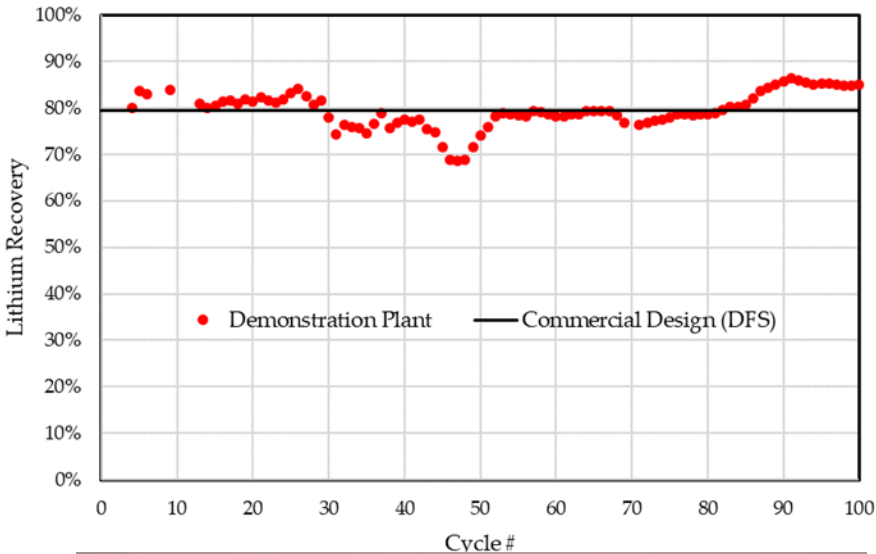
- Globally Significant Resource: The mine plan produces 806k tonnes LCE (allowing for a factor of safety), this is less than 12% of the Measured and Indicated Resource
- High level of confidence: More than 85% of production is derived from Measured Resource, remainder from Indicated
- Wellfield layout (16 Production Wells and 21 Injection Wells) designed to:
 - Maximize lithium grade recovered;
 - Maximize Proved Ore Reserve; and
 - Minimize environmental impacts
- Modelling supports reinjection strategy; maintaining reservoir pressures and minimizing potential environmental impacts

Ore Reserve constrained by plant capacity

DLE – Lilac Solutions Ion Exchange

- On-site demo plant operated in campaigns from October 2022 to November 2023
 - Over 5.2 million litres of Kachi brine successfully processed
 - During continuous operations >90% uptime
 - 200,000 litres of lithium chloride eluate produced (~2,280 mg/L)
- Independent witness & validation reviews completed for DFS data**

Key Results	Oakland Mini Pilot	Kachi Demo Plant	Validation
Lithium Recovery	80%	80%	Matches DFS design. Best in class performance
Product Lithium Concentration (mg/L)	2300	2280	Matches DFS design. Best in class performance
Impurity Rejection	100%	100%	Matches DFS design. Best in class performance
Acid Consumption (tHCl/tLCE)	1.5	1.5	Matches DFS design. Best in class performance



Balance of Plant – Saltworks Technologies

- 120,000 litres processed in 3 batches in Canada
 - All batches achieved battery grade lithium purity target (>99.5%)
 - Up to 99.9% purity achieved
 - Independent validation of results
 - Data produced to support DFS completion
 - >1,300 kg of samples created for offtake testing

Figure 7-6: Summary results Saltworks for Kachi Demonstration Plant Eluate

Batch		1	2	3
DLE Eluate Processed	m ³	32.1	46.0	40.2
Average DLE Lithium Concentration (mg/L)	mg/L	3,097	3,468	4,392
Lithium Carbonate Produced	kg	350	411	578
Lithium Purity ^{Note1}	%	99.7%	99.8%	99.9%

^{Note1} Purity as calculated based on sum of measured impurities above detection limit. |



Scope of the Phase One DFS

Work Completed

- Basis of Design
 - Conservative assumptions (205 mg/L vs. 245 mg/L minimum average)
- Heat & Material Balance (HMB)
 - Confirmed >75% lithium recovery
- Process flowsheet
- Process plant 3-D model
- Wellfield layout and well design
- Numerical reservoir model
- Power transmission system
- Process validation reports
- Logistics & transportation assessment
- AACE¹ Class 3 estimate (+/- 15%)

