

Lilac's Gen 4 DLE Technology Drives Improved Economics in Lake Resources' Kachi Project DFS Addendum

DFS Addendum highlights how Lilac's ion exchange technology drives lower costs, improved recovery, and a more sustainable path to lithium production

OAKLAND, CA, UNITED STATES, August 4, 2025 /EINPresswire.com/ -- [Lilac Solutions](#), a leader in direct lithium extraction (DLE) technology, announced today that its Generation 4 ion exchange (IX) technology is a key driver of the improved results presented in Lake Resources' updated [Phase One Definitive Feasibility Study \(DFS Addendum\)](#) for the Kachi Lithium Project in Argentina. Incorporating Lilac's Gen 4 IX technology reduced DLE unit CAPEX by \$98M and DLE unit OPEX by \$508 per tonne of LCE, driving total project capital savings of approximately \$160M, which includes secondary impacts from Lilac's technology advancements.

The DFS Addendum incorporates Lilac's Gen 4 technology, which delivers a 10% increase in lithium recovery to 90% and significant reductions in both capital and operating costs, while maintaining excellent impurity rejection of 99.9%. The updated study also reflects a brine grade increase from 205 mg/L to 249 mg/L, further improving process efficiency and economics. These advancements strengthen Kachi's project economics while supporting its environmental sustainability objectives.

Lilac's Gen 4 IX technology delivers:

- Higher lithium recovery and process efficiency: Recovery optimized for commercial-scale economics increased to 90%. Combined with higher brine grade, this reduces feed and reinjection volumes by 30% and supports higher reserve estimates. Optimization accounts for site-specific factors including brine composition, utility and reagent costs, IX media lifecycle, process integration, capital efficiency, and operational constraints.
- Extended IX media lifespan: Greater durability doubles the operational life of IX media and reduces reagent consumption.
- Lower IX package capital cost: Improved throughput and system design require 50% fewer IX modules, cutting Lilac IX technology package costs by 39%.
- Environmental benefits: Gen 4 technology reduces water consumption by 32% and helps shrink the footprint of both the processing facility and well field, supporting Kachi's sustainability objectives while lowering utility and infrastructure requirements.
- Field-proven performance: Gen 4 IX technology was [successfully demonstrated at Lilac's Jujuy](#)

[plant](#) in Argentina on similar brine chemistry, exceeding the commercial design basis.

The DFS Addendum confirms improved project economics for the Kachi Project, underpinned by its large, high-quality lithium resource. Power demand at the site has been significantly reduced—from 82 MW to 57 MW—through enhanced process efficiency and implementation of the Gen 4 technology. These improvements help offset rising utility costs in a remote location where power now accounts for over half of total OPEX.

Using the third-party design and cost assumptions defined in the DFS Addendum, regional benchmarking indicates that comparable projects in more developed salar regions of Argentina and Chile could achieve OPEX of \$4,000–\$4,900 per tonne of LCE. This positions Lilac's technology among the lowest-cost lithium brine extraction methods globally, with strong performance across a range of brine types.

"The updated Kachi DFS is a strong validation of the advances we've made with our Gen 4 technology," said Raef Sully, CEO of Lilac. "We're really pleased with these results, which show how our technology can deliver the recovery, cost structure, and sustainability needed to make brine resources commercially viable. And we're not stopping here—our team is continuing to push the boundaries of what our technology can achieve as we work to unlock new lithium supply."

Lilac's technology has been independently verified through extensive field pilots, including at its Jujuy demonstration plant in Argentina, and is being deployed at multiple pilots worldwide. Lilac is currently advancing its first commercial project at the Great Salt Lake in Utah. The company continues to partner with resource developers to unlock lithium supply from brine resources that were previously uneconomic, helping to build a more resilient and sustainable battery supply chain.

About Lilac

Lilac delivers modern lithium extraction technology to scale lithium supply for global electrification. Lilac's ion exchange technology helps customers produce lithium from a wide variety of brine resources with high efficiency, minimal cost, and an ultralow environmental footprint. Lilac is based in Oakland, California. Learn more at lilacsolutions.com.

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