

# MILLENNIAL LITHIUM CORP.

## Feasibility Study Shows Robust Lithium Project

### EVENT

Millennial Lithium reported positive results from its recently completed Feasibility Study on its Pastos Grandes brine project in Salta Province, Argentina. The study sees the Project ramping up over a six-year period to produce 24,000 tpa of battery grade lithium carbonate, a key input for lithium ion batteries used in the rapidly growing electric vehicle industry. Based on a \$448.2M upfront capex requirement, ~\$3,400/t unit operating costs and a long term average price assumption of \$13,199/t lithium carbonate over a 40-year project life, the study sees a NPV<sub>8%</sub> of \$1,030M and after-tax IRR of 24.2%.

### BOTTOM LINE

**Positive:** The feasibility study shows material refinements to the PEA, notably slightly lower throughput, a longer ramp-up and slightly higher costs. Based on our more conservative long-term price assumption for lithium carbonate of \$10,000/t and discount multiple to NAV<sub>8%</sub> of 0.5x (unchanged given overall market weakness), our target price drops to C\$3.80/shr from C\$4.50/shr previously but the stock remains attractive with a 180% potential return demonstrating the robustness of the project. Our BUY rating remains unchanged.

### FOCUS POINTS

- **Advanced Project:** A positive feasibility study completed in July, 2019 showed a 24,000 tpa lithium carbonate operation with an NPV<sub>8%</sub> of \$1,030M and an IRR of 24.2%.
- **Large Lithium Reserves & Resources:** Millennial has based the FS on a 943,000t lithium carbonate reserve at PAsotos Grandes grading 439 mg/L Li. The M&I resource remains open at depth and currently stands at 4.12Mt lithium carbonate grading 427mg/L Li.
- **Well Financed:** With ~\$38M in cash on hand, ML has ample capital to complete the test plant and arrange project financing.
- **Near Term Catalysts:** Key events that should act as positive catalysts for the stock price include: i) pilot plant testing (ongoing); ii) project permitting (end 2019) iii) project financing (H2/19-H1/20).

### Recommendation:

**BUY**

Symbol/Exchange:

ML-TSXV

Sector:

Metals & Mining

All dollar values in US\$ unless otherwise noted.

Current price:

C\$1.46

One-year target:

C\$3.80↓

Target return:

160%

52-week Range:

C\$1.04 - C\$2.18

### Financial Summary

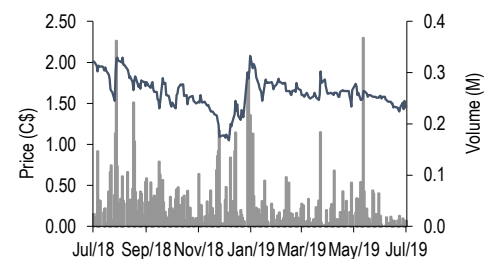
Market Cap (C\$M)	121.5
Cash on hand (C\$M)	38.5
Debt (\$M)	0.0
Basic Shares O/S (M)	83.2
Fully Diluted Shares O/S (M)	98.2
Avg. Weekly Volume (k)	7

### Lithium Carbonate Reserve

Category	Period (Yrs)	Li Grade (mg/l)	LCE (tonnes)
Proven	1-8	470	179,000
Probable	9-40	431	764,000
P&P	40	439	943,000

### Lithium Carbonate Resource

Category	Volume (Bm <sup>3</sup> )	Li Grade (mg/l)	LCE (Mtonnes)
Measured	5.2	446	2.3
Indicated	3.8	406	1.9
M&I	9.0	427	4.1
Inferred	3.5	428	0.8
Total MI&I	12.5	427	4.9



**Company Profile:** Millennial Lithium Corp is focused on developing its 100% owned Pastos Grandes Lithium Project, located in Salta, Argentina. The Company also owns a 100% interest in the Cauchari East Project, also located in Argentina. The Company is headquartered in Vancouver, British Columbia

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See disclosure and a description of our recommendation structure at the end of this report.