1. Association for the Advancement of Cost Engineering

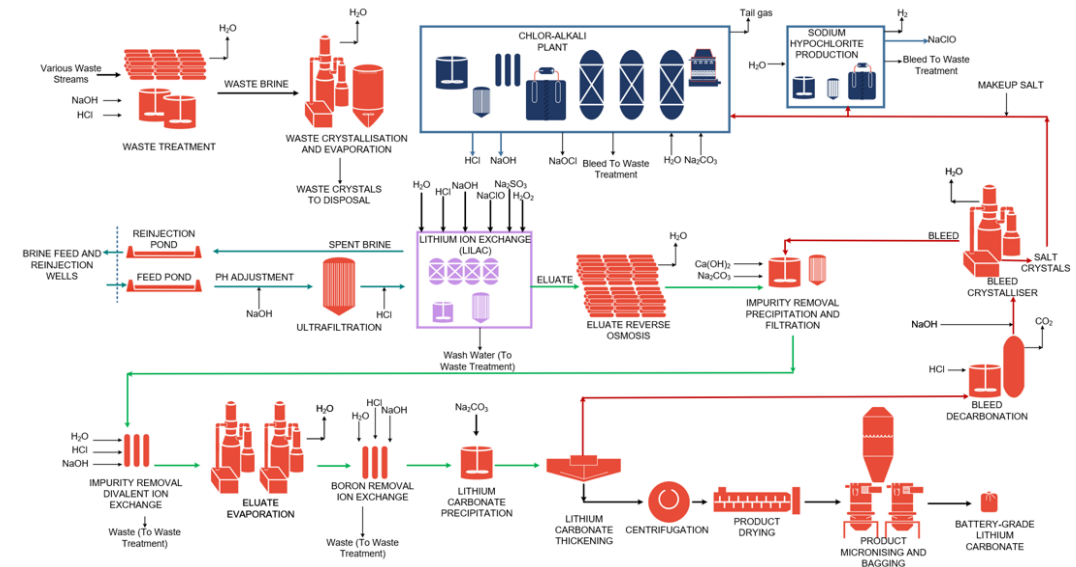
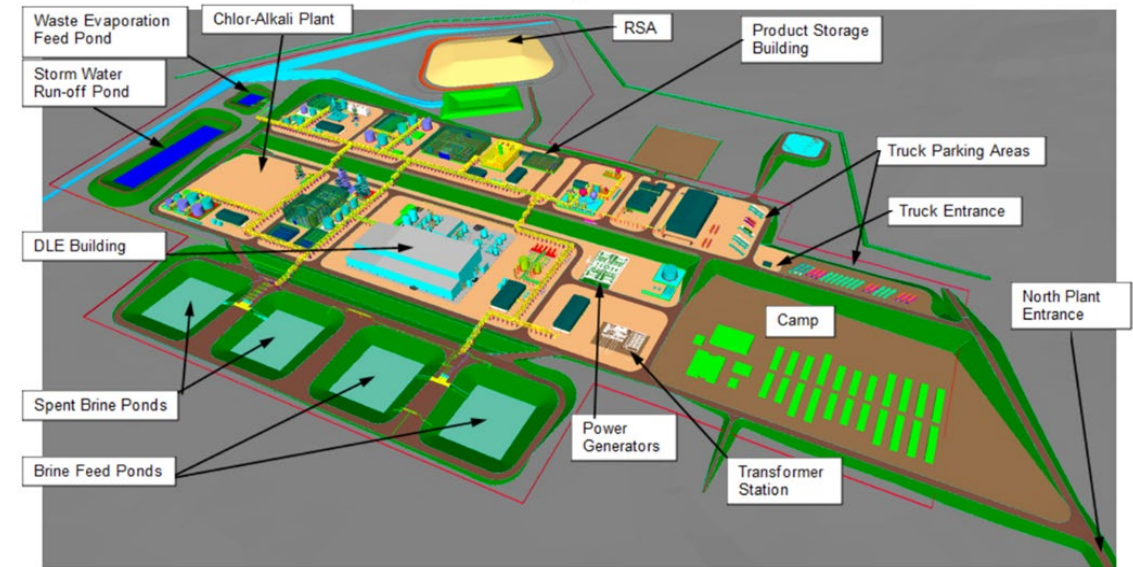


Figure 7-1: Schematic of Proposed Lithium Carbonate Plant

Exceptional Financial Results

Targeted project financial results¹ (\$USD)

Phase One DFS Financial Outputs

Phase One – 25 ktpa LCE Production Target ²		
\$827M Annual Lithium Carbonate Revenues	\$2.3B Post-Tax NPV ₈	20.9% Post-Tax IRR
\$635M Annual Average EBITDA ³	\$3.9B Pre-Tax NPV ₈	25.4% Pre-Tax IRR
25 years Life of Mine	\$1.38B Capital Cost	\$6.05/kg Run Rate Operating Cost

