E3 Lithium Provides Update on the Clearwater Project and 2025 Demonstration Plant Development Plans

25.02.2025 | Business Wire

E3 Lithium Ltd. (TSXV: ETL) (FSE: OW3) (OTCQX: EEMMF), "E3", "E3 Lithium" or the "Company," a leader in Canadian lithium, is pleased to share its corporate guidance and priorities for 2025.

E3 Lithium aims to be one of the few North American projects to produce battery quality lithium products before the end of the decade. With a strong jurisdictional advantage, available and proximal infrastructure, and a world leading permitting system for critical minerals, Alberta is positioned to become a leader in lithium production. The Company achieved several significant milestones in 2024 including defining the Clearwater Project through Pre-Feasibility, validating direct lithium extraction technology, booking Canada's first lithium-in-brine proven reserves and continuing the Company's track record of success. In 2025, E3 is building on that success to advance the project towards achieving first lithium production and delivering battery quality lithium to the global battery industry.

In 2025, the Company will focus on five main initiatives as it progresses towards commerciality:

- Advance Phase 1 development of the commercial plant, including engineering for the feasibility study.
- Construct and operate a fully integrated demonstration facility, showcasing Canada's first scaled-up Direct Lithium Extraction (DLE) system to convert brine to battery quality lithium product.
- Submit the required environmental applications in compliance with Alberta Energy Regulator's environmental standards and begin the process to license the Clearwater Project Central Processing Facility (CPF) and wells with the Alberta Energy Regulator (AER).
- Meaningfully advance strategic partner and future offtake relationships.
- Continue to build strong stakeholder engagement and support

"We are driving to make the Clearwater Project 'shovel ready' in 2026," said Chris Doornbos, CEO of E3 Lithium. "The demonstration facility is expected to be commissioned in the early part of Q3 2025 and will prove the viability of DLE technology to produce battery-grade lithium at scale. As electrification becomes inevitable and energy security critical, our vast resource strategically positions E3 Lithium to become a major supplier of Canadian lithium to the global battery market."

Methodical and Accelerated Path to Lithium Production

During 2024, the lithium battery industry saw carbonate-based battery chemistries increase market share. The use case lithium-iron-phosphate (LFP) batteries has increased significantly due to the energy density increases and reduction in costs to about $50 per kWh[1], which is now below the EV/ICE price parity point. Driven by a move to LFP and mid nickel chemistries, there is currently greater demand for lithium carbonate over lithium hydroxide, accounting for over 60% of the overall chemical demand[2].

E3 Lithium is set to make significant progress in 2025, focusing on optimizing the design, construction planning and permitting of its first commercial facility. Following the Clearwater Project Pre-Feasibility Study (PFS), E3 has been evaluating a phased approach for the first project with the goal of reducing the initial capital required and increasing speed to market by reducing the engineering and construction timeframes. From that analysis, E3 is making two fundamental changes to the design of the Clearwater Project:

1. The initial plant design will focus on the production of battery quality lithium carbonate, which is expected to provide the following potential benefits:
    - In line with the market shift towards Lithium Iron Phosphate (LFP) and mid-nickel cathodes
    - Current and near-term forecasted price for lithium carbonate is near parity with lithium hydroxide
    - Decreases project risk and capital by simplifying the facility designs
    - Decreases operating costs by removing a number of reagents required
    - Simplifies product handling and logistics for the first phase
    - Retains optionality to add a hydroxide conversion facility at a later date
2. The Clearwater Project is planned to be built in three phases of 12,000 tonnes per year to assist in the reduction of the initial capital requirements, project risk and help accelerate the timeline to initial production:
    - Phase 1 will consist of four DLE trains with a combined production capacity of approximately 12,000 tonnes per year of battery quality lithium carbonate. This will be the focus of the initial engineering.
    - Expansion of the Clearwater Project to the full capacity target of 36,000 tonnes per year of lithium carbonate will be developed in future phases.

