



## PFS REITERATES STRENGTH OF PROJECT

June 16, 2023

- **PFS Announced** – Frontier Lithium released results of their PFS on 31 May. The project is a strong one. The company’s PFS, summarized on May 31, demonstrates a net present value of USD\$2.6 billion.
- **Smart Development** – For those paying attention, much of the increase in battery-grade lithium supply has come from hard-rock mining, but that doesn’t imply this is easy. Frontier begins by producing technical and chemical spodumene concentrates and brings a chemical plant into production while positive cashflow from concentrate sales is occurring, de-risking the build.
- **The Future** – Frontier has a strong project, but it’s important to consider when it is likely to commence production. At this point, Frontier look likely to be producing product at a time when the global auto industry will be actively seeking more.
- **Still Great Value** – The numbers from the Frontier PFS suggest a present value per share of CAD\$4.00. At current trading levels of roughly CAD\$1.90, our recommendation remains POSITIVE. Frontier is one of the very best advanced-development spodumene deposits in the world.

**Jon Hykawy, PhD**  
President  
[jon@stormcrow.ca](mailto:jon@stormcrow.ca)

*A Great PFS, Pure and Simple*

Frontier Lithium owns the PAK Project in northern Ontario. We've known that this series of deposits has been extremely promising for some time, but the latest resource statements put an exclamation point on our interest:

**Exhibit 1** – Latest Resource

PAK Open-Pit

Cut-off	Resource Category	Commodity	Geologic Zone	Tonnes (t)	Li <sub>2</sub> O (%)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Cs <sub>2</sub> O (%)	Rb <sub>2</sub> O (%)	Contained Li <sub>2</sub> O (t)
0.6% Li <sub>2</sub> O	Measured	Lithium	Upper Intermediate Zone (UIZ)	325,200	3.43	59	0.03	0.14	11,154
		Lithium	Lower Intermediate Zone (LIZ)	1,019,400	1.73	105	0.04	0.29	17,636
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>1,344,600</b>	<b>2.14</b>	<b>94</b>	<b>0.04</b>	<b>0.25</b>	<b>28,790</b>
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>1,344,600</b>	<b>2.14</b>	<b>94</b>	<b>0.04</b>	<b>0.25</b>	<b>28,790</b>
0.6% Li <sub>2</sub> O	Indicated	Lithium	Upper Intermediate Zone (UIZ)	255,400	2.91	75	0.04	0.21	7,432
		Lithium	Lower Intermediate Zone (LIZ)	3,819,900	1.88	99	0.04	0.30	71,814
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>4,075,300</b>	<b>1.94</b>	<b>97</b>	<b>0.04</b>	<b>0.29</b>	<b>79,246</b>
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	544,100	1.11	113	0.08	0.63	n/a
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>4,619,400</b>	<b>1.72</b>	<b>99</b>	<b>0.04</b>	<b>0.33</b>	<b>79,246</b>
0.6% Li <sub>2</sub> O	Measured + Indicated	Lithium	Upper Intermediate Zone (UIZ)	580,600	3.20	65	0.03	0.17	18,587
		Lithium	Lower Intermediate Zone (LIZ)	4,839,300	1.85	100	0.04	0.30	89,450
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>5,419,900</b>	<b>1.99</b>	<b>96</b>	<b>0.04</b>	<b>0.29</b>	<b>108,036</b>
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	544,100	1.11	113	0.08	0.63	n/a
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>5,964,000</b>	<b>1.81</b>	<b>98</b>	<b>0.04</b>	<b>0.32</b>	<b>108,036</b>
0.6% Li <sub>2</sub> O	Inferred	Lithium	Upper Intermediate Zone (UIZ)	74,200	2.77	96	0.04	0.25	2,055
		Lithium	Lower Intermediate Zone (LIZ)	528,900	1.86	79	0.02	0.23	9,838
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>603,100</b>	<b>1.97</b>	<b>81</b>	<b>0.02</b>	<b>0.23</b>	<b>11,893</b>
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	77,400	1.21	153	0.08	0.51	n/a
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>680,500</b>	<b>1.75</b>	<b>89</b>	<b>0.03</b>	<b>0.26</b>	<b>11,893</b>