	Units	Period	DFS Result
Lithium Carbonate Revenue	\$M	Life of Mine	20,700
Lithium Carbonate Revenue	\$M	Annual Average	827
EBITDA ²	\$M	Life of Mine	15,870
EBITDA ²	\$M	Annual Average	635
EBITDA Margin	%	Run Rate	76%
Net Profit After Tax	\$M	Life of Mine	8,959
Average Opex	\$/t	Run Rate	6,047
Total Capex	\$M		1,376
NPV ₈ Post-Tax	\$M		2,333
NPV ₈ Pre-Tax	\$M		3,854
IRR Post-Tax	%		20.91
IRR Pre-Tax	%		25.35
Total Free Cashflows	\$M	Life of Mine	9,310
Payback Period	Years		4.25

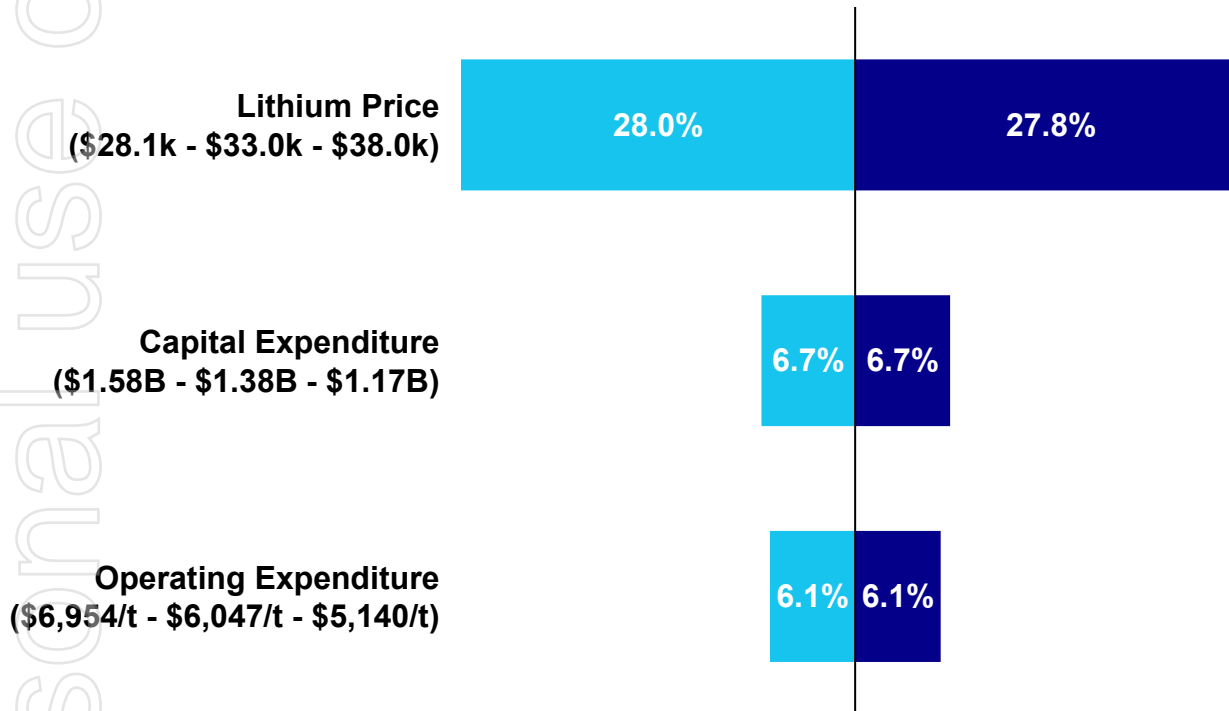
1. Economics based on average price of \$33,000 per tonne LCE over the LoM, derived from forward price projection provided in a bespoke study commissioned by the Kachi project with Wood Mackenzie and delivered in December 2023. Operating costs include labor, maintenance, materials, supplies, raw materials, outside services, among others.

2. See the Company's JORC technical report dated effective December 19, 2023, "Kachi Lithium Brine Definitive Feasibility Study" for full details regarding material assumptions relied upon. Lake confirms the material assumptions in that announcement continue to apply and have not materially changed.