Permitting Progress

Alberta stands as a premier jurisdiction for lithium brine extraction, leveraging nearly 80 years of resource development expertise and vast lithium-in-brine resources from established assets. The province's robust advantages include access to a skilled workforce that will need little to no reskilling to developing lithium and direct proximity to North American markets through extensive infrastructure. What sets Alberta apart is its unique synergy between lithium and oil & gas operations, providing operators with deep subsurface knowledge and existing infrastructure.

E3 is in the process of building strong relationships with various regulatory agencies and developing the necessary engineering information to submit the facility licenses to operate at the CPF, specifically the AER Directive 56 facility license and Environmental Protection and Enhancement Act (EPEA) applications in compliance with provincial environmental regulations. The Company aims to have these permits submitted by early Q3 of this year. While approval timeframes are hard to predict, historically the review process takes less than 12 months to complete, potentially resulting in a fully permitted CPF in mid-2026.

The associated reservoir production scheme and well licence applications will be submitted to the AER over this time with the goal of having sufficient permits in place to be ready for construction in the second half of 2026. In addition, the Company is actively working to consolidate the freehold minerals rights across the Bashaw District.

The regulatory framework, enhanced by Bill 82 and overseen by the AER, specifically addresses lithium and critical minerals development. The operational model mirrors oil and gas production, utilizing familiar directives for wells, pipelines, facilities, and environmental protection. This alignment, combined with Alberta's skilled energy workforce and substantial drilling capacity of up to 400 active rigs, creates an unparalleled environment for lithium production development.

Enhance Energy Inc. has submitted an application to the AER for approval to inject CO_2 into the Leduc Formation in the Woodbend Group in the northern section of the Bashaw District. E3, and as many as 35 freehold mineral rights holders, have filed their opposition to the application. Brine hosted minerals can create significant value for Alberta's taxpayers and the conservation of Alberta's resources are of paramount importance. The path forward should be as easy as co-production of lithium with subsequent injection of CO_2 or Enhance could dispose of CO_2 in one of the many aquifers that do not hold mineral value as the Leduc does, enabling a simple and amicable solution. E3 has and will continue to offer support to Enhance for such a solution.

2025 Fully Integrated Demonstration Facility

The Demonstration Facility ("Demo Facility") will be built to demonstrate the operations of continuous brine production to battery quality lithium carbonate. The Demo Facility will collect continuous data and demonstrate that the process can operate at commercial scale. The battery quality lithium carbonate can then be provided to potential customers for pre-qualification.

The Demo Facility will utilize brine from a full-size commercial production and injection well pair and will consist of two DLE systems to confirm various components of the process. Each of these DLE systems will tie into the concentration and purification processes which lead to the carbonation equipment currently operating in the E3 laboratory which will be relocated to the Demo Facility site.

The two DLE systems include:

1. A 30-column process optimization skid with a 12 m^3/day brine flowrate, which will operate a valve array and computer control system that mimics the commercial design from a process operations perspective.
2. A full-size single commercial column with a maximum 800 m^3/day brine flowrate, which will operate in the same manner and volume as the planned commercial design to confirm recoveries and operating details. This aims to provide commercial scale data that will be applied directly to the full-scale design.

Lithium chloride from each DLE system will be further refined through filtration and polishing equipment to produce highly concentrated and purified lithium chloride. The lithium chloride will then be converted to battery quality lithium carbonate using the equipment currently operating at the E3 laboratory which has achieved a battery quality purity of 99.71% based on internal analysis as outlined in the January 15, 2025 announcement.

The surface facility will be paired with a full-scale operation of a production and injection well pair outlining the brine production flow rates, including a detailed analysis of the aquifer through tracers, to confirm the final reservoir development plan.

The Demo Facility will be operated in three phases:

Phase 1: Commissioning

- The 30 column DLE system, along with the purification equipment, all currently being manufactured, is being built to replicate the process operations of the commercial system.
- This system will be paired with the lithium carbonation equipment already operational.
- This commissioning will be completed with previously produced brine to minimize risk and ensure proper operations.
- Phase 1 commissioning will conclude upon confirmation of the successful production of battery-grade lithium carbonate.

