



# Building North America's Highest Quality Source of Lithium



ALWAYS MOVING FORWARD

[FrontierLithium.com](https://www.frontierlithium.com) | TSX.V: FL



# Disclaimers



## ► Forward Looking Statements

Certain statements in this presentation may contain “forward looking” statements that involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company or industry to be materially different from any future results, performance or achievements expressed or implied by such forward looking statements. It is uncertain if further work will in fact lead to production of a mineral resource and of lithium compounds.

**Frontier has filed on SEDAR a NI-43-101 compliant Technical Report, “PAK Property” -PAK Lithium Project, Preliminary Economic Assessment issued on April 5, 2021. All technical information should be reviewed according to this resource estimate.**

# Frontier Highlights



## Tier 1 quality spodumene lithium resource globally

- 41.9 mt (M&I&I) of 1.54% Li<sub>2</sub>O



## Targeting to be Top 3 in contained lithium size in North America

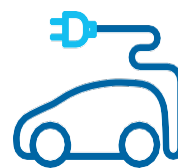
- 27,000 hectares land package
- Significant exploration upside



## \$1B USD NPV utilizing two of four total discoveries



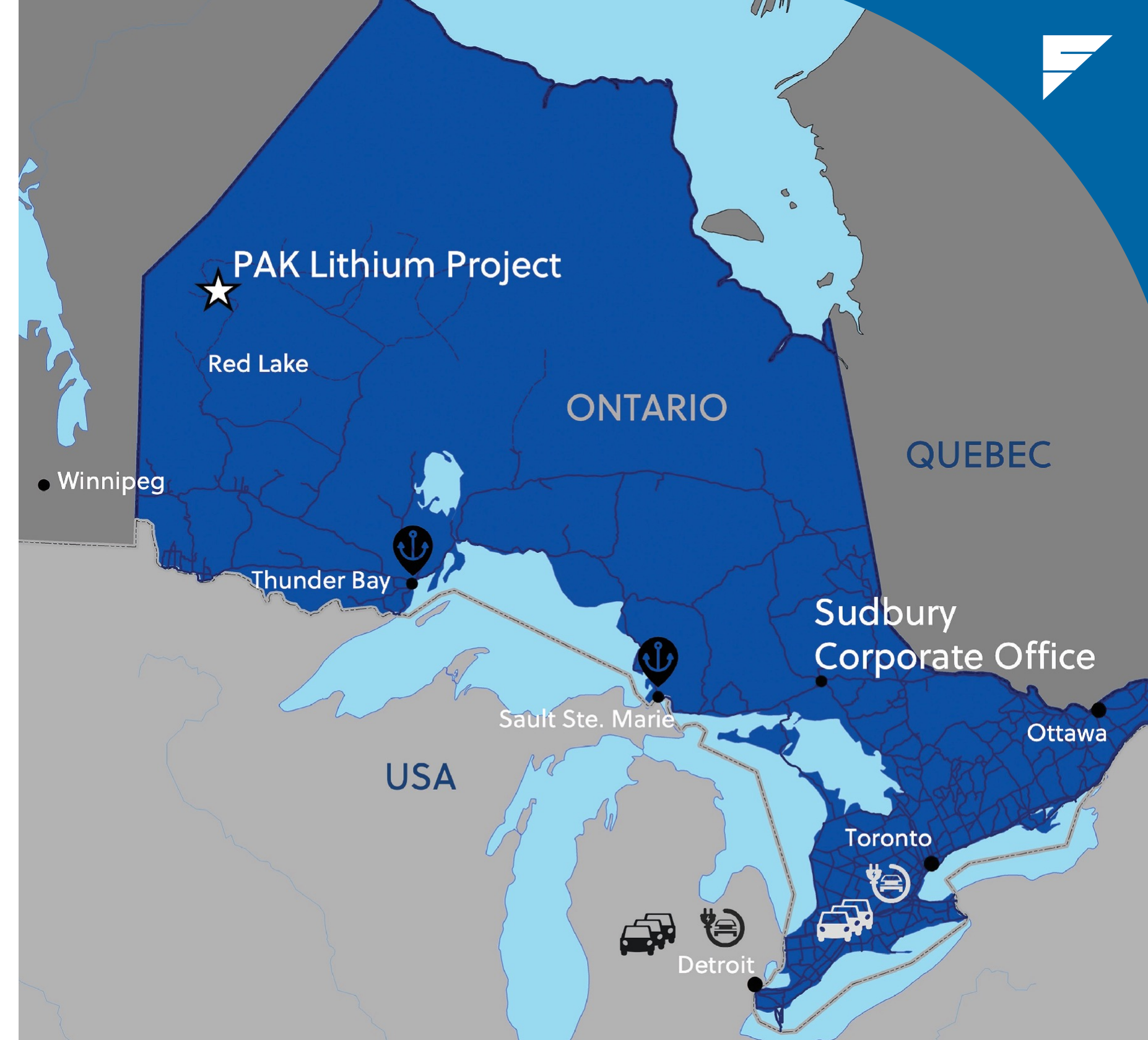
## High purity hard rock spodumene ore-to-hydroxide focus for long range EV's



## Proximate to USA & EU Markets with low-cost, sustainable operations

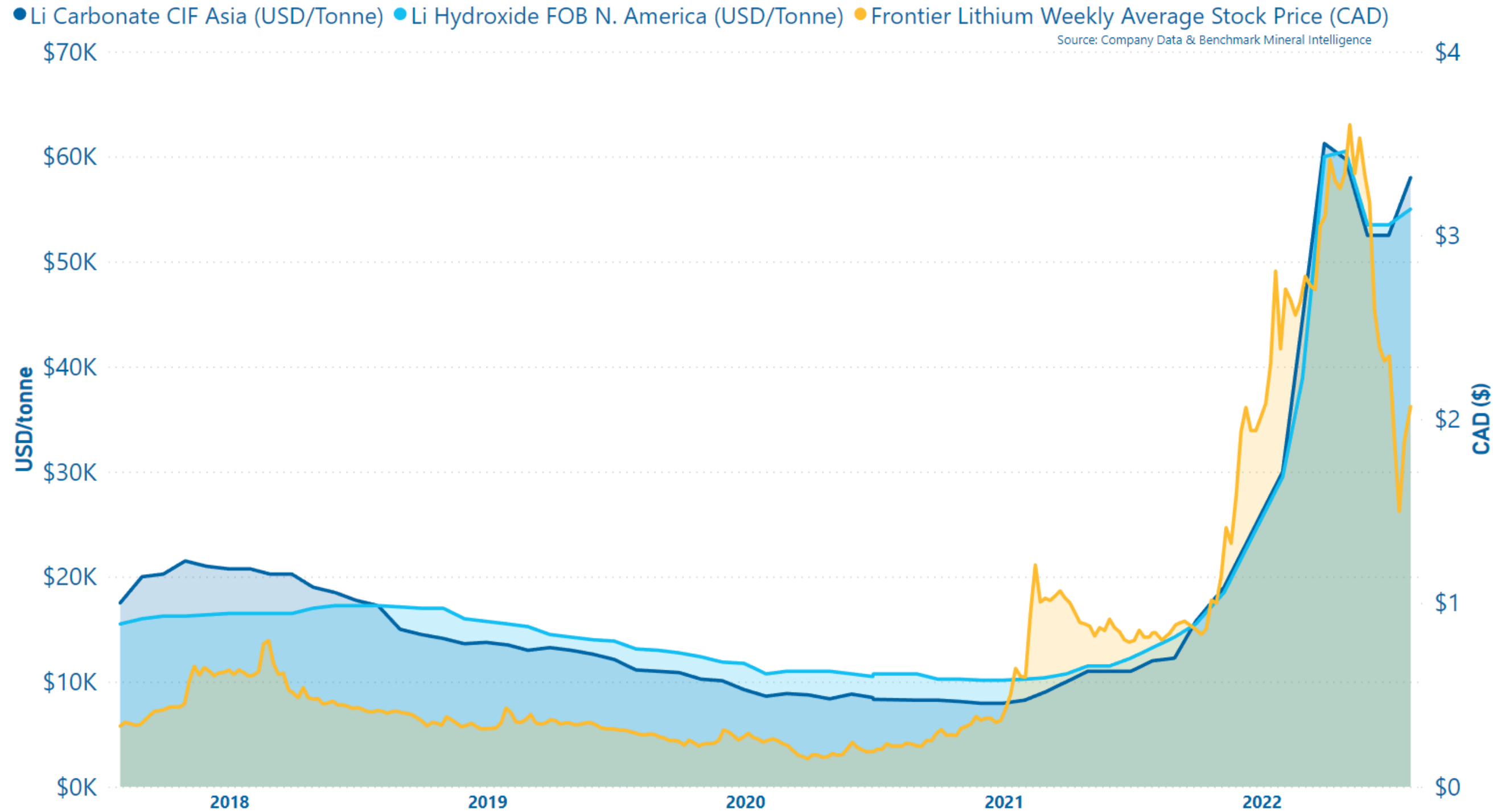


## Ontario rich in Mining/Processing/Manufacturing with low sovereign risk



Building North America's Highest Quality Source of Lithium Hydroxide to Power the Electric Vehicle and Energy Storage Transition.