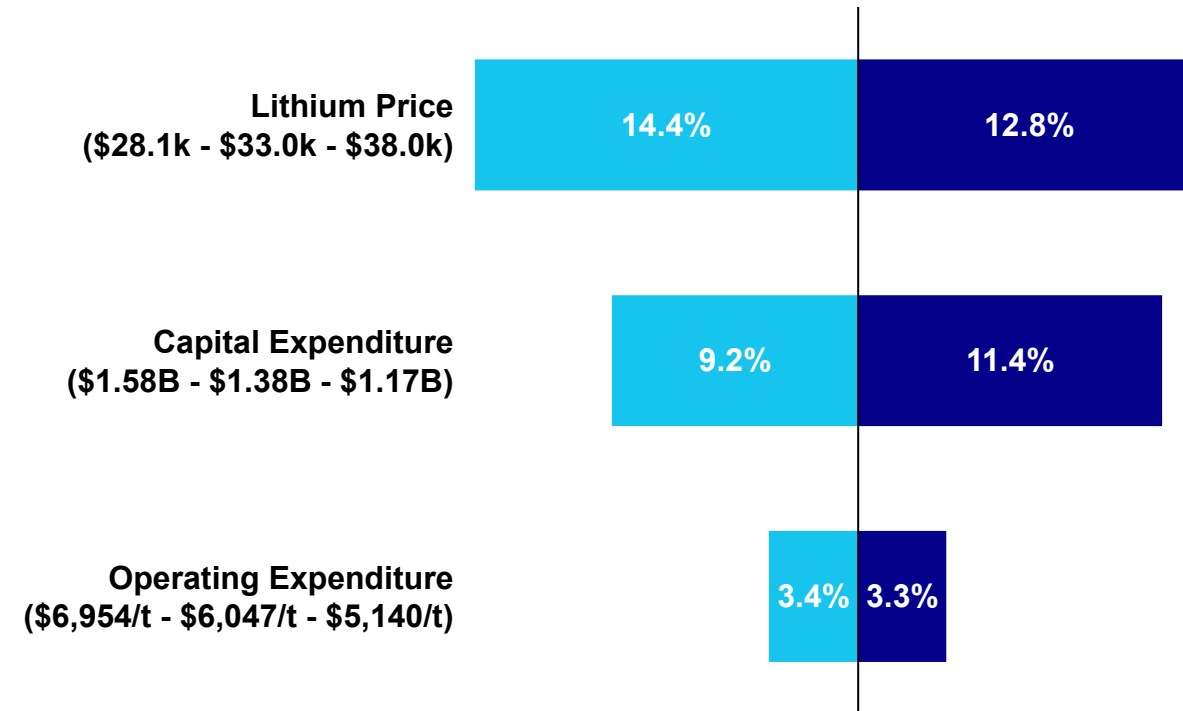
3. Please see "Non-GAAP Financial Measures" in the appendix.

The Kachi Project is resilient to Opex and Capex factors

Post-Tax NPV₈ Sensitivities Chart (-15% / +15%; Base \$2,333M) (\$USD)



Post-Tax IRR Sensitivities Chart (-15% / +15%; Base 20.9%) (\$USD)



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Ready to move into 2024 - plan consistent with June 2023 Operational Update

Kachi Project Next Steps



Next Twelve Months

Strategic Partner Process for Kachi Project	<ul style="list-style-type: none">▪ Process initiated, led by Goldman Sachs
Offtake	<ul style="list-style-type: none">▪ Commencement of negotiations to secure binding offtake agreements, in tandem with strategic partnering process
EIA	<ul style="list-style-type: none">▪ The submission of the Environmental and Social Impact Assessment (“EIA”) in early 2024, in support of the Catamarca Province development permit application
FEED/EPCM	<ul style="list-style-type: none">▪ Selection of FEED/EPCM contractor for the Process Plant
Power	<ul style="list-style-type: none">▪ Selection of an Independent Power Producer (“IPP”) for the Power Purchase Agreement (“PPA”)
Project Financing	<ul style="list-style-type: none">▪ Continued engagement with Export Credit Agencies and the supporting commercial banks for project financing

Credible, Achievable and De-risked

Compelling Project Economics

- Robust and competitive NPV and IRR
- Completion of Phase One DFS allows Lake to open a data room and engage with strategic investors, potential offtakers, and debt providers

Globally Significant Resource

- Ore Reserve constrained by plant capacity
- Mine Plan represents less than 12% of Measured and Indicated Resource over the 25-year Life of Mine

Further Optimization

- Opportunities for increasing Capex and Opex efficiencies between now and start of production, targeted for 2027
- Optimization opportunities already identified



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Thank you!