## ROBUST FEASIBILITY STUDY

**Highlights:** Millennial Lithium Corp. reported positive results from its recently completed Feasibility Study (FS) on its Pastos Grandes lithium brine project in Salta Province, Argentina. The study sees Pastos Grandes ramping up over six-years to produce 24,000 tpa of battery grade lithium carbonate (>99.5% Li<sub>2</sub>CO<sub>3</sub>), a key input for lithium ion batteries used in the rapidly growing electric vehicle industry. Based on a \$448.2M upfront capex requirement, ~\$3,400/t unit operating costs and long term average price assumption of \$13,199/t lithium carbonate over a 40-year project life, the study sees a NPV<sub>8%</sub> of \$1,030M and after-tax IRR of 24.2%. The FS shows material refinements to the PEA, notably slightly lower throughput, a longer ramp-up and slightly higher costs (Exhibit 1). Based on our more conservative long-term price assumption for lithium carbonate of \$10,000/t and discount multiple to NAV<sub>8%</sub> of 0.5x (unchanged given overall market weakness), our target price drops to C\$3.80/shr from C\$4.50/shr previously. Despite this conservative approach, the stock remains attractive with a 180% potential return demonstrating the robustness of the project.

### Exhibit 1: Feasibility Study Highlights and Cantor Estimates

All amounts in \$US unless otherwise noted

Company Project	Millennial Lithium Pastos Grandes		Millennial Lithium Pastos Grandes		
	Cantor Est. (new)	2019 DFS	Cantor Est. Prev	2018 PEA	
<b>Study</b>					
<b>Resource</b>					
Resource Category	Reserve	Reserve	M&I	M&I	
Resource Estimate	Mt LCE	943,000	943,000	4.12	2.13
Li content	mg/l	439	439	427	445
<b>Operation</b>					
First Production		2022	2022	2021	2021
Ramp-Up	years	6	6	3	3
LOM	years	40	40	40	24
Annual Production	LCE tpa	18,000 - 24,000	18,000 - 24,000	25,000	25,000
Unit Cost	\$/t LCE	3,400	3,388	3,218	3,218
<b>Capital</b>					
Capex	\$M	450	448	410	410
Sustaining Capex	\$M	102	102	124	76.2
Capex/t LCE	\$	18,667	18,667	16,400	16,400
<b>Economics</b>					
Li <sub>2</sub> CO <sub>3</sub> Price	\$/t LCE	10,000	13,199	10,000	13,499
NPV8%	\$M	714	1030	569	824
NPV10%	\$M	515	729	369	607
IRR	%	18.0%	24.2%	19.4%	23.4%

Source: Cantor Fitzgerald, Millennial Lithium

**FS Estimates:** The FS was prepared by WorleyParsons Chile S.A. (Worley) and Montgomery & Associates Consultores Limitada based in Santiago, Chile. Worley has extensive experience in the design and construction of lithium brine projects in Argentina and Chile. The total upfront capital for the project of \$448.2M includes direct capital cost of \$351.6M and contingency costs of \$49.8M, 12.5% of the total initial capital costs (Exhibit 2).

**Exhibit 2: Capital Cost Summary**

Description	Projected Budget US\$
<b>Direct Costs</b>	
Brine Extraction	21,261,859
Evaporation Ponds	115,015,794
Brine Treatment Plant	10,870,040
Lithium Carbonate Plant	70,025,037
General Services	79,687,114
Infrastructure	54,700,142
<b>Total Direct Costs</b>	<b>351,559,986</b>
Indirect Costs	46,881,469
Contingencies	49,805,182
<b>TOTAL</b>	<b>448,246,638</b>

Source: Millennial Lithium

The project is broken up into two stages; a Start-Up Stage (Years 1-6) and the Main Mine Life Stage (Years 7-40), respectively. The direct operating costs associated with brine extraction, reagents, salt removal, processing and operations support are estimated at \$3,308 and \$3,329 per tonne of lithium carbonate for the Start-Up Stage and Main Mine Life Stage, respectively over the life of the project. Indirect costs include G&A and some local costs and are estimated at \$68 and \$60 per tonne of lithium carbonate for the Start-Up Stage and Main Mine Life Stage respectively. This gives total Opex estimates of \$3,377/t of lithium carbonate for the Start-Up Stage and \$3,388/t of lithium carbonate for the Main Mine Stage (Exhibit 3).