Phase 2: Wells and 30 column DLE Demonstration Facility Operations

- Drilling of two wells for the production test will occur within the Clearwater Project Area.
- Upon drilling and well completion, the wells will be tied into the Demo Facility to enable continuous operations on-site.
- The wells and 30 column DLE system, along with the downstream processing into lithium carbonate, will operate to confirm the data required for the Feasibility Study and the continuous production of battery quality lithium carbonate.

Phase 3: Full Scale Single Column Operation

- Following the successful completion of Phase 2, the full-size single commercial column DLE system will commence fully integrated operations.
- The purpose of this system is to outline the performance modelled "at" commercial scale by operating a single full-size commercial column. This is important to support project financing and strategic partner conversations.

Following the successful commissioning and data collection phase, both DLE systems will likely operate as needed for several years, feeding the purification and carbonation system to regularly produce battery quality lithium carbonate for pre-qualification.

Advance Strategic Partnerships & Offtake Agreements

E3 Lithium continues to progress discussions with potential customers in the automotive, battery cathode and battery cell sectors, as well as within the energy and mining space. E3's goal is to secure a strategic partner for the project, either through an offtake agreement or through direct project participation. E3 offers one of the nearest to construction, battery quality lithium projects in North America. With a streamlined and transparent permitting process and compelling value proposition E3 is looking to position itself to be financeable in 2026.

E3 is actively engaged in conversations with other industry participants with a focus on advancing our relationships built over the years to secure a partner that values a long-life project within a secure and stable jurisdiction to bolster their value chain or to provide an entry into the lithium industry. With supply of critical minerals, especially lithium, increasingly becoming a focal point for global energy and national security, projects such as the Clearwater Project are well positioned to attract interest.

Strategic Assets for Future Value Creation:

With the technical demonstration of lithium production in Western Canada, E3's strategic land holdings can add significant potential short- and long-term value. In addition to the Clearwater Project, E3 has several other assets that when developed may add significant future value.

- South Bashaw: Working with Pure Lithium to advance the integration of a battery production processes using E3's brine and processing technology. Upon successful completion of this work, the companies will look towards commercialization, which could include a joint venture development on the South Bashaw area.
- North Bashaw: North of the Clearwater Project, E3 holds similar sized resources with similar potential as the Clearwater. E3 is working on a Pre-Feasibility Study across a portion of this area that may outline additional value and continuation of adding to our significant reserve base.
- Saskatchewan Lithium: E3 Lithium's strategic position in the Estevan lithium belt presents additional value creation opportunities. The Company will evaluate strategic options for these assets while maintaining focus on Alberta development.
- Garrington: The western trend of the Leduc Aquifer held by E3 also hosts substantial lithium-enriched brine and lithium resources. A Resource update is planned for mid-2025 that will incorporate the full aquifer trend, informing future development strategies.
- Nisku Aquifer: Situated above the Leduc Aquifer, historic sampling has outlined similar lithium concentrations in the Nisku Aquifer. The Company will evaluate the potential for co-production and additional unique production opportunities to increase well rate and enhance potential project economics by reducing capital requirements.

Market Information

During 2024, the lithium development industry experienced significant M&A activity with General Motors, Rio Tinto, Equinor, Volkswagen and others entering the space in a meaningful way. In the automotive industry, global sales of Electric Vehicles grew at 25% relative to 2023, with a total of 17.1 million EV's sold. In North America, EV sales increased 9% year over year[3]. Additionally, the rapid expansion of renewable energy storage installations across North America has emerged as a primary driver for the battery energy storage system (ESS) market. The lithium-ion battery segment dominates this market, commanding approximately 90% of the market share in 2024 and has a projected growth of around 9% from 2024 to 2029, driven by increasing adoption in renewable energy integration, grid stabilization, and backup power applications[4].

With the lithium market beginning to stabilize and the forecast growth in the EV and ESS segments remaining robust, the expected demand for lithium is continually rising. This, combined with the challenging pricing environment for lithium in 2024, has led to a slow down in the development of some projects leading to a lag in new supply of battery quality lithium products. As a result, market analysts predict that the demand for lithium will remain strong through the end of the decade and beyond[3].