Appendix



Measured November 2023 (to 400 m depth)								
Unit	Sediment Volume m ³	Specific Yield %	Brine volume m ³	Liters	Li mg/l	Li grams	Li Tonnes	Tonnes LCE
A	11,001,000,000	0.078	858,078,000	858,078,000,000	210	179,783,644,000	180,000	956,000
B	4,366,100,000	0.081	352,090,000	352,090,162,000	229	80,628,647,000	81,000	429,000
C	8,007,400,000	0.068	544,503,000	544,503,200,000	230	125,427,401,000	125,000	667,000
Fan West	8,833,000,000	0.095	839,135,000	839,135,000,000	220	184,609,700,000	185,000	982,000
Total	32,207,500,000	-	2,593,806,000	2,593,806,362,000	-	570,449,393,000	570,000	3,035,000
Indicated November 2023 to 600 m								
Unit	Sediment Volume m ³	Specific Yield %	Brine volume m ³	Liters	Li mg/l	Li grams	Li Tonnes	Tonnes LCE
A (South)	3,694,300,000	0.076	278,924,000	278,924,452,000	181	50,485,326,000	50,000	269,000
B (South)	1,489,000,000	0.075	111,543,000	111,543,670,000	179	19,959,624,000	20,000	106,000
C (South)	4,382,400,000	0.067	294,407,000	294,407,879,000	182	53,582,234,000	54,000	285,000
A (North)	3,075,200,000	0.095	292,144,000	292,144,000,000	232	67,891,052,000	68,000	361,000
B (North)	4,294,400,000	0.095	407,968,000	407,968,000,000	241	98,166,484,000	98,000	522,000
C (North)	9,188,400,000	0.092	845,333,000	845,332,800,000	182	206,021,447,000	206,000	1,096,000
400 – 600m Under Salar	12,230,170,000	0.066	806,922,000	806,922,156,000	242	195,275,162,000	195,000	1,039,000
400 – 600m West Fan Deep	4,858,200,000	0.092	446,954,000	446,954,400,000	244	109,056,874,000	109,000	580,000
Total	43,212,070,000		3,484,197,000	3,484,197,358,000		800,438,203,000	800,000	4,258,000
Combined Measured + Indicated								
	75,419,570,000		6,078,004,000	6,078,003,721,000		1,370,887,596,000	1,370,000	7,293,000
Inferred November 2023								
Unit	Sediment Volume m ³	Specific Yield %	Brine volume m ³	Liters	Li mg/l	Li grams	Li Tonnes	Tonnes LCE
A	4,756,500,000	0.080	378,325,000	378,325,351,000	185	69,975,435,000	70,000	372,000
B	1,671,300,000	0.079	131,198,000	131,197,886,000	191	25,101,960,000	25,000	134,000
C	5,287,600,000	0.074	393,746,000	393,746,422,000	218	85,950,119,000	86,000	457,000
Fan North	8,895,490,000	0.081	716,324,000	716,324,455,000	232	166,081,974,000	166,000	884,000
Fan South	12,248,490,000	0.064	781,249,000	781,249,112,000	239	186,718,538,000	187,000	993,000
Under volcano	6,718,700,000	0.074	500,471,000	500,471,260,000	192	96,334,211,000	96,000	512,000
Total	39,578,080,000		2,901,314,000	2,901,314,485,000		630,162,237,000	630,000	3,352,000

Note: This table has been directly extracted from the JORC update announced on 22 November 2023. Lake Resources N.L. confirms that it is not aware of any information that materially affects the information included in Lake's JORC update announced on ASX on 22 November 2023 and all material assumptions contained in that announcement continue to apply and have not materially changed.

Definitions

Note: These financial definitions are alternative performance measures that are not defined or specified under IFRS or AASC standards and for which there are no generally accepted reporting formats

- EBITDA = Earnings before Interest, Taxes, Depreciation and Amortization
- IRR = Internal Rate of Return
- NPV_8 = Net Present Value calculated using 8% WACC
- WACC = Weighted Average Cost of Capital

This presentation includes certain non-GAAP financial measures or ratios, including the average annual EBITDA regarding the results of the internal preliminary analysis. These measures have no standardized meaning under IFRS and may not be comparable to similar measures used by other issuers. The Company believes these measures and ratios provide investors with an improved ability to evaluate the Company's prospects, and in particular, the Kachi Project. As the Kachi Project is not in production, the prospective non-GAAP financial measures or ratios presented may not be reconciled to the nearest comparable measure under IFRS and the equivalent historical non-GAAP financial measure for the prospective non-GAAP financial measures or ratios discussed herein is nil.