**Exhibit 3: Operating Cost Summary**

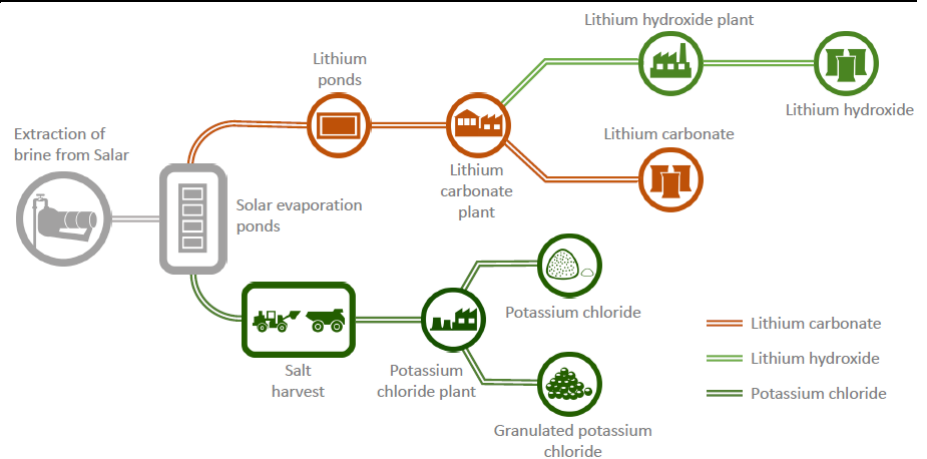
Operation Costs - OPEX	Start-Up Stage		Main Mine Life Stage	
	US\$ / Tonne Li <sub>2</sub> CO <sub>3</sub>	Total 000 US\$	US\$ / Tonne Li <sub>2</sub> CO <sub>3</sub>	Total 000 US\$
<b>DIRECT COSTS</b>				
Chemical Reactives and Reagents	1,999	41,988	2,013	48,308
Salt Removal and Transport	527	11,076	513	12,324
Energy	160	3,365	180	4,329
Manpower	160	3,358	178	4,280
Transport	153	3,219	153	3,678
Catering & Camp Services	83	1,743	83	1,992
Maintenance	225	4,727	207	4,973
<b>DIRECT COSTS SUBTOTAL</b>	<b>3,308</b>	<b>69,477</b>	<b>3,329</b>	<b>79,884</b>
<b>INDIRECT COSTS</b>				
General & Administration - Local	68	1,438	60	1,438
<b>INDIRECT COSTS SUBTOTAL</b>	<b>68</b>	<b>1,438</b>	<b>60</b>	<b>1,438</b>
<b>TOTAL PRODUCTION COSTS</b>	<b>3,377</b>	<b>70,915</b>	<b>3,388</b>	<b>81,322</b>

Source: Millennial Lithium

**Operating Plan Largely Unchanged:** The operation plan for the Pastos Grandes Project is based on extraction of the lithium-rich brine by a conventional well field and long-term production pumping, and proven processing techniques.

Brine is to be pumped to the surface from up to 30 wells at an average rate of 20 liters per second (l/s) per well and directed to a series of evaporation ponds where, by crystallizing, sodium and potassium salts are removed while simultaneously concentrating the remaining lithium in the enriched brine. In addition, a facility will be provided that allows the removal of the majority of the magnesium and sulphate in the brine by precipitation by the addition of lime. When lithium concentrations reach approximately 3%, the brine will be directed to the lithium carbonate plant where remaining trace impurities including mainly magnesium, boron and calcium are further removed via solvent extraction, two phases of carbonation and ion exchange methods. This is followed by the main carbonation stage with the addition of higher concentration soda ash solution which drives the lithium precipitation as lithium carbonate. To ensure that the operation produces as pure a product as possible, Millennial has now included an additional purification stage using CO<sub>2</sub> to upgrade technical grade lithium carbonate to battery grade purity. The Company is currently not planning on producing potassium chloride at the operation. The processing facility for any production of the lithium carbonate would be done at the Project site. Technical and battery grade lithium carbonate would then be transported to a port for shipment overseas.