E3 Lithium's Strengths Going into 2025

Financial Position: E3 has approximately $18.4 million in working capital and existing undrawn financial grants of ~$23M at the end of 2024.

Governmental Agency Support: E3 Lithium is grateful to have received strong support from several government agencies including Emissions Reduction Alberta - $5million , Natural Resources Canada - $3.55million, Strategic Innovation Fund - $27million and Alberta Innovates - $1.8M, providing non-dilutive funding while validating our project's importance to Canada's critical minerals sector.

First-Mover Advantage in a Friendly Resource Development Jurisdiction: E3 Lithium combines several key competitive advantages that position us as the leader in North America's lithium sector:

- World-Class Resource: The broader Bashaw District hosts one of Canada's largest sources of lithium resources with 16.2 Mt of lithium carbonate equivalent (LCE) in Measured and Indicated resources, capable of supporting multiple commercial facilities. The potential production of approximately 200,000 tonnes of battery-grade lithium annually with an estimated 50-year life, will position E3 as a significant long-term, secure source of lithium for Canada, US, EU and Asia.
- First to Market in Canada: E3 is strategically positioned to be Canada's first lithium-in-brine producer, addressing critical North American supply shortages where regional demand significantly outpaces current production. The Clearwater Project will integrate DLE technology with standard downstream chemical conversion to produce battery-grade lithium carbonate, marking a first for Canada's critical minerals sector and complimenting Canadian national security initiatives.
- Premier Regulatory Framework: Operating in Alberta's established regulatory environment, E3 benefits from the new Mineral Resource Development Act and associated Brine-hosted Mineral Resource Development Rules. This streamlined framework is leading the industry and sets a clear approval process with well-established permitting timelines. With the permitting in Alberta, we have the opportunity to be shovel ready by mid-2026, putting us as one of the few battery grade lithium projects to be able to get off the ground before the end of the decade.
- Superior Infrastructure Foundation: We have secured an option to purchase land for the CPF in Central Alberta for the Clearwater Project. This preferred site is strategically located to leverage existing essential infrastructure, including accessible utilities and roadways, a skilled workforce and an established service sector. This mature industrial ecosystem significantly reduces capital requirements and accelerates development timelines compared to greenfield projects.

ON BEHALF OF THE BOARD OF DIRECTORS

Chris Doornbos, President & CEO
E3 Lithium Ltd.

About E3 Lithium

E3 Lithium is a development company with a total of 16.2 million tonnes of lithium carbonate equivalent (LCE) Measured and Indicated [1] as well as 0.9 million tonnes LCE Inferred mineral resources[2] in Alberta and 2.5 million tonnes LCE Inferred mineral resources[3] in Saskatchewan. The Clearwater Pre-Feasibility Study outlined a 1.13 Mt LCE proven and probable mineral reserve with a pre-tax NPV8% of USD 5.2 Billion with a 29.2% IRR and an after-tax NPV8% of USD 3.7 Billion with a 24.6% IRR[1]. E3 Lithium's goal is to produce high purity, battery grade lithium products to power the growing electrical revolution. With a significant lithium resource and innovative technology solutions, E3 Lithium has the potential to deliver lithium to market from one of the best jurisdictions in the world.

1: The Clearwater Project NI 43-101 Pre-Feasibility Study, effective June 20, 2024, is available on the E3 Lithium's website (https://e3lithium.ca/our-assets/technical-reports/) and SEDAR+ (www.sedarplus.ca).

2: The mineral resource NI 43-101 Technical Report for the North Rocky Property, effective October 27, 2017, identified 0.9 Mt LCE (inferred) and is available on the E3 Lithium's website (e3lithium.ca/technical-reports) and SEDAR+ (www.sedarplus.ca).

3: The mineral resource NI 43-101 Technical Report for the Estevan Lithium District, effective May 23, 2024, identified 2.5 Mt LCE (inferred) and is available on the E3 Lithium's website (e3lithium.ca/technical-reports) and SEDAR+ (www.sedarplus.ca).

