

# Alpha Lithium Updates and Improves Preliminary Economic Assessment for Tolillar Project in Argentina

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- US\$1.7 billion (CDN\$2.3 billion) after-tax NPV8 with an IRR of 25.6%
- US\$8.2 billion (CDN\$11.0 billion) of cumulative free cash flow over a 35-year mine life
- 3.7-year after-tax payback period from start of production
- Significant upside potential remains from over 60% of salar not yet drilled or included in this PEA

VANCOUVER, British Columbia, Aug. 14, 2023 -- [Alpha Lithium Corp.](#) (NEO: ALLI) (OTC: APHLF) (German WKN: A3CUW1) ("Alpha" or the "Company"), a company developing a portfolio of highly prospective lithium assets in Argentina, today announced the results of an updated Preliminary Economic Assessment ("PEA") for its wholly owned Tolillar lithium brine project in the Salta Province of Argentina ("Tolillar"). This recent PEA is an update to last month's PEA (see July 10, 2023 news release), which now includes additional resources identified less than one month ago (see July 17, 2023 news release). This PEA provides an independent, third-party economic assessment of the potential value of Tolillar, based on the latest estimation of lithium resources.

The PEA evaluated a 25,000 tonnes per annum ("tpa") commercial-scale operation to produce battery-grade lithium carbonate chemicals. Importantly, the study does not include the planned 25,000 tpa second phase expansion. Instead, the Company opted for a update to the previous PEA, simplifying and dramatically accelerating the report's delivery time, which will be more useful for the Company's ongoing and expanded strategic review process (the strategic review process is more fully described in the June 23, 2023 news release).

Brad Nichol, President & CEO of Alpha commented, "The results of the PEA demonstrate that Alpha's Tolillar project is an exceptionally robust lithium carbonate project, even with conservative assumptions. Tolillar represents one of the last, large, independent, wholly-owned lithium brine salars globally, and once the latest technical work is incorporated, Tolillar should become an even larger and longer-lived operation. Additionally, with its substantial fresh-water source on site, it is not difficult to understand why Tolillar is such a sought-after target." Nichol added, "I am very pleased with the speed at which Alpha's team has advanced the Tolillar project from a greenfield site to PEA. To demonstrate the viability and significant economic potential of such a project speaks to the abilities of our unique team of experienced lithium specialists."

## PEA Highlights:

- US\$1.7 billion (C\$2.3 billion) after-tax NPV with an 8% discount rate and IRR of 25.6%
- Average Li<sub>2</sub>CO<sub>3</sub> price of \$23,146 per tonne, over 35 years of production
- After tax payback period of 3.7 years from start of production
- After tax, cumulative free cash flow of US\$8.2 billion (\$C11.0 billion) over a 35-year production life
- Initial capital cost ("CAPEX") of \$777 million (includes contingency of \$179 million)
- Brine mining and processing cost, excluding Li<sub>2</sub>CO<sub>3</sub> transport, ("OPEX") of \$5,172 per tonne
- Cash cost of \$5,980 per tonne (includes mining, processing, G&A, transportation, and royalties)

The PEA was prepared by Ausenco Chile Limitada ("Ausenco"), a global engineering firm, experienced in the lithium industry. Ausenco has prepared multiple economic assessments and feasibility studies, specifically for, but not limited to, South American lithium brine extraction companies over the past several years. In addition to being DLE and production process experts, Ausenco's knowledge was invaluable for assessing current and conservative operating and capital costs, which incorporated the latest global cost estimates. All values are reported in US dollars, unless otherwise noted. References to CDN\$ have been converted at 1.35 x US\$.

## Economic Analysis and Summary:

Lithium chemicals produced from brines are almost universally less expensive than those produced from hard rock, giving brine operations a significant competitive advantage. Specifically, the Tolillar project benefits meaningfully from the following:

1. Immediate proximity to (10-15 km from) Livent's Fenix Project, which has produced approximately 20,000 tpa of lithium carbonate chemicals for over two decades. Tolillar will dramatically benefit from the existence of a national high-grade highway (6 km away) connecting the project to supplies and services, a nearby (6 km) high-pressure natural gas pipeline with existing capacity, nearby (90 km) 3-phase power, and nearby (90 km) international rail lines.
2. A significant freshwater discovery on the north, south and west sides of the Tolillar salar, with the western discovery being capable of supporting a major lithium chemicals plant, on its own.
3. A proven DLE-based production process, built upon a process that has been tested and utilized for over two decades in Argentina. Alpha's production technology has been developed by an expert team with unmatched, hands-on, DLE and production experience.
4. Being the sole owner of the Tolillar salar eliminates potential conflicts or competition for production, fresh water, equipment, and personnel.