**Exhibit 4: General Flow Sheet**



Source: Millennial Lithium

As noted above, the production model is divided into two stages: 1) Start-Up Stage from Years 1-6 and 2) Main Mining Stage from Years 7-40. One year of commissioning predates the Start-Up Stage and a small amount of technical grade lithium carbonate production is planned (Exhibit 5). The Start-Up Stage is supported by brine flow rates totaling 480 l/s with brine supplied from 20 extraction wells resulting in production of approximately 21,000 tpa of battery grade lithium carbonate equivalent (LCE). The Main Mining Stage is supported by an increase in brine flow to the ponds to 600 l/s which requires a pond expansion of 400 ha at the end of Year 6 to prepare the extra brine for processing. The Main Mining Stage is supported by 30 extraction wells resulting in a maximum production of up to approximately 24,000 tpa battery grade LCE.

**Exhibit 5: Lithium Carbonate Production Schedule Summary**

Production Year	Li <sub>2</sub> CO <sub>3</sub>	Li <sub>2</sub> CO <sub>3</sub>	Total
	Technical Grade	Battery Grade	
	TPY	TPY	TPY
Commissioning period	5,000	-	5,000
1	11,000	5,000	16,000
2 - 6		21,000	21,000
7 - 40		24,000	24,000
<b>Total Production</b>	<b>16,000</b>	<b>926,000</b>	<b>942,000</b>

Source: Millennial Lithium

**CANTOR MODEL**

We have assumed approximately the same input costs and output schedule to our model as the FS. The main exception is the overall average price assumption for lithium carbonate over the 40-year mine life of the project where we use more conservative LCE price estimate of \$10,000/t versus the \$13,199 used in the Millennial's FS. Our estimate is also closer to the current spot market price which is ~\$10,500-12,000 per tonne. Even at this conservative price assumption, we see a robust project with an after-tax NPV<sub>8%</sub> of \$714M, and IRR at 18% (Exhibit 6).

**Exhibit 6. Pastos Grandes Model Summary**

All amounts in \$US unless otherwise noted

Company		Millennial Lithium	
Project		Pastos Grandes	
Study		Cantor Est. (new)	2019 DFS
<b>Resource</b>			
Resource Category		Reserve	Reserve
Resource Estimate	Mt LCE	943,000	943,000
Li content	mg/l	439	439
<b>Operation</b>			
First Production		2022	2022
Ramp-Up	years	6	6
LOM	years	40	40
Annual Production	LCE tpa	18,000 - 24,000	18,000 - 24,000
Unit Cost	\$/t LCE	3,400	3,388
<b>Capital</b>			
Capex	\$M	450	448
Sustaining Capex	\$M	102	102
Capex/t LCE	\$	18,667	18,667
<b>Economics</b>			
Li <sub>2</sub> CO <sub>3</sub> Price	\$/t LCE	10,000	13,199
NPV <sub>8%</sub>	\$M	714	1030
NPV <sub>10%</sub>	\$M	515	729
IRR	%	18.0%	24.2%

Source: Cantor Fitzgerald, Company Reports

**Valuation:** Based on our model for the 100%-owned Pastos Grandes brine operation outlined above, the lithium operation would generate an average of ~\$97M of free cash flow annually over a 40-year life for an NPV<sub>8%</sub> of \$484M or C\$644.M (discounted to today) based on a long-term lithium carbonate price of \$10,000/tonne. For its other lithium assets, primarily Cauchari East, we apply a nominal C\$10M value. Corporate adjustments include long-term corporate G&A, current cash of C\$34M, and project spending of \$10M over the next 12-months. Our resultant NAV<sub>8%</sub> is C\$638.9M or C\$7.68 per diluted share (Exhibit 7). To account for the development stage and unfinanced status of the full project, we apply a discount multiple of 0.5x NAV in-line with other resource development companies at a similar stage. As a result our NAV based target is C\$3.80 per share. We note that at a long-term lithium carbonate price of \$13,199/t as used in the FS, our target would be C\$7.10/shr and demonstrates significant leverage to higher lithium carbonate prices (Exhibit 8).