Unless otherwise indicated, Kevin Carroll, P. Eng., Chief Development Officer and a Qualified Person under

National Instrument 43-101, has reviewed and is responsible for the technical information contained on this news release.

Forward-Looking and Cautionary Statements

This news release includes certain forward-looking statements as well as management's objectives, strategies, beliefs and intentions or forward-looking information within the meaning of applicable securities laws. Forward-looking statements are frequently identified by such words as "believe", "may", "will", "plan", "expect", "anticipate", "estimate", "intend", "project", "potential", "possible" and similar words referring to future events and results. Forward-looking statements are based on the current opinions, expectations, estimates and assumptions of management in light of its experience, perception of historical trends, and results of the PFS, but such statements are not guarantees of future performance. In particular, this news release contains forward-looking information relating to: the estimated mineral resources and mineral resources at the Clearwater Project; expectations regarding the PFS, including statements regarding the results of the PFS and interpretations thereof; expectations concerning the Clearwater Project, including extraction, production, pretreatment, purification, volume reduction and conversion process and features and the expected outcomes thereof; the expected economic performance of the Clearwater Project, including capital costs, operating costs, water usage, land use and carbon emissions; statements regarding the Company's strategy for minimizing environmental impact and liquid waste and maximizing water reuse, with no planned tailings or waste piles; the potential for a secondary revenue stream should the Company be able to sell the calcium carbonate generated during the production of lithium hydroxide; plans and objectives of management for the Company's operations and the Clearwater Project; and the inherent hazards associated with mineral exploration and mining operations. In preparing the forward-looking information in this news release, the Company has applied several material assumptions, including, but not limited to, that any additional financing needed will be available on reasonable terms; the exchange rates for the U.S. and Canadian currencies will be consistent with the Company's expectations; that the current exploration, development, environmental and other objectives concerning the Clearwater Project can be achieved and that its other corporate activities will proceed as expected; that the current price and demand for lithium will be sustained or will improve; that general business and economic conditions will not change in a materially adverse manner and that all necessary governmental approvals for the planned activities on the Clearwater Project will be obtained in a timely manner and on acceptable terms; the continuity of the price of lithium.

All forward-looking information (including future-orientated financial information) is inherently uncertain and subject to a variety of assumptions, risks and uncertainties, including the speculative nature of mineral exploration and development, fluctuating commodity prices, the effectiveness and feasibility of emerging lithium extraction technologies which have not yet been tested or proven on a commercial scale or on the Company's brine, risks related to the availability of financing on commercially reasonable terms and the expected use of proceeds; operations and contractual obligations; changes in estimated mineral reserves or mineral resources; future prices of lithium and other metals; availability of third party contractors; availability of equipment; failure of equipment to operate as anticipated; accidents, effects of weather and other natural phenomena and other risks associated with the mineral exploration industry; the Company's lack of operating revenues; currency fluctuations; risks related to dependence on key personnel; estimates used in financial statements proving to be incorrect; competitive risks and the availability of financing, as described in more detail in our recent securities filings available under the Company's profile on SEDAR+ at www.sedarplus.ca. Actual events or results may differ materially from those projected in the forward-looking statements and we caution against placing undue reliance thereon. We assume no obligation to revise or update these forward-looking statements except as required by applicable law.

[1] Reuters: Battery cell prices fall to record low in September, Oct 30, 2024
[2] Benchmark Mineral Intelligence Q4 2024 Lithium Forecast Report
[3] Rho Motion: Over 17 million EVs sold in 2024 - Record Year, January 14, 2025
[4] Mordor Intelligence: North America Battery Energy Storage System Market Size & Share Analysis - Growth Trends & Forecasts

Contact

E3 Lithium - Investor Relations
Alexis de la Renaudiere
Investor Relations
investor@e3lithium.ca
587-324-2775

E3 Lithium - Media Inquiries
Kati Dolyniuk
External Relations
communications@e3lithium.ca
587-324-2775