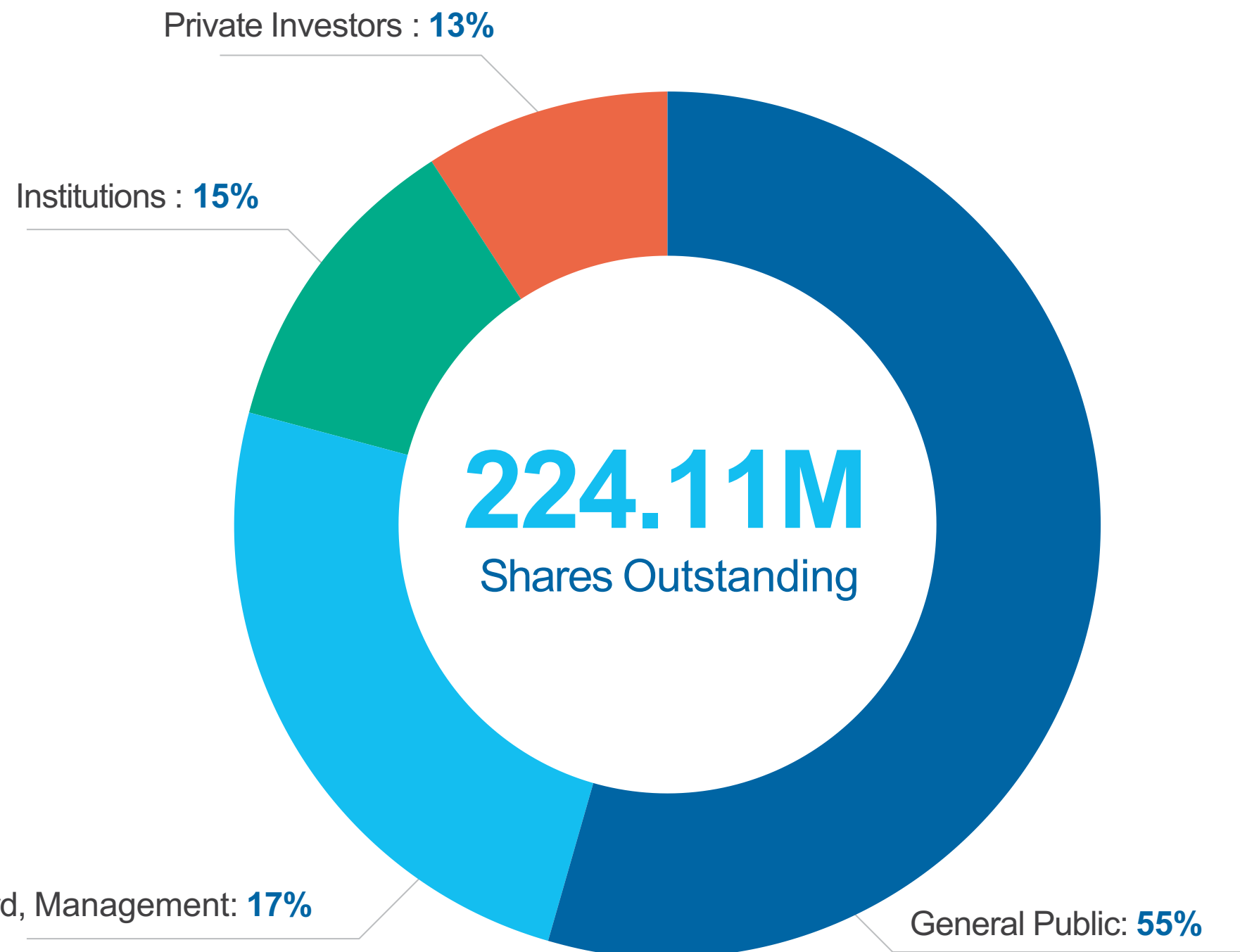
# TSX.V: FL Price History



## Market Facts 14/11/2022

|                             |                 |
|-----------------------------|-----------------|
| <b>Ticker – TSX Venture</b> | FL              |
| <b>Ticker – FSE</b>         | HL2             |
| <b>Ticker – OTC QX</b>      | LITOF           |
| <b>Price</b>                | CAD 2.00        |
| <b>52 Week High and Low</b> | \$3.89 - \$1.24 |
| <b>Market Cap</b>           | CAD \$448M      |
| <b>Cash (November 2022)</b> | CAD \$32M       |
| <b>Shares Outstanding</b>   | 224.11M         |

# Research Coverage



**Institution: RBC Dominion Securities Inc.**

**Coverage Initiation Date**

December 5, 2022

**Analyst**



Capital  
Markets

Alexander Jackson, CPA, CA, CFA

**Institution: STIFEL NICOLAUS CANADA INC.**

**Coverage Initiation Date**

November 21, 2022

**Analyst**



Cole McGill

**Institution: CORMARK SECURITIES INC.**

**Coverage Initiation Date**

April 11, 2022

**Analyst**



Brandon Smith, CFA

**Institution: CANACCORD GENUITY CAPITAL MARKETS**

**Coverage Initiation Date**

February 22, 2022

**Analyst**



Katie Lachapelle, CPA

# Proven Leadership

## BOARD OF DIRECTORS



### **Rick Walker, Chairman**

45+ years Mining/Construction experience



### **Marc Boissonneault, P.Eng, MBA**

Most recently Head of Global Nickel Operations, Glencore



### **John Didone CPA, CA, CMA, Audit Committee**

+35 years Accounting



### **Mike Koziol P.Geo, P.Eng., Audit Committee**

+35 years Exploration Experience,



### **Stephen J.J. Letwin, Audit Committee**

Former President and CEO of IAMGOLD Corporation



### **Tess Lofsky LLB, Director**

Senior Legal Counsel and Corporate Secretary at Bird Construction



### **Greg Mills**

35+ years experience in capital markets former Managing Director of RBC Capital Markets



### **Bart Meekis**

Former Chief of Sandy Lake First Nation

## EXECUTIVE TEAM



### **Trevor R. Walker, President and CEO**

20+ years in the mining industry, Trevor joined the company in 2010, and since has played a key strategic role in focusing and developing the company's PAK Lithium Project in Northwestern Ontario.



### **Tony Zheng, Chief Financial Officer**

10+ years as a Chartered Professional Accountant with significant experience in finance, risk management, corporate strategy, mergers and acquisitions, with international precious and base metals companies.



### **Dr. Naizhen Cao, VP Technology**

Dr. Cao is an industry veteran having worked both in China and Canada as senior technical leader with expertise in lithium and battery materials.



### **Garth Drever, VP Exploration**

40+ years of mineral exploration experience. He has worked with Frontier Lithium since 2011, and was fundamental in the exploration process that led to new discoveries on the PAK Lithium Project.



### **David Ewing, VP Sustainability & External Affairs**

20+ years of experience in mining, energy and government with significant experience in ESG and regulatory and Indigenous affairs.

## NOTABLE ADVISORS



### **Mike Tamlin**

25+ years of expertise in lithium and tantalum concentrates and chemicals. His lithium experience covers the development of the Chinese chemical and global technical spodumene markets for the Greenbushes Mine in Western Australia, the Zhangjiagang Lithium Carbonate Project and the Rincon Brine Project.



### **Peter Vanstone, P. Geo**

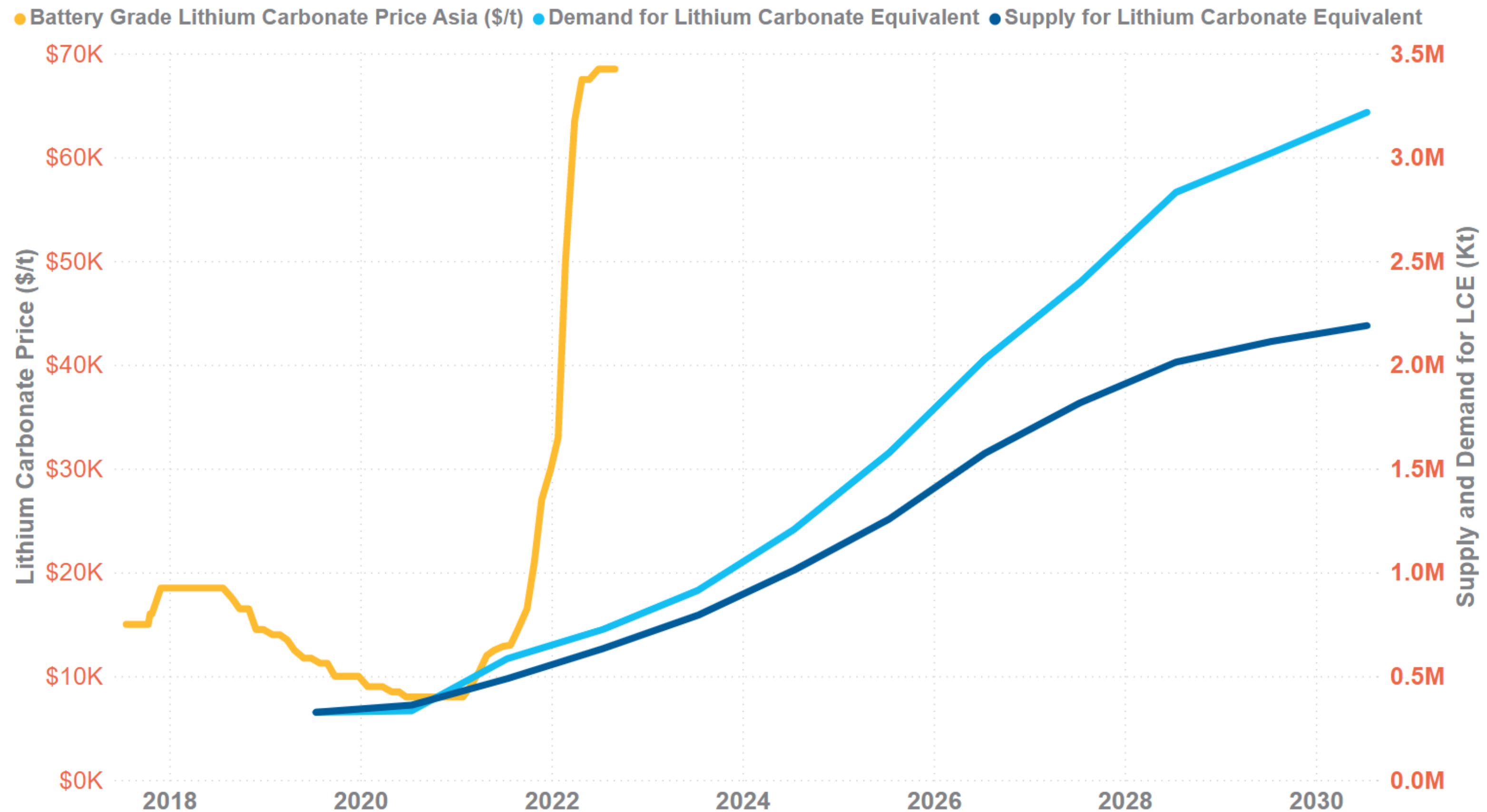
Peter Vanstone maintains specialized experience in rare metals with over 30 years of lithium, tantalum, and cesium exploration and mine production in the Canadian Shield.