### Exhibit 7: NAV Summary for Millennial Lithium

(C\$ million, unless otherwise indicated)

Mining Assets	Ownership	Valuation	NAV	
			(\$M)	\$/sh
Pastos Grandes	100%	DCF <sub>8%</sub>	644.7	7.75
Cauchari	100%	nominal	10.0	0.12
Total Mining Assets			654.7	7.87
<b>Financial Assets</b>				
Pro-forma working capital <sup>1</sup>			18.5	0.22
Long-Term Debt			0	0.00
Corporate G&A			(34.4)	(0.41)
Net Financial Assets			(15.8)	(0.19)
Net Asset Value			638.9	7.68
Target Multiple				0.5x
<b>Target Price per Diluted Share</b>				<b>3.80</b>
Basic shares outstanding (MM)				83.2
Diluted shares outstanding (MM) <sup>1</sup>				83.2
Fully diluted shares outstanding (MM)				98.2

<sup>1</sup>Includes current cash, 12-mo ITM options & warrants and planned expenditures

Source: Cantor Fitzgerald

### Exhibit 8. Price and Cost Sensitivity Table

Opex (US\$/tLCE)	LT Lithium Carbonate Price (\$US)											
	\$8,000	\$9,000	\$10,000	\$11,000	\$12,000	\$13,000	\$14,000	\$15,000	\$16,000	\$17,000	\$18,000	
\$4,600	\$0.70	\$1.70	\$2.80	\$3.80	\$4.80	\$5.80	\$6.80	\$7.80	\$8.80	\$9.80	\$10.80	
\$4,400	\$0.90	\$1.90	\$2.90	\$3.90	\$4.90	\$5.90	\$6.90	\$7.90	\$8.90	\$9.90	\$10.90	
\$4,200	\$1.10	\$2.10	\$3.10	\$4.10	\$5.10	\$6.10	\$7.20	\$8.20	\$9.20	\$10.20	\$11.20	
\$4,000	\$1.30	\$2.30	\$3.30	\$4.30	\$5.30	\$6.30	\$7.30	\$8.40	\$9.40	\$10.40	\$11.40	
\$3,800	\$1.50	\$2.50	\$3.50	\$4.50	\$5.50	\$6.50	\$7.50	\$8.50	\$9.50	\$10.60	\$11.60	
\$3,600	\$1.60	\$2.60	\$3.70	\$4.70	\$5.70	\$6.70	\$7.70	\$8.70	\$9.70	\$10.70	\$11.70	
\$3,400	\$1.80	\$2.80	\$3.80	\$4.80	\$5.90	\$6.90	\$7.90	\$8.90	\$9.90	\$10.90	\$11.90	
\$3,200	\$2.00	\$3.00	\$4.00	\$5.00	\$6.00	\$7.10	\$8.10	\$9.10	\$10.10	\$11.10	\$12.10	
\$3,000	\$2.20	\$3.20	\$4.20	\$5.20	\$6.20	\$7.20	\$8.20	\$9.30	\$10.30	\$11.30	\$12.30	
\$2,800	\$2.40	\$3.40	\$4.40	\$5.40	\$6.40	\$7.40	\$8.40	\$9.40	\$10.40	\$11.50	\$12.50	
\$2,600	\$2.50	\$3.50	\$4.60	\$5.60	\$6.60	\$7.60	\$8.60	\$9.60	\$10.60	\$11.60	\$12.60	