The Discounted Cash Flow Model, generated independently by Ausenco, with an outside consultant providing tax estimate advice, demonstrates an attractive economic result from the potential production of lithium carbonate chemicals from the Tolillar project. As a result, the Company expects to continue construction of its 120 tpa pilot plant, which will provide the necessary data to support the design and feasibility study for the 50,000 tpa lithium carbonate chemicals plant envisioned by Alpha.

Discount Rate	NPV (after tax) US\$ million	IRR (after tax)	NPV (pre-tax) US\$ million	IRR (pre-tax)
6%	\$2,469	25.6%	\$3,881	30.7%
8%	\$1,739	25.6%	\$2,773	30.7%
10%	\$1,242	25.6%	\$2,019	30.7%

(NPV) Net present value - (IRR) Internal rate of return

The PEA NPV results take into account royalties that are specifically applicable to the Tolillar project.

Alpha has a strong technical team with extensive lithium experience leading its efforts in Argentina.

#### Initial Capital Costs:

Description	US\$ millions
<b>Direct Costs:</b>	
Brine Extraction Wells	\$35.7
DLE Plant	\$107.5
Reverse Osmosis	\$67.8
Chemical Plant	\$27.7
Purification	\$22.5
Dry Product Handling	\$27.5
General Utilities	\$68.1
Infrastructure	\$43.1
Direct Costs Subtotal	\$399.8
Indirect Costs	\$197.6
Contingency	\$179.2
<b>Total Initial Capital Costs</b>	<b>\$776.6</b>

Total estimated initial capital costs are \$776.6 million for the first phase (25,000 tpa) of lithium carbonate chemicals. Contingency costs are estimated at 30% of total direct and indirect costs. Capital costs for the second phase (a second 25,000 tpa) are not included in this PEA analysis; however, management expects

those to be approximately 35% lower than the capital costs for the first phase by utilizing economies of scale.

To expedite the completion of this PEA, management elected to utilize Ausenco's previous capital estimates for a 25,000 tpa lithium chemicals plant. The additional of a second 25,000 tpa phase was considered, but Ausenco could not commit to completing a PEA that included a full-scale 50,000 tpa production scenario within the time constraints of Alpha's enhanced strategic review process.

#### Operating Costs:

Description	US\$/tonne Li <sub>2</sub> CO <sub>3</sub>
<b>DIRECT Operating Costs:</b>	
Chemical Reactives and Reagents	\$2,330,031
Energy	\$236,421
Manpower	\$467,052
Catering and Camp Services	\$452,033
Maintenance	\$251,319
Site Vehicle Costs	\$26,750
Bus-in/Bus-out Transportation	\$49,000
Consumables	\$25,000
Li <sub>2</sub> CO <sub>3</sub> Transportation	\$157,000
Resin and Membrane Replacement	\$69,281
Sub Total DIRECT Costs*	\$5,217,423
Sub Total INDIRECT Costs	\$1,916,500
TOTAL Processing Cost (excluding Transportation)*	\$7,133,923
TOTAL Production Cost (including Transportation)*	\$9,050,423

\*Numbers may not add up due to rounding.

The estimated operating costs are current as of Q1 2023 and reflect 100% year-on-year cost increases in some cases, such as for chemical reagents, which dramatically increased due to ongoing COVID-19 related global supply chain constraints. Management supports the use of potentially temporarily inflated costs and believes the cost estimates are appropriately conservative in light of many reported cost overruns in the industry. Finally, the second largest cost center is "Energy," accounting for 18% of the total operating cost. Alpha management has previously investigated and utilized solar power to provide energy to similar and larger projects in the past; however, solar power was not incorporated into the PEA at this time. Utilization of solar power should dramatically decrease the estimated operating cost.

#### Lithium Markets and Price:

Alpha consulted industry experts at Global Lithium LLC for estimates of long-term market and pricing dynamics. Recently, the price of lithium carbonate has been volatile, ranging from \$5,000/tonne in 2018 to over \$80,000/tonne in China's spot market in 2022, before moderating in 2023. Even during the most recent period of spot market volatility, long-term contract prices outside of China remained relatively constant in the \$60,000/tonne range, on average, through April 2023.

For estimating future cash flows from new projects, Global Lithium LLC and Alpha recommended a conservative approach, using a price significantly below (approximately 50% of) the upper end of the expected long-term marginal cost curve, yielding conservative project economics that leave room for significant upside. While most forecasters do not forecast prices beyond 2030, Global Lithium LLC recommended using a price of \$22,500/tonne from 2031 to 2035 and a price of \$23,500/tonne from 2036 and beyond.