### **Gordon MacKay**

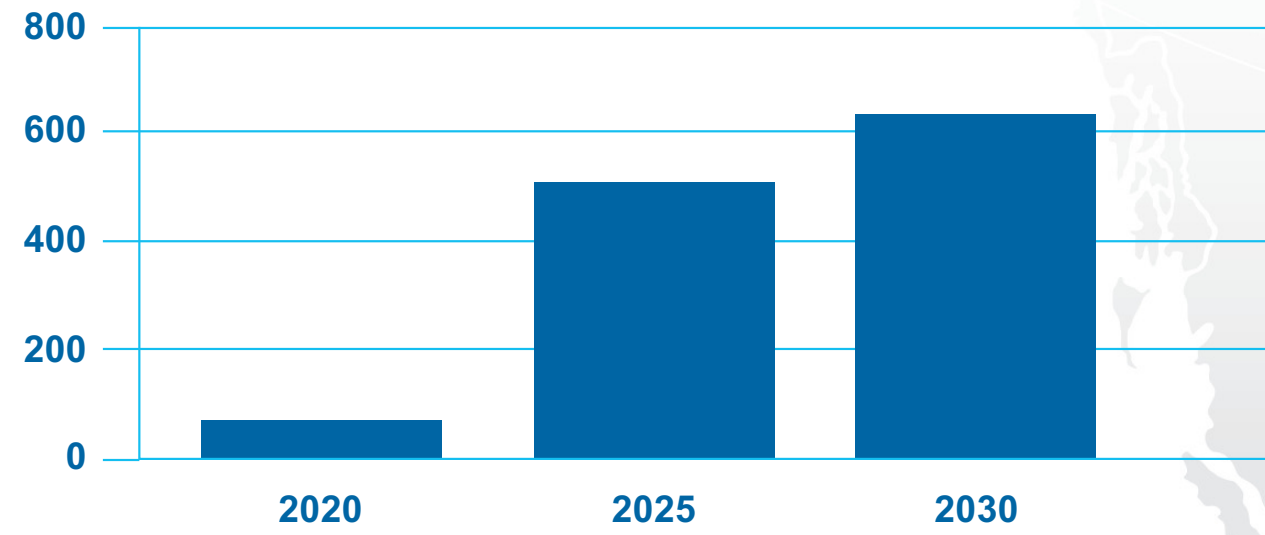
Most recently Director of Mineral Development and Lands Branch at the Ministry of Northern Development and Mines.

# LITHIUM SUPPLY AND DEMAND OUTLOOK



# Building North America's Supply Chain

**US & Canada Mega Factory Capacity 2020 - 2030 (GWh)**



**TESLA**  
**Tesla Gigafactory 1 (Sparks, Nevada)**  
 2021 capacity: 40 GWh

**TESLA**  
**Tesla Pilot Fremont**  
 2021 capacity: 10 GWh

**TESLA**  
**Tesla Gigafactory 5 (Austin, Texas)**  
 Expected start: 2022 (25 GWh)

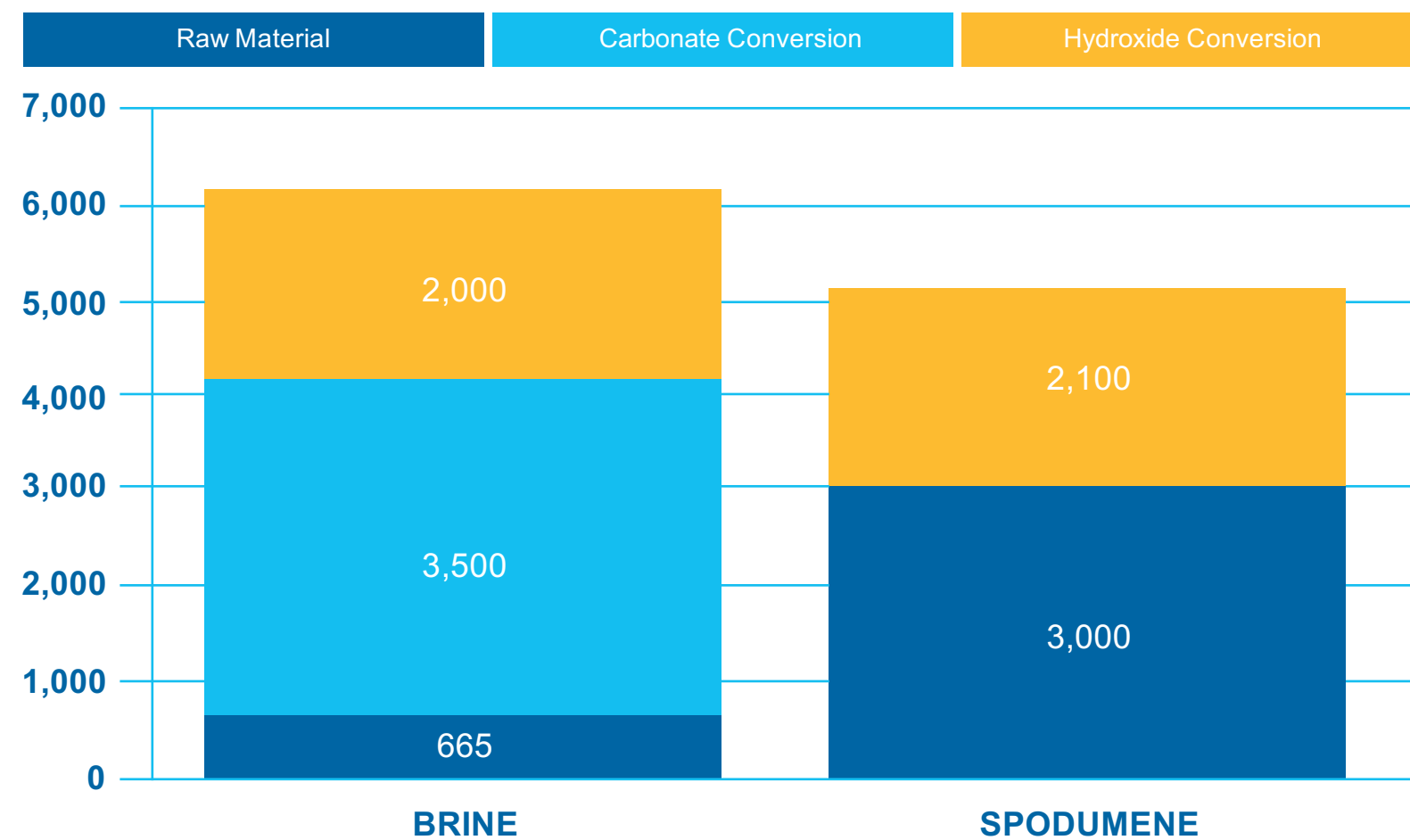
- Honda Canada: \$1.4 Billion investment**  
 Upgrade manufacturing plant to make hybrid EVs
- GM Canada: \$5 Billion Investment**  
 Upgrade CAMI Plant to be Canada's first commercial EV manufacturing plant
- Stellantis & LG ES: \$5 Billion Investment**  
 Expected start: 2025 / Capacity: 45 GWh
- GM & South Korea's POSCO: \$500 Million investment**  
 Cathode Production
- BASF BASF**  
 Expected start: 2025 / CAM: 100 kt/year
- im3 PARASIS im3**  
 2021 capacity: 1 GWh
- LG Energy Solution LG ES Michigan**  
 2021 capacity: 8 GWh
- GM LG Energy Solution LG ES/GM 2021 Lordstown**  
 Expected start: 2023
- SK innovation Ford SK/Ford-Kentucky/Tennessee**  
 Expected start: 2025-2026 / Capacity: 129 GWh
- Envision AESC AESC Tennessee 2021**  
 Capacity: 3 GWh
- SK innovation SK Innovation US 2021**  
 Capacity: 9.8 GWh
- SK innovation SK Innovation US 2**  
 Expected start: 2023

Source: Benchmark Mineral Intelligence and company filings



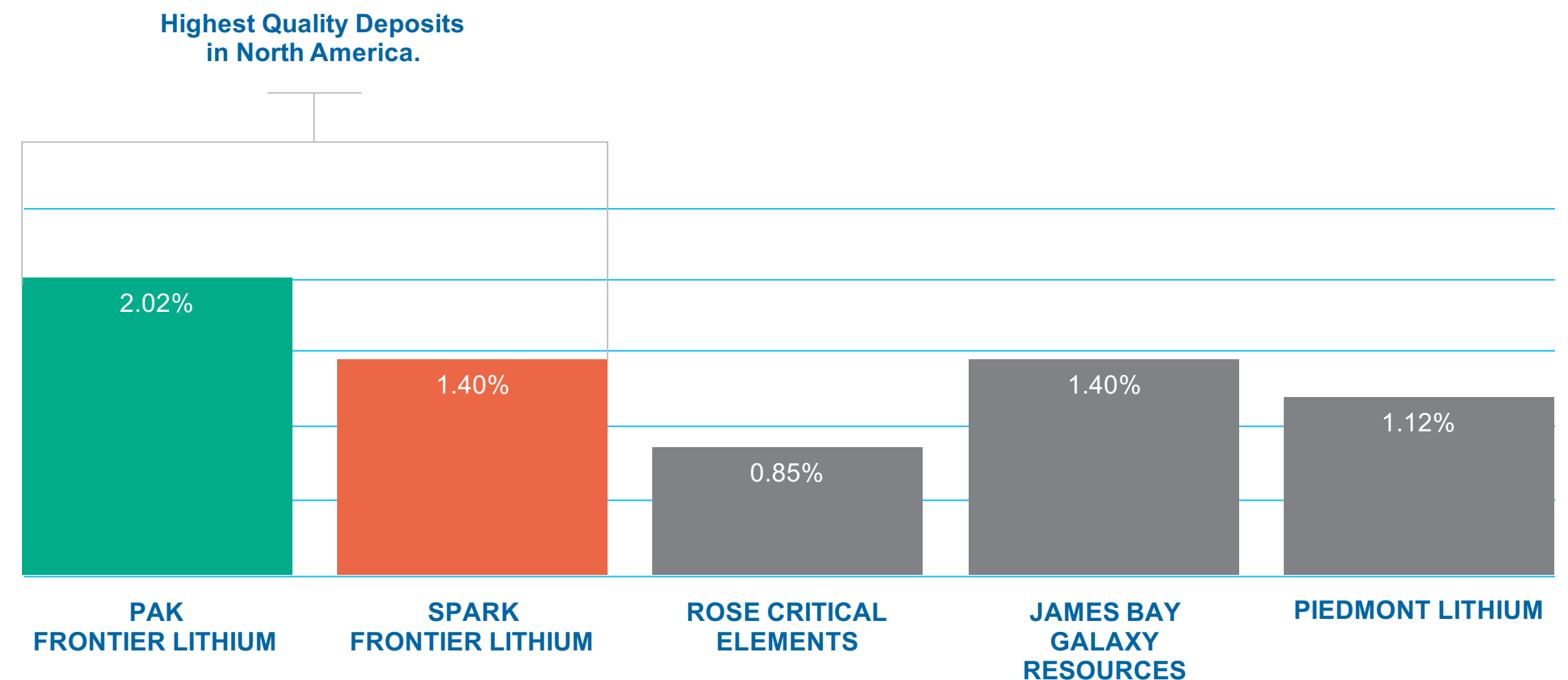
# Quality Spodumene is the Preferred Feedstock

## Spodumene is the Low-Cost Source for Lithium Hydroxide



Source: McKinsey & Co., costs represent indicative 2025 costs for typical South American brine operations and typical Western Australian spodumene operations.