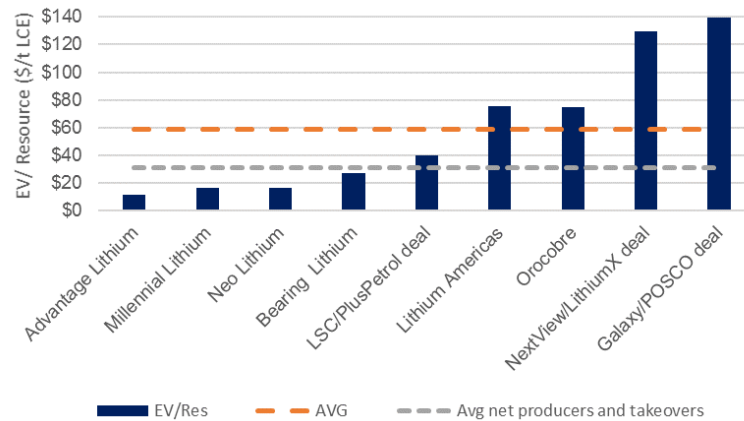
Cantor

2019 FS

Source: Cantor Fitzgerald, Company Reports

**Low Valuation Relative to Peers:** On an EV/Resource, Millennial continues to trade at a discount of \$17/t LCE versus peers averaging \$59/t LCE (Exhibit 9). We see this as good value and expect a re-rating as the project is further de-risked. We note that in January 2019, LSC Lithium, that held the neighboring Pozeulos/Pastos Grandes Project, entered into a deal to be acquired by private company PlusPetrol for \$111M in cash. LSC’s main project was smaller and less advanced than Millennials (LSC had completed a PEA). On a resource basis, the price paid by PlusPetrol was \$41/tonne LCE. This is more than double to current value of Millennial.

**Exhibit 9: Lithium Brine Comps**



Source: Cantor Fitzgerald, Factset, Company Reports

**NEXT STEPS**

**Pilot Plant:** Millennial continues to advance the project with product development and a pilot plant is being assembled at site. Inventory is being built by increasing the volume of concentrated lithium brine in the pilot evaporation ponds. The pilot plant, engineered to produce 3 tonnes per month of LCE, will provide pilot studies to support detailed engineering estimates and product sample material for potential customers (although we understand there is interest in off-take agreements already).

**Environmental Assessment:** In June 2019 Millennial submitted to the Environmental and Mining Authority in Salta Province, Argentina, the Environmental Impact Assessment for Construction and Operations for the project (the "EIA") and anticipates project approval by the end of 2019.

**Project Financing Solution:** Millennial maintains a strong cash position with about \$38M and is now moving the project into the next development stage, including seeking full funding for construction. We understand the Company is talking to several potential partners and strategic investors including private equity groups, current energy producers and financial lenders. We expect ongoing support from current strategic investor (17%) Golden Concord Group Ltd ("GCL"), one of the largest integrated energy services providers in China that specializes in clean energy and new energy, to continue. We expect a series of announcement through the end of 2019 and into 2020.

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The analyst responsible for this report *has* visited the material operations of Millennial Lithium Corp. No payment or reimbursement was received for related travel costs.

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**BUY:** The stock is attractively priced relative to the company's fundamentals and we expect it to appreciate significantly from the current price over the next 6 to 12 months.

**BUY (Speculative):** The stock is attractively priced relative to the company's fundamentals, however investment in the security carries a higher degree of risk.

**HOLD:** The stock is fairly valued, lacks a near term catalyst, or its execution risk is such that we expect it to trade within a narrow range of the current price in the next 6 to 12 months. The longer term fundamental value of the company may be materially higher, but certain milestones/catalysts have yet to be fully realized.

**SELL:** The stock is overpriced relative to the company's fundamentals, and we expect it to decline from the current price over the next 6 to 12 months.

**TENDER:** We believe the offer price by the acquirer is fair and thus recommend investors tender their shares to the offer.

**UNDER REVIEW:** We are temporarily placing our recommendation under review until further information is disclosed.

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