# Building North America's Highest Quality Source of Lithium



**ALWAYS** MOVING FORWARD

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**

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#### Tier 1 quality spodumene lithium resource globally Reserves

• 22 mt (probable) of 1.55% Li<sub>2</sub>O

#### Resource

- 26 mt (M&I) of 1.6% Li<sub>2</sub>O
- 32.5 mt (Inferred) 1.4% 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



#### \$1.7B USD Post-Tax NPV<sub>(8)</sub> utilizing two of four total discoveries



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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.

### **Resource & Exploration Upside**



### Resource & Exploration Upside Bolt Pegmatite

During 2020, the Bolt pegmatite was discovered ranging between a few metres to over 50 m wide and traced for at least 600 m

- DDH PL-103-23 60.5m of pegmatite averaging 1.33% Li<sub>2</sub>O.
  o Including 30.1m averaging 1.63% Li<sub>2</sub>O and 12.1m averaging 1.94% Li<sub>2</sub>O
- DDH PL-104-23 intersected 67.2m of pegmatite averaging 1.33% Li<sub>2</sub>O.
  o Including 19.4m averaging 1.53% Li<sub>2</sub>O and 6.7m averaging 1.92% Li<sub>2</sub>O







### **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>()</sup> SC 7.2 Premium	Albemarle <sup>(i)</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>	<b>64.8</b> %	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	<u>≥</u> 56.5	56.5
Na	ppm	6	20	20
К	ppm	<10	10	10
Fe	ppm	Below detection	8	5
Са	ppm	4	150	15
Cu	ppm	Below detection	5	5
Mg	ppm	<1	10	10
Si	ppm	34	30	30
CI	ppm	<20	20	20
SO <sub>4</sub>	ppm	<30	100	100

## **Demonstration plant - Flowsheet**



- Produced from Spark, 6% Li<sub>2</sub>O
- Li<sub>2</sub>O (insoluble) to Li<sub>2</sub>SO<sub>4</sub> (soluble)
- Leave SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub> behind
- Remove PPM Fe, Mg, Ca, etc
- Remove PPB Fe, Mg, Ca, etc
- Remove excess water
- Convert and crystalize battery salts
- recovery by-products





### **Demonstration plant objectives**

Currently no lithium refining capacity or commercial operations in Ontario

Frontier's technology applies innovative methods of harnessing a traditional flowsheet to generate both lithium carbonate and lithium hydroxide in a single facility designed with a sustainability focus

The demonstration plant helps to de-risk the project and promotes a McNulty class-1 ramp-up curve

Selection and testing of the most applicable equipment

Allows perturbing the system and understanding recovery times and strategies

Allows training opportunities to populate the commercial facility with hands-on technical staff knowledgeable about the process

Timing allows lessons learned and understandings to populate the detailed engineering design phase

## **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.







Secondary: Manufacture of goods Tertiary: Services



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