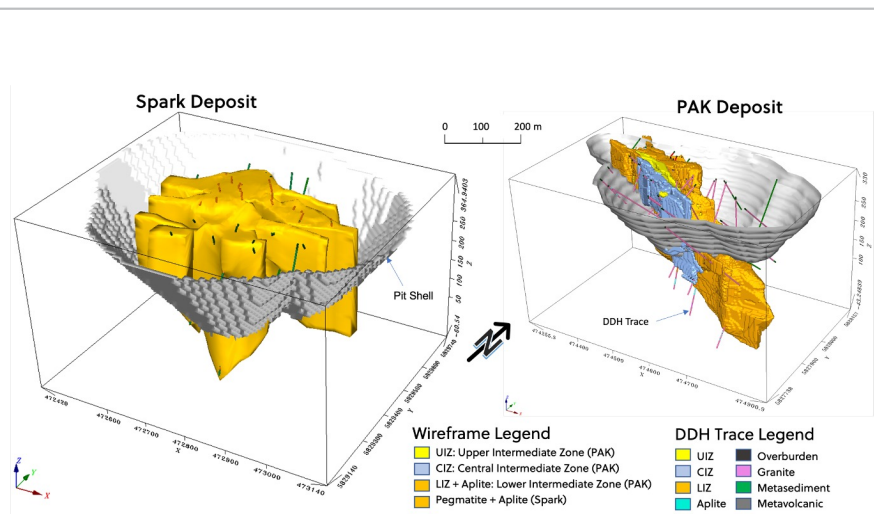
## Peer Comparison: Measured and Indicated Resource Grade %Li<sub>2</sub>O



# Strong Preliminary Economic Assessment



PAK Deposit High Grade Zone consists of 657kt at 3.59% Li<sub>2</sub>O



Both deposit remains open to depth and along strike.



**26 YEAR  
PROJECT LIFE**



**23,174  
TONNES/YR  
PRODUCTION  
LiOH-H<sub>2</sub>O**



**USD \$8.52B  
LIFE OF  
PROJECT  
REVENUE**



**USD \$974.6M  
POST-TAX NPV  
@ 8% DISCOUNT**



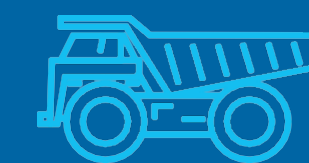
**21 %  
POST-TAX INTERNAL  
RATE OF RETURN**



**USD \$685M  
TOTAL CAPEX  
WITH 22.5%  
CONTINGENCY**



**USD \$225M  
AVERAGE  
ANNUAL  
EBITDA**



**\$13,500 USD/  
TONNE  
AVERAGE LiOH  
SELLING PRICE**

The Study includes measured, indicated and inferred resource to produce 556,200 tonnes of LiOH from the PAK and Spark deposits. Conventional open pit mining only.

