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July 29, 2019

# Millennial Lithium Corp. Announces Positive Feasibility Study Results for its Pastos Grandes Project, Argentina

- > US\$ 1,030 million after-tax NPV at 8% discount rate and IRR of 24.2% for approx. 24,000 TPY production of Battery Grade lithium carbonate (> 99.5% LCE)
- > Total Initial CAPEX estimate of US\$ 448.2 million
- > OPEX of US \$ 3,388/T battery grade lithium carbonate over the mine life
- > Operation based on proven solar evaporation technology and conventional lithium brine processing
- > Projected production mine life of 40 years

Millennial Lithium Corp. (ML: TSX.V) (A3N2:GR: Frankfurt) (MLNLF: OTCQB) ("Millennial" or the "Company" - <a href="https://www.commodity-tv.net/c/search\_adv/?v=298888">https://www.commodity-tv.net/c/search\_adv/?v=298888</a>) is pleased to