PAK Underground

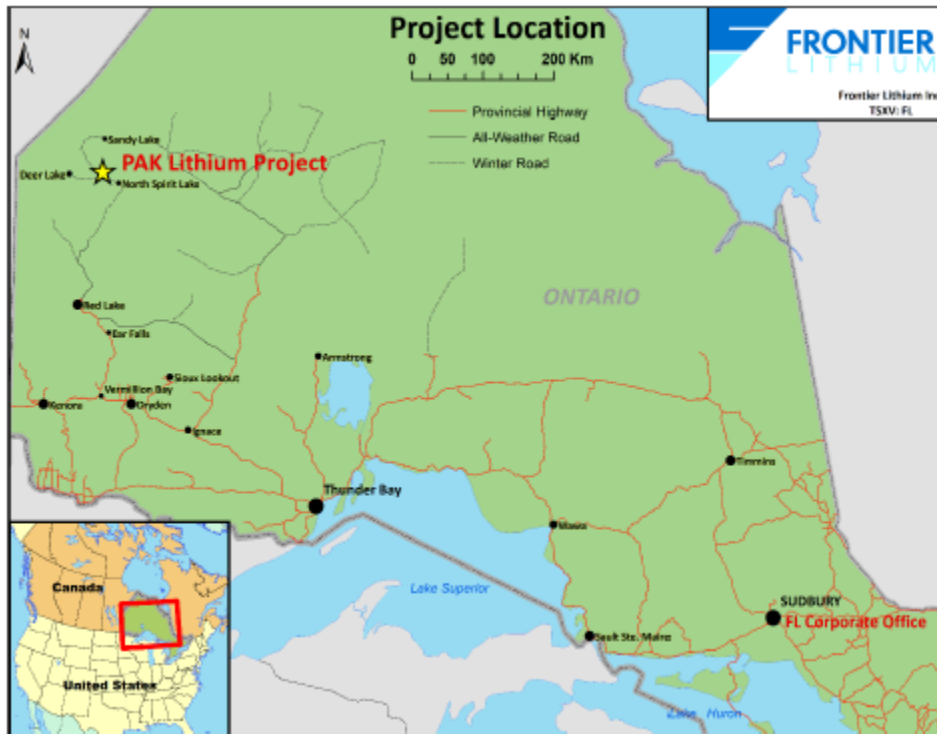
Cut-off	Resource Category	Commodity	Geologic Zone	Tonnes (t)	Li <sub>2</sub> O (%)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Cs <sub>2</sub> O (%)	Rb <sub>2</sub> O (%)	Contained Li <sub>2</sub> O (t)
0.8% Li <sub>2</sub> O	Measured	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	0	-	-	-	-	0
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0</b>
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0</b>
0.8% Li <sub>2</sub> O	Indicated	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	1,261,700	2.15	91	0.04	0.29	27,127
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>1,261,700</b>	<b>2.15</b>	<b>91</b>	<b>0.04</b>	<b>0.29</b>	<b>27,127</b>
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	3,830	1.16	143	0.06	0.34	n/a
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>1,265,530</b>	<b>2.14</b>	<b>91</b>	<b>0.04</b>	<b>0.29</b>	<b>27,127</b>
0.8% Li <sub>2</sub> O	Measured + Indicated	Lithium	Upper Intermediate Zone (UIZ)	0	-	-	-	-	0
		Lithium	Lower Intermediate Zone (LIZ)	1,261,700	2.15	91	0.04	0.30	27,127
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>1,261,700</b>	<b>2.15</b>	<b>91</b>	<b>0.04</b>	<b>0.30</b>	<b>27,127</b>
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	3,830	1.16	143	0.06	0.34	n/a
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0.8% Li <sub>2</sub> O	Inferred	Lithium	Upper Intermediate Zone (UIZ)	27,450	4.35	31	0.02	0.10	1,194
		Lithium	Lower Intermediate Zone (LIZ)	2,043,400	2.35	73	0.02	0.25	48,020
		<b>Lithium</b>	<b>Total Lithium Zone</b>	<b>2,070,850</b>	<b>2.38</b>	<b>72</b>	<b>0.02</b>	<b>0.25</b>	<b>49,214</b>
		Tantalum / Rubidium	Central Intermediate Zone (CIZ)	6,900	2.03	146	0.12	0.24	n/a
		<b>Lithium / Tantalum / Rubidium</b>	<b>Bulk Pegmatite</b>	<b>2,077,750</b>	<b>2.37</b>	<b>73</b>	<b>0.02</b>	<b>0.25</b>	<b>49,214</b>