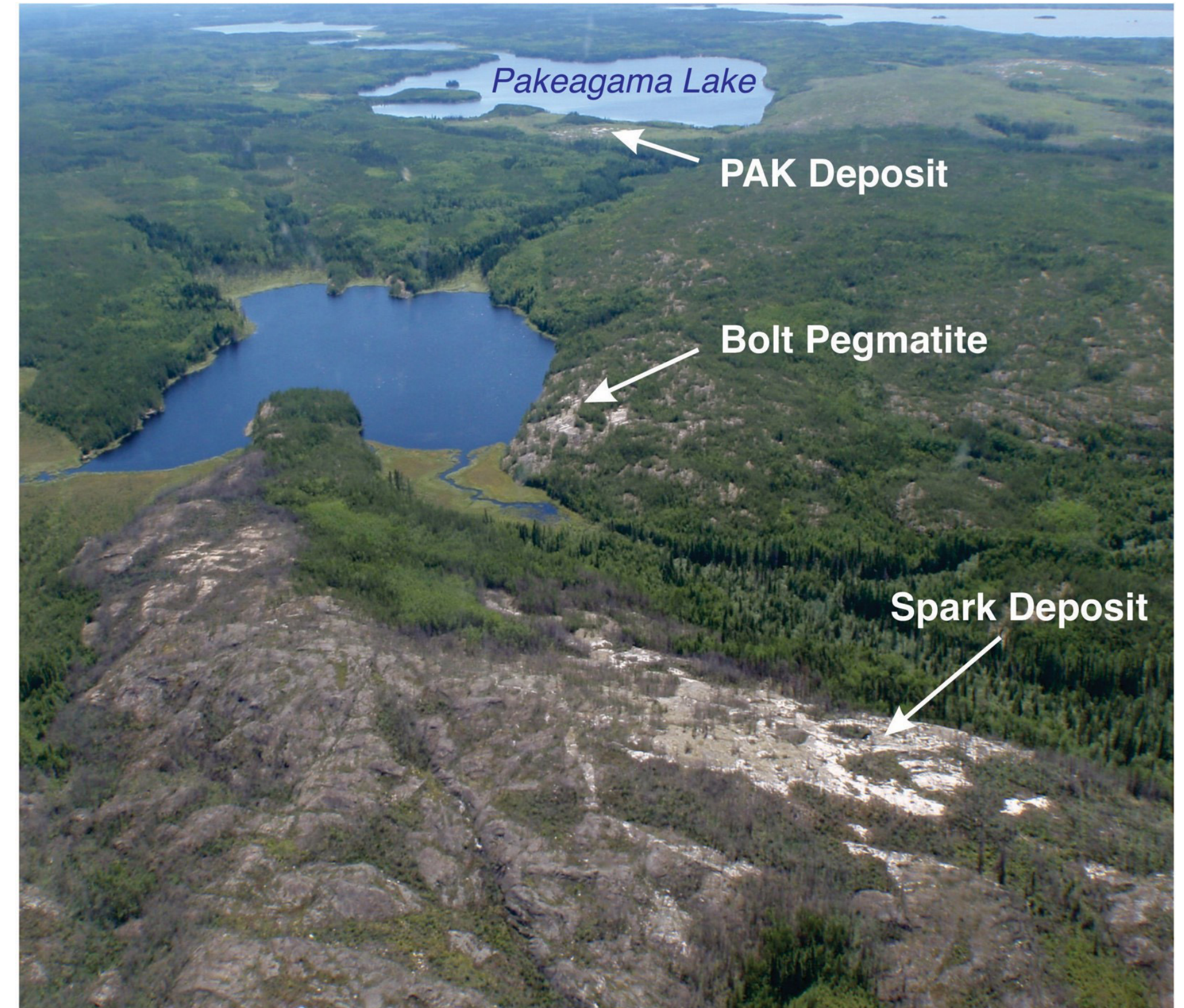
# Resource

## PAK DEPOSIT

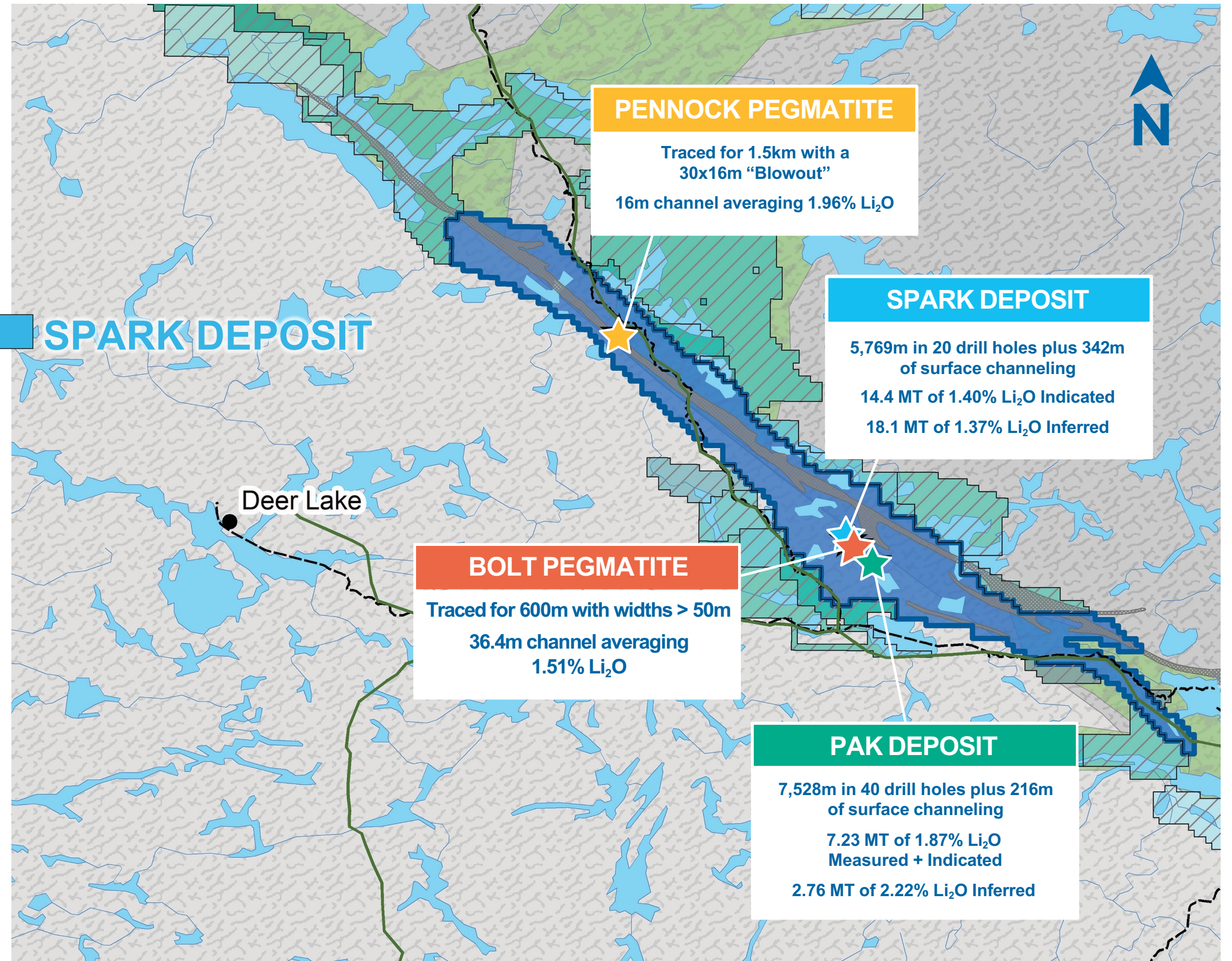
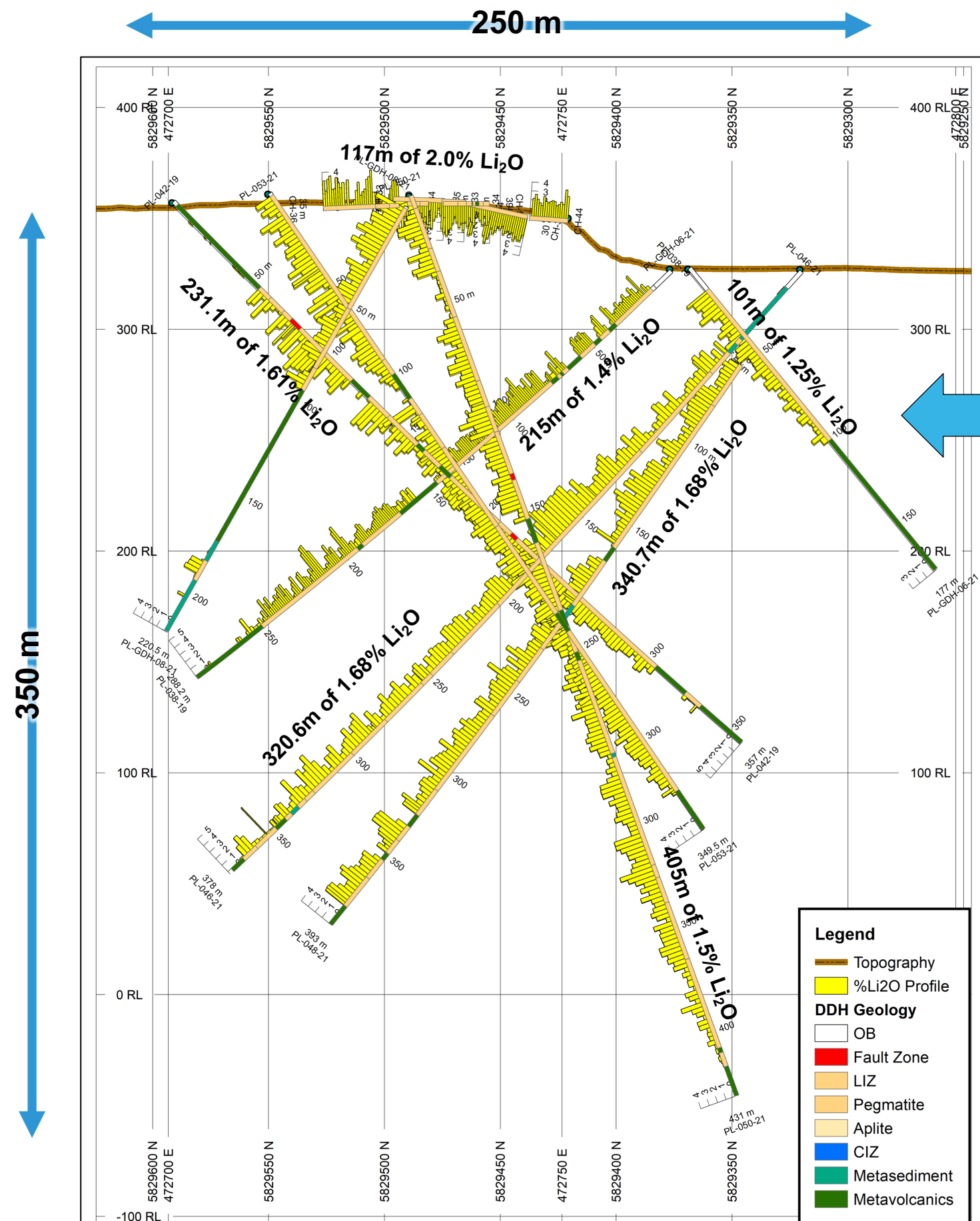
|                             |  |
|-----------------------------|--|
| <b>Resource</b>             | 9.3 Mt   |
| <b>Average Grade</b>        | 2.02% Li <sub>2</sub> O                            |
| <b>Impurities Indicator</b> | < 0.1% Fe <sub>2</sub> O <sub>3</sub> in spodumene |
| <b>Orientation</b>          | Sub-vertical                                       |
| <b>Average Width</b>        | 45m (varying from 10-125m)                         |
| <b>Dimensions</b>           | 500m strike length, 300m deep                      |
| <b>Status</b>               | Remains open at depth and along strike             |

## SPARK DEPOSIT

|                 |   |
|-----------------|---|
| <b>Resource</b> | 14.4 Mt, average grade 1.40% Li <sub>2</sub> O - Indicated<br>18.1 Mt, average grade 1.37% Li <sub>2</sub> O - Inferred   |
| <b>Width</b>    | >100m   |
| <b>Strike</b>   | > 300m  |
| <b>Status</b>   | In-fill drilling program highlights: <ul style="list-style-type: none"><li>• 340 m averaging 1.68% Li<sub>2</sub>O</li><li>• 405 m averaging 1.5% Li<sub>2</sub>O</li></ul> |

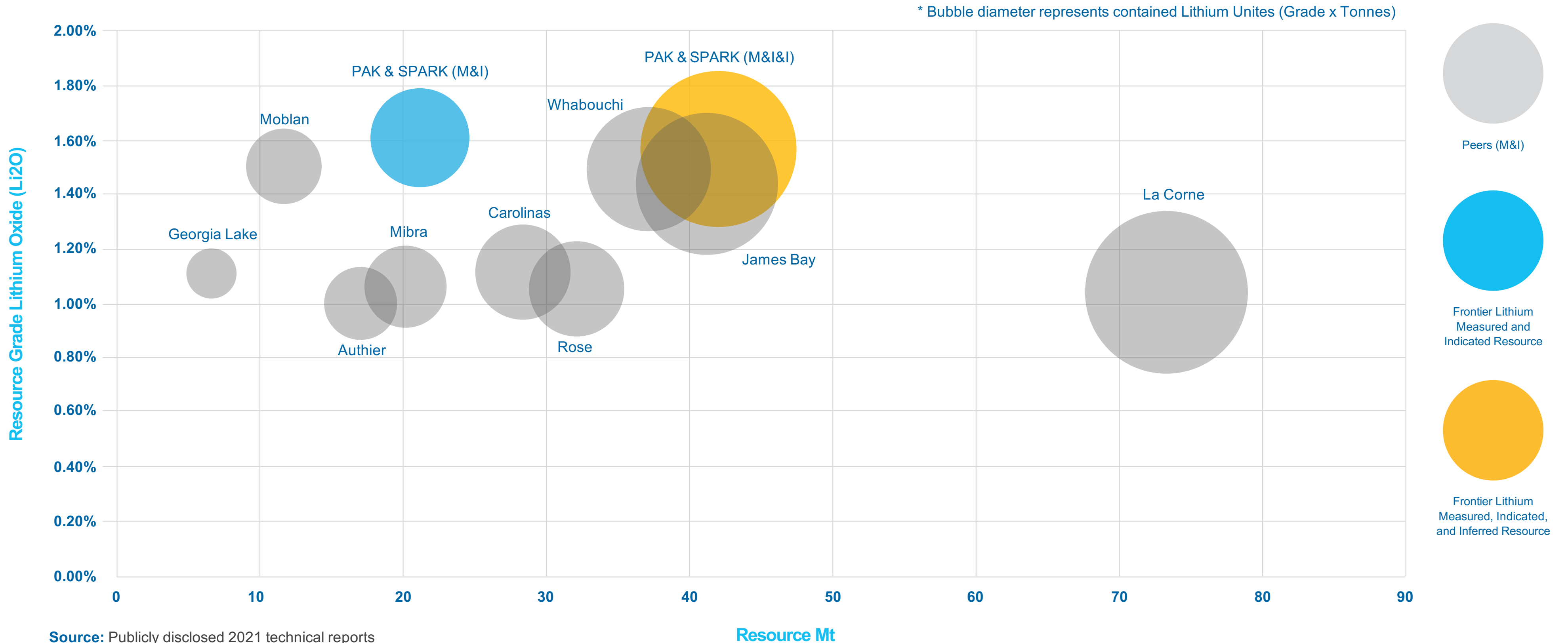


# Resource & Exploration Upside



# North American Hardrock Spodumene Deposits

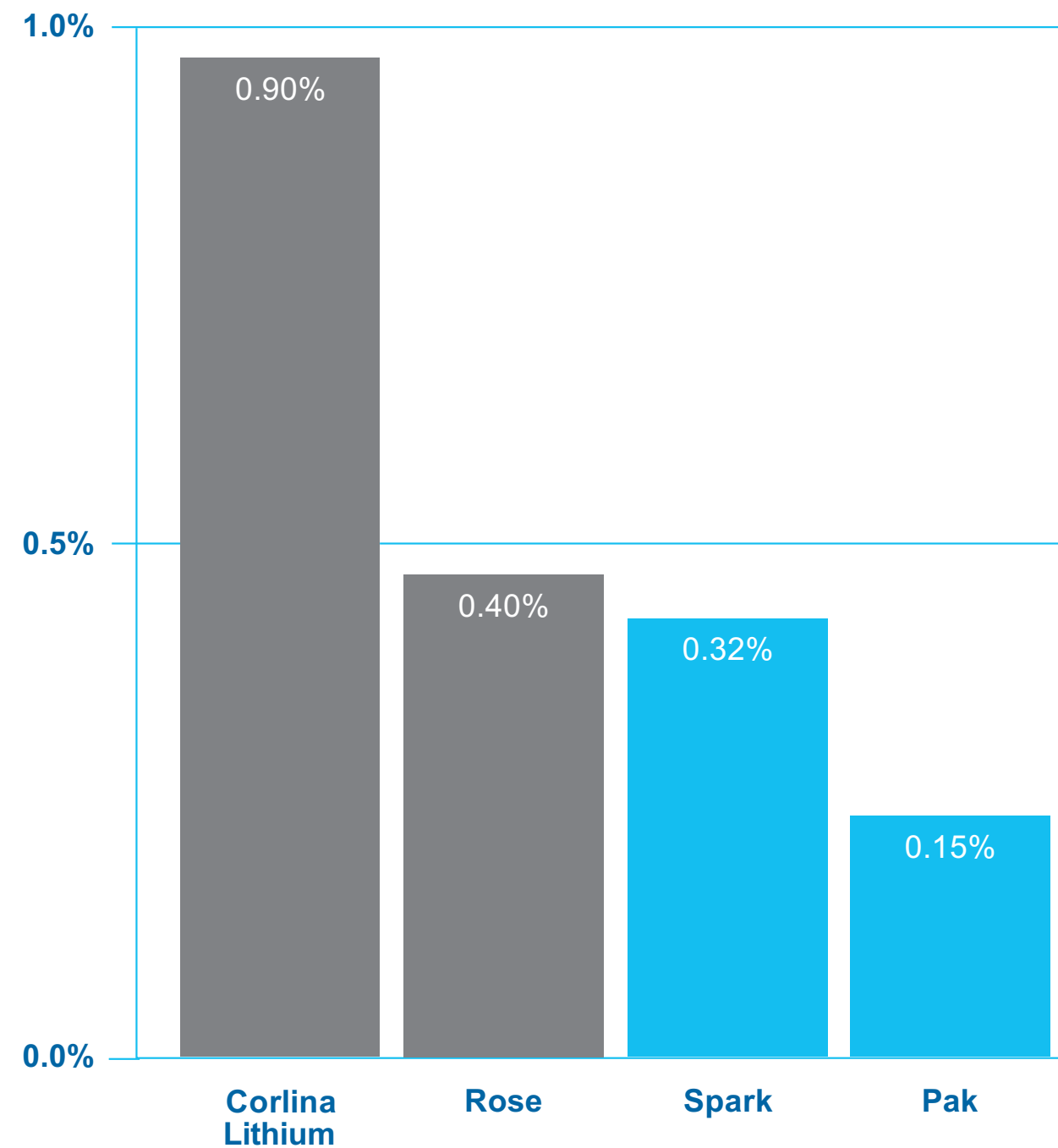
Plot Showing Grade  $\text{Li}_2\text{O}$  and Resource (Mt)