Year	Li <sub>2</sub> CO <sub>3</sub> Price (US\$/tonne)
2025	\$22,500
2026	\$21,000

2027	\$21,000
2028	\$21,000
2029	\$21,750
2030 - 2035	\$22,500
2036 - beyond	\$23,500
Average price for 35-year production life of Tolillar project	\$23,146

The PEA is based upon brine grades across the company's Measured, Indicated and Inferred Mineral Resources only. Mineral resources that are not mineral reserves do not have demonstrated economic viability. There is no certainty that the Tolillar project envisioned by the PEA will be realized. The PEA is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves.

Qualified Person:

A Technical Report prepared in accordance with NI 43-101\* in support of the PEA will be filed on SEDAR ([www.sedar.com](http://www.sedar.com)) and on the Company's website ([www.alphalithium.com](http://www.alphalithium.com)) within 45 days. The PEA Technical Report is intended to be read as a whole, and sections should not be read or relied upon out of context. Scientific and technical information related to the PEA contained in this news release has been reviewed by:

- James Millard, P. Geo, Ausenco Engineering Canada Inc., Environmental Studies and Permitting
- Patricio Pinto, RM, Ausenco Chile Ltda., Principal Process Engineer

These persons, above, have the ability to verify the authenticity of this data and are independent from the Company.

Dr. Mark King, PhD, FGC, PGeo, of Groundwater Insight, Inc., is a qualified person (QP) as defined by NI 43-101. Dr. King has extensive experience in salar environments and has been a QP on many lithium brine projects. Dr. King is independent from the Company and has reviewed and approved the technical information mentioned in this press release. A Technical Report prepared in accordance with NI 43-101 in support of the resource estimate will be filed on SEDAR ([www.sedar.com](http://www.sedar.com)) and on the Company's website ([www.alphalithium.com](http://www.alphalithium.com)) within 45 days.

All operations and assets of the Company are in Argentina and are fully managed by Alpha Lithium Argentina SA ("Alpha SA") utilizing local employees and consultants. Since initiating the first steps of an exploration program in 2020, Alpha SA has drilled more than 20 holes, constructed an in-house brine chemistry research laboratory, developed a proprietary Lithium Carbonate production process that successfully works in Tolillar, started construction of a pilot plant, and employed dozens of highly skilled Argentinian technologists, engineers, geologists, geophysicists and chemists, in addition to several students, accounting, managerial and HR professionals. The Company is grateful for, and reliant upon, the significantly large Argentinian team that has proven instrumental at generating value for shareholders.

ON BEHALF OF THE BOARD OF [Alpha Lithium Corp.](http://www.alphalithium.com)

*"Brad Nichol"*

Brad Nichol  
President, CEO and Director

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## About Alpha Lithium (NEO: ALLI) (OTC: APLHF) (German WKN: A3CUW1)

Alpha Lithium is a team of industry professionals and experienced stakeholders focused on the development of the Tolillar and Hombre Muerto Salars. In Tolillar, we have assembled 100% ownership of what may be one of Argentina's last undeveloped lithium salars, encompassing 27,500 hectares (67,954 acres), neighboring multi-billion-dollar lithium players in the heart of the renowned "Lithium Triangle". In Hombre Muerto, we continue to expand our 5,000+ hectare (12,570 acres) foothold in one of the world's highest quality, longest producing, lithium salars. Other companies in the area exploring for lithium brines or currently in production include Orocobre Limited, Galaxy Lithium, [Alkem Ltd.](#), Livent Corporation, and POSCO in Salar del Hombre Muerto; Orocobre in Salar Olaroz; Eramine SudAmerica S.A. in Salar de Centenario; and Gangfeng and Lithium Americas in Salar de Cauchari.

## Forward-Looking Statements

This news release contains forward-looking statements and other statements that are not historical facts. Forward-looking statements are often identified by terms such as "will", "may", "should", "anticipate", "expects" and similar expressions. All statements other than statements of historical fact, included in this news release are forward-looking statements that involve risks and uncertainties. There can be no assurance that such statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. Important factors that could cause actual results to differ materially from the Company's expectations include the results of further brine process testing and exploration and other risks detailed from time to time in the filings made by the Company with securities regulators. The reader is cautioned that assumptions used in the preparation of any forward-looking information may prove to be incorrect. Events or circumstances may cause actual results to differ materially from those predicted, as a result of numerous known and unknown risks, uncertainties, and other factors, many of which are beyond the control of the Company. The reader is cautioned not to place undue reliance on any forward-looking information. Such information, although considered reasonable by management at the time of preparation, may prove to be incorrect and actual results may differ materially from those anticipated. Forward-looking statements contained in this news release are expressly qualified by this cautionary statement. The forward-looking statements contained in this news release are made as of the date of this news release and the Company will update or revise publicly any of the included forward-looking statements as expressly required by applicable law.

No securities regulatory authority has reviewed nor accepts responsibility for the adequacy or accuracy of the content of this news release.

\* National Instrument 43-101 Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators ("NI 43-101")

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