Spark Open-Pit

Cut-Off	Resource Classification	Tonnes (t)	Li <sub>2</sub> O (%)	Nb <sub>2</sub> O <sub>5</sub> (ppm)	Cs <sub>2</sub> O (%)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Rb <sub>2</sub> O (%)	SnO <sub>2</sub> (ppm)
0.65% Li <sub>2</sub> O	Indicated	18,828,000	1.52	84	0.02	112	0.26	61
	Inferred	29,746,000	1.34	77	0.03	116	0.26	74

Source: NI-43-101 Report, 9 May 2023

**Exhibit 2** – Location of the Project



Source: NI 43-101 Report, 9 May 2023

Normally, I can begin to quibble with a 43-101 or JORC as soon as I look at pricing of the commodities. However, I can't really argue a lot with the price deck used by Frontier Lithium, in this case.

**Exhibit 3** – Frontier PFS Price Assumptions

Technical Grade Concentrate (TG) 7.2%	3,000	US\$/tonne
Chemical Grade Concentrate (CG) 6%	1,350	US\$/tonne
Battery Grade Lithium Hydroxide	22,000	US\$/tonne
Lithium Carbonate	20,500	US\$/tonne
Exchange Rate	1.3	CAD\$ : 1 US\$

Source: Company Press Release, 31 May 2023

It could be argued that USD\$22,000 per tonne lithium hydroxide and USD\$20,500 per tonne lithium carbonate are slightly optimistic, long-term, but those prices are definitely within the bounds of reason. And based on current data, technical-grade concentrate prices of USD\$3,000 per tonne are justified, while we would regard chemical-grade concentrate prices of USD\$1,350 a tonne as somewhat low. Given that all these prices are in-line with values quoted in other reports by other lithium companies, the Frontier PFS allows for a reasonably direct comparison between companies.

### *The Financial Model*

The capital cost of the initial technical-grade spodumene concentrator and associated mine (technical-grade spodumene being a low-iron product that is used, primarily, in the glass and ceramics industry and that carries a price premium compared to chemical-grade spodumene concentrate) is given in the 43-101 summary as USD\$467.85 million.

*<capital costs on next page>*

## Exhibit 4 – Capital Costs

Capital Costs	CA\$M	US\$M
Initial Capital, Direct Cost Estimate	392	301
Initial Capital Indirect Costs and Contingency	217	167
<b>Total Initial Capital Costs</b>	<b>608</b>	<b>468</b>
Expansion Capital, Direct Cost Estimate	472	363
Expansion Capital Indirect Costs and Contingency	278	214
<b>Total Expansion Capital Costs</b>	<b>749</b>	<b>576</b>
LOM Sustaining Capital	95	73
LOM Sustaining Capital, Indirect Costs and Contingency	23	17
<b>Total LOM Sustaining Capital</b>	<b>117</b>	<b>90</b>
Reclamation and Closure Costs	21	16
<b>LOM Total Capital</b>	<b>1,496</b>	<b>1,151</b>

Capital Requirements	Initial Capital (CA\$M)	Expansion Capital (CA\$M)	Initial Capital (US\$M)	Expansion Capital (US\$M)
PAK - Infrastructure	0.38	-	0.29	-
PAK - Mobile Fleet	18.58	-	14.29	-
Spark - Infrastructure	-	0.34	-	0.26
SC 7.2 Concentrator	157.92	-	121.48	-
SC 6.0 Concentrator	-	74.27	-	57.13
Tailings Material Handling Pipeline	1.20	-	0.92	-
Tailings Management Facility	21.97	-	16.90	-
Site Preparation - Civil Work Mine & Mill	34.90	-	26.85	-
Site Roads and Permanent Access Road	33.83	-	26.02	-
Water Treatment Plant	21.52	-	16.56	-
Utilities	22.47	-	17.29	-
Electrical Power - Substation & Distribution	22.22	-	17.09	-
Building Facilities	48.24	17.82	37.10	13.71
Airstrip	0.28	-	0.22	-
Site - Mobile Fleet	0.61	-	0.47	-
Industrial Control Systems	2.13	-	1.64	-
Insurance	5.45	-	4.19	-
Chemical Plant/Erection/Commissioning	-	379.23	-	291.72
<b>Mine and Site Indirect Costs</b>	-	-	-	-
Owners Costs	18.27	-	14.05	-
EPCM	27.40	-	21.08	-
Other associated indirect costs	17.22	-	13.24	-
<b>Mill Indirect Costs</b>	-	-	-	-
SC 7.2 Concentrator	53.17	-	40.90	-
SC 6.0 Concentrator	-	30.38	-	23.37
Chemical Plant	-	125.37	-	96.44
<b>SUB-TOTAL CAPITAL COSTS</b>	<b>507.74</b>	<b>627.42</b>	<b>390.57</b>	<b>482.63</b>
<b>Contingency</b>	-	-	-	-
Mine and Site	58.24	-	44.80	-
SC 7.2 Concentrator	42.22	-	32.48	-
SC 6.0 Concentrator	-	20.93	-	16.10
Chemical Plant	-	100.92	-	77.63
<b>TOTAL CAPITAL COSTS</b>	<b>608.20</b>	<b>749.27</b>	<b>467.85</b>	<b>576.36</b>