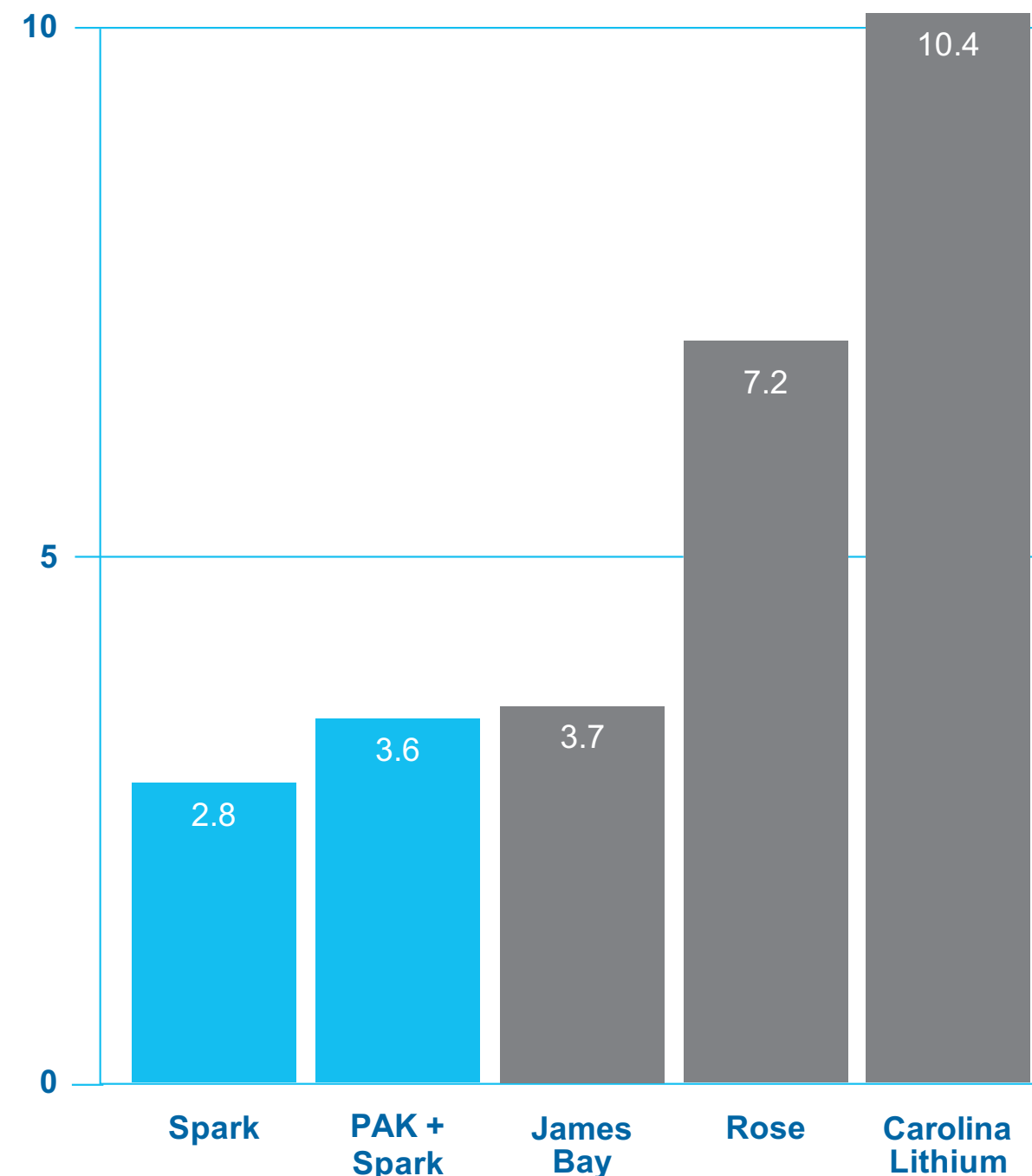
# Quality Resources Enable Low-Cost Mining

Source: Publicly disclosed technical reports

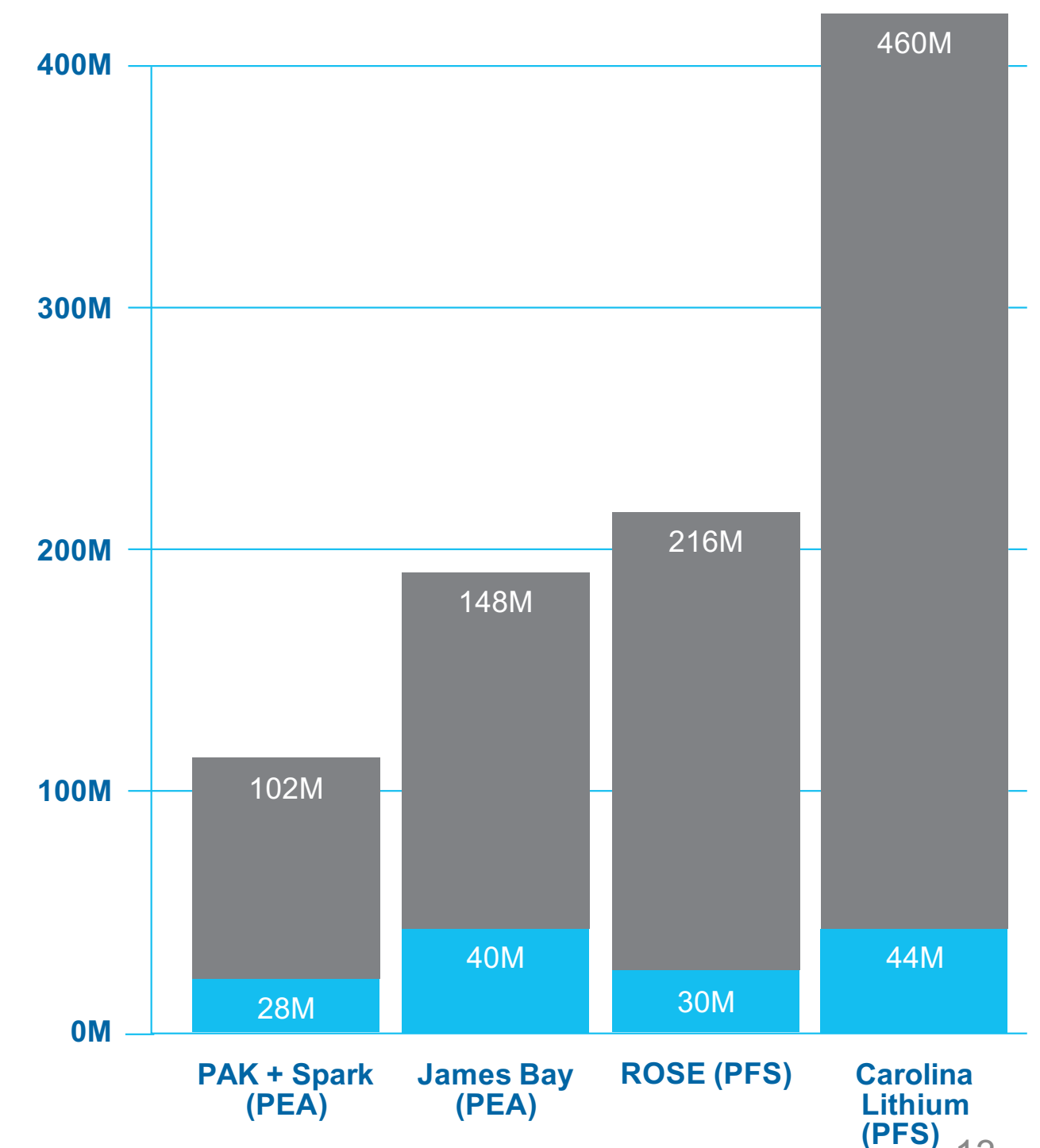
## Iron Oxide Content (%) of Concentrate



## Strip Ratio

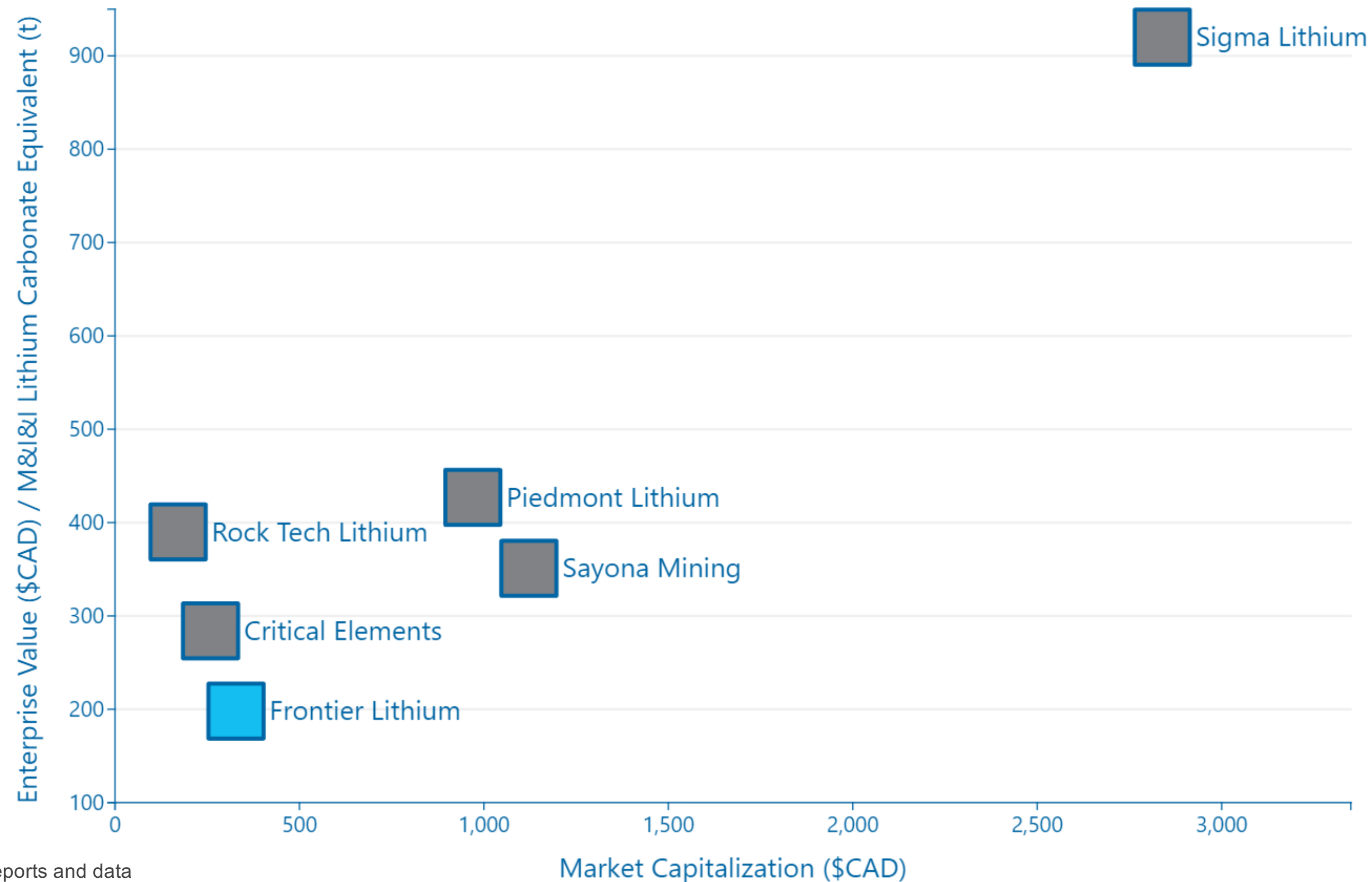


## Ore and Waste by Project + Stage



# Comparative Peer Valuation Analysis

## Peer Lithium Carbonate Equivalent (LCE) and Current Market Evaluation



# High Quality & Low Impurity



**7.2 % Li<sub>2</sub>O, 0.135 % Fe<sub>2</sub>O<sub>3</sub>**

Technical Grade – Spodumene Concentrate  
from mini-piloting



**56.5 % LiOH-H<sub>2</sub>O**

Battery-Quality Lithium Hydroxide  
from mini-piloting

| Chemical Compound              | FL Composite Sample AVG | Albemarle <sup>(1)</sup> SC 7.2 Premium | Albemarle <sup>(1)</sup> SC 7.2 Standard |
|--------------------------------|-------------------------|---|--|
| Li <sub>2</sub> O              | 7.2 %                   | min 7.2 %                               | max 7.2 %                                |
| Al <sub>2</sub> O <sub>3</sub> | 24.4 %                  | min 25.0 %                              | min 25.0 %                               |
| SiO <sub>2</sub>               | 64.8 %                  | min 62.5 %                              | max 62.5 %                               |
| Fe <sub>2</sub> O <sub>3</sub> | 0.135 %                 | max 0.12 %                              | max 0.17 %                               |
| Na <sub>2</sub> O              | 0.16 %                  | max 0.35 %                              | min 0.35 %                               |
| K <sub>2</sub> O               | 0.11 %                  | max 0.30 %                              | min 0.40 %                               |
| P <sub>2</sub> O <sub>5</sub>  | 0.05 %                  | max 0.25 %                              | min 0.35 %                               |
| CaO                            | 0.03 %                  | max 0.10 %                              | min 0.10 %                               |

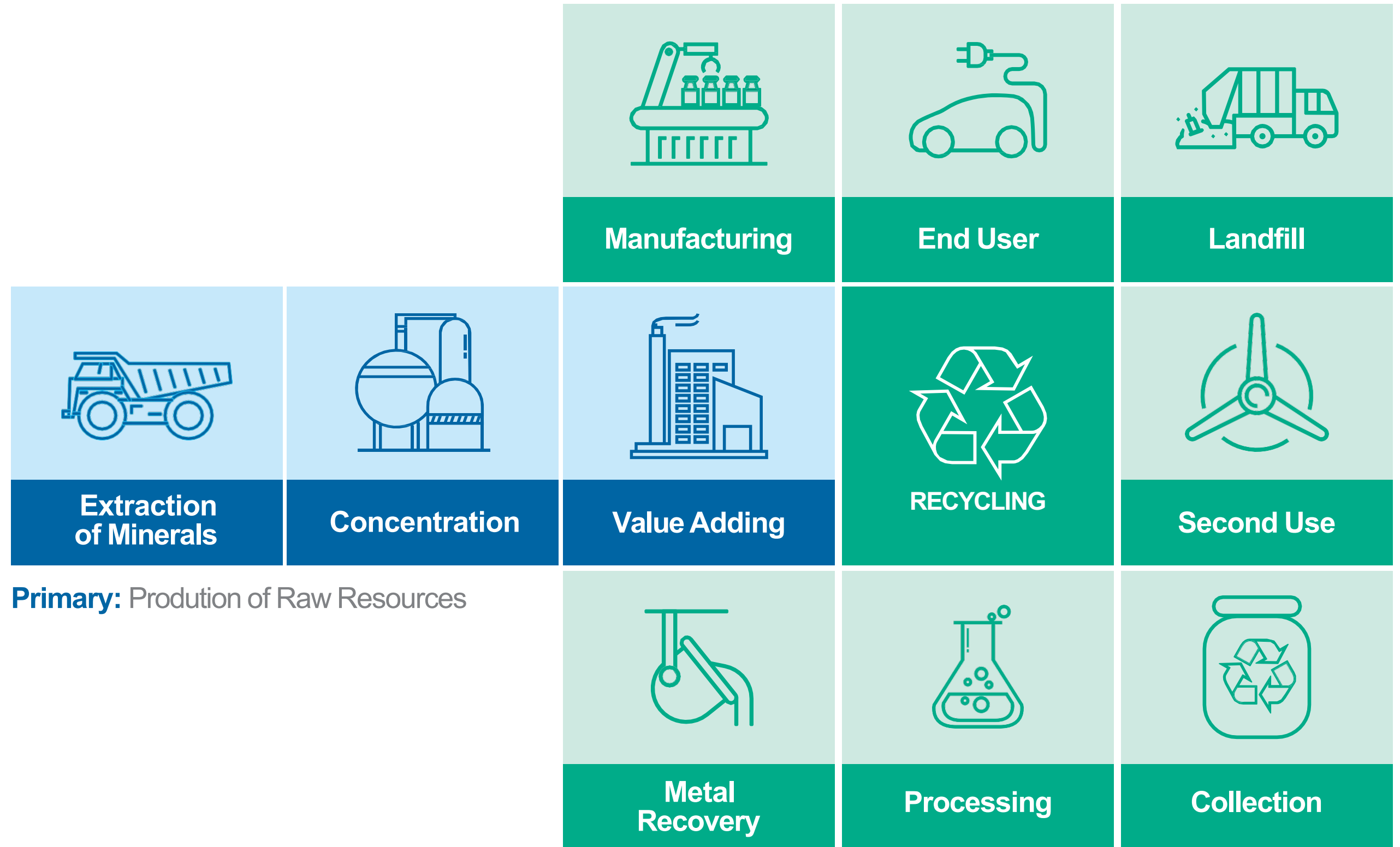
| Element   Compound | Unit | FL Composite Sample AVG | China Spec. | N.A. Supplier Spec. |
|--------------------|------|-------------------------|-------------|---------------------|
| LiOH               | %    | 56.5                    | ≥56.5       | 56.5                |
| Na                 | ppm  | 6                       | 20          | 20                  |
| K                  | ppm  | <10                     | 10          | 10                  |
| Fe                 | ppm  | Below detection         | 8           | 5                   |
| Ca                 | ppm  | 4                       | 150         | 15                  |
| Cu                 | ppm  | Below detection         | 5           | 5                   |
| Mg                 | ppm  | <1                      | 10          | 10                  |
| Si                 | ppm  | 34                      | 30          | 30                  |
| Cl                 | ppm  | <20                     | 20          | 20                  |
| SO <sub>4</sub>    | ppm  | <30                     | 100         | 100                 |



# Battery Materials Ecosystem

Frontier Lithium is assessing options for producing battery materials production and recycling through advancing the lithium chemicals piloting and demonstration.

In part, this process is supported by the Ontario government. The process and technology selection taking place during Pre-Feasibility Study.

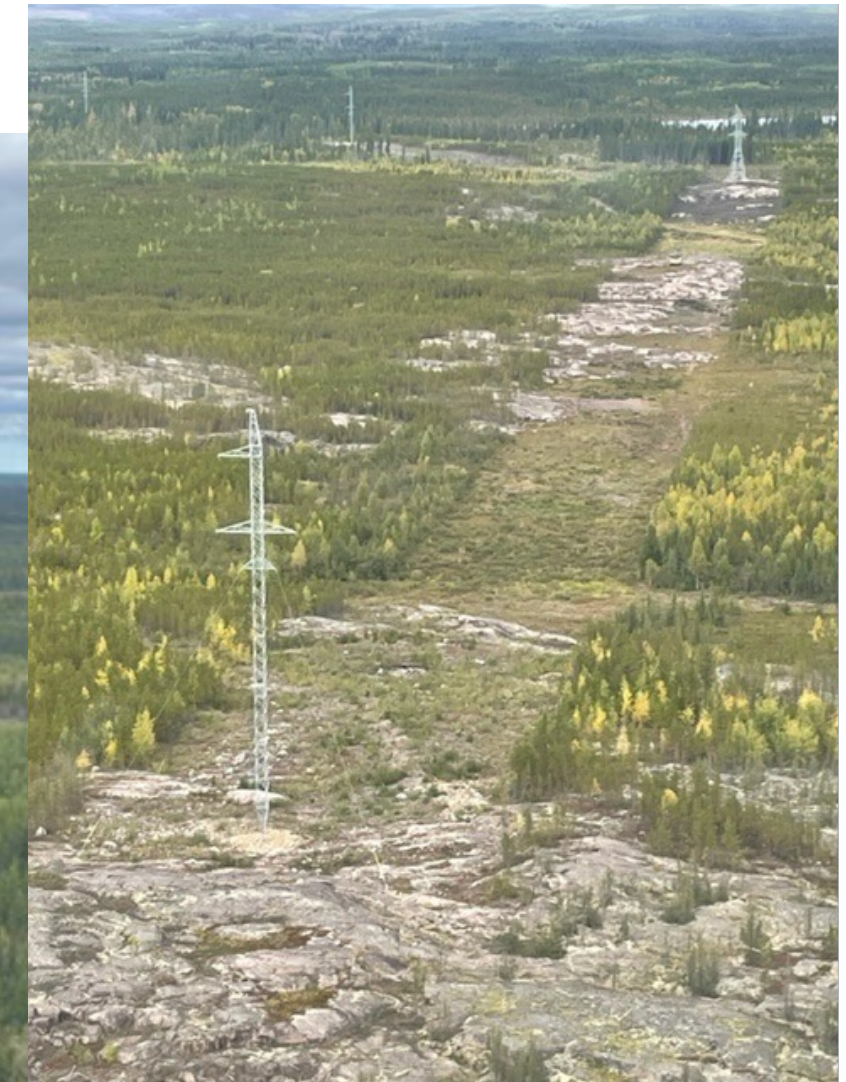


# Infrastructure

Partnered First Nation Communities seeking infrastructure upgrades.