Source: Company Press Release, 31 May 2023

The cost of the chemical-grade concentrator and associated chemical plant, which will produce 12,520 tonnes per year of battery-grade lithium hydroxide monohydrate and 7,360 tonnes per year of battery-grade lithium carbonate, is estimated to be USD\$576.36 million.

Operating costs for the two portions of the plant are estimated to be USD\$7,433 per tonne of chemical, LCE, and USD\$539 per tonne of produced concentrate.

Based on the above and a chart showing planned mining rates for the project, we have built a cash-flow model. We assume that the project itself is financed solely with equity, which is the most

conservative assumption we can make. The use of debt or other non-equity instruments will increase NPV by delaying repayment for capital expenditures.

The standard discount rate for evaluating projects in 43-101 documents seems to be 8%, the rationale for which is unclear. Here, there is obviously overall market risk in the form of number of suppliers reaching the market with time, demand with time and the willingness of professional investors to back another lithium play. However, we balance at least some of this with a desire in Canadian and Ontario government to be seen to support Canadian companies in the EV transition, as well as the strength of the PAK project, itself. The fact that Ontario and Canada represent very stable geopolitical jurisdictions with strong rule-of-law regarding mining projects is also a de-risking factor.

With respect to the project itself, earlier work has shown the ability to reliably produce a spodumene concentrate from ore, even a very high-grade technical product after the company realized that it was so-called “tramp” iron that was contaminating their technical grade product. The company also has hired individuals with direct prior spodumene and lithium expertise. And company management has solid experience in reliably operating large-scale mining projects. In my opinion, this is one of the most technically de-risked projects at this stage of development in the lithium industry, today.

So, from the above, the financial model incorporates an 11% discount rate. On that basis, our financial model provides us with a net present value of USD\$730 million. Adjusting for cash-on-hand, current liabilities and cash that would be generated from in-the-money exercise of options and warrants, the fully diluted value of Frontier at this point is USD\$3.12 per share or, using the present conversion rate CAD\$4.20. **We will set our target to CAD\$4.00 per share for no reason other than it being a round number and the actual recent trading level of CAD\$1.90 is well below our target. Our recommendation remains POSITIVE.**

It should also be noted that an 11% discount rate reflects our opinion of current technical and market (both industrial and financial) risks. However, Frontier has a clear path to re-rating, over the next twelve months, by aligning with strategic financiers, securing tier-one off-take partners, advancing its permits and generally continuing commercial development. At the stage that the project is ready for construction and financing is assembled, an appropriate discount rate would be roughly 8% and using such a rate, today, would lead to a NPV of USD1.3 billion and a fully-diluted

per-share value of almost CAD\$7.00. Clearly, there is substantial value yet to be unlocked in Frontier.

### *Conclusions*

Frontier is perhaps the only hard-rock lithium project on Earth that combines high-grade, large tonnage, geopolitical stability, management knowledge and experience as well as stage of development, in this fashion. For us, it makes Frontier perhaps the most attractive mining project in the space.

For good or ill, societies around the world are pinning their climate change hopes on vehicle electrification as a cornerstone of carbon emission reduction efforts. We know that simply electrifying light- and medium-duty vehicles will yield insufficient carbon emission reductions, but the transition is at least a useful step in the right direction. Sodium batteries and other efforts will play their parts, but for a long-range battery-only electric vehicle there is, at present, no alternative to the energy density provided by using lithium batteries. Lithium will be in significant and growing demand for years to come.

So we maintain a POSITIVE recommendation on Frontier Lithium and a target price of CAD\$4.00 per share on the stock. The PAK deposit is one of the very best and the company is doing the right things literally as fast as they can be done.

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