## POWERLINE: Under Construction

- Watay Power Project is being built to service 17 First Nation Communities
- The high-voltage transmission line to be 4km from the PAK resource
- Fully funded by the Government (\$2B)
- Completion target 2023-2024

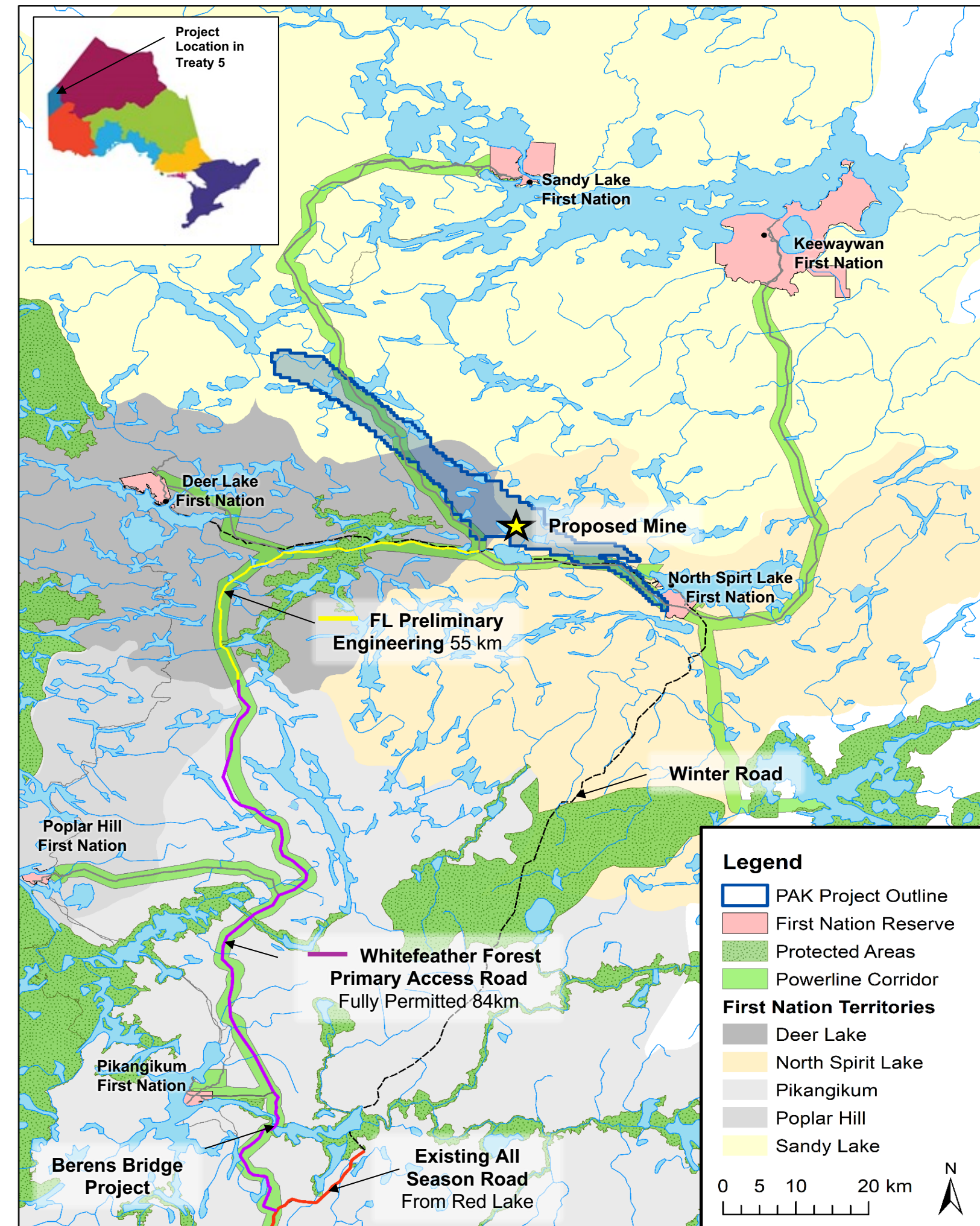


# Infrastructure

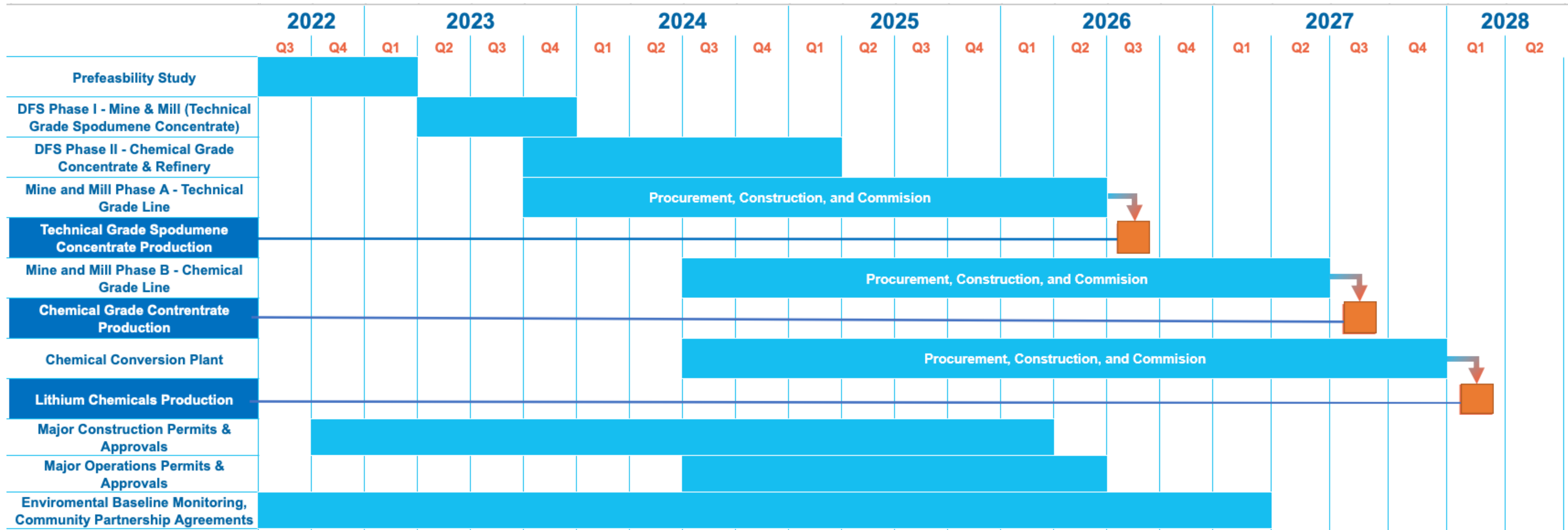
Partnered First Nation Communities seeking infrastructure upgrades.

## ROAD: Under Scoping Study

- Power-line will reduce winter road usage
- Government funded engineering study is underway for “Berens River bridge and Roads” project to improve and extend the winter road season
- Internal scoping study assessing optimal all-season road access underway



# A PHASED APPROACH TO VERTICALLY INTEGRATED LITHIUM CHEMICALS PRODUCTION



\*The project timelines are estimates and subject to adverse developments in business and economic conditions in the principal markets. The timeline is under review in Pre-Feasibility Study.

Frontier is positioned to become a strategic regional battery metals supplier.



96% zero carbon energy

1 Resources

Red Lake

2 Mining & Milling

Lithium Chemical Processing & Refining 3A

Thunder Bay

Lithium Chemical Processing & Refining 3B

Duluth, Minnesota

Lake Superior

Wawa

Sault Ste. Marie

Sudbury

Wisconsin

Lake Huron

Barrie

Ottawa

Kingston

Michigan

Toronto

Hamilton

New York

Lake Michigan

Electric Vehicle Production 6

Detroit

Sarnia

Li Ion Cell Production 5

Li Ion Cathode Anode Production 4

Windsor

Lake Erie

Illinois

Indiana

Ohio

Pennsylvania

# Frontier Lithium Opportunity Highlights

## Compelling Lithium Market Backdrop

- Race is on from auto OEMs and battery manufacturers to secure supply of raw materials required to meet EV production growth plans.
- Unprecedented level of competition for offtake for high quality projects.

## Exceptional Spodumene Resource

- One of the largest and highest grade spodumene resources located in North America.
- Tier 1 spodumene resource: large tonnage, high grades, low strip, and low impurities.

## Vertically Integrated Lithium Chemicals Producer

- Key differentiating factor will be manufacturing battery-grade lithium hydroxide.
- Assembled highly experienced team to build and operate chemical plant.

## Strategically Located in Ontario

- Well-established mining-friendly jurisdiction with supportive government, access to infrastructure and local skilled workforce.
- Ideally situated to feed local supply chains to support multi-billion-dollar investments in EV battery manufacturing in Ontario and Quebec.

## Significant Mine Life Upside Potential

- Mine life of ~25 years based on two deposits that remain open to depth and along strike.
- Two pegmatites remain on the property to be further investigated.
- 27,000h land package remains largely unexplored.

## Highly Experienced Management Team

- Led by a strong management team and directors who have a track record of making discoveries, building projects and operating mines.
- Management and directors own ~17% of equity, creating alignment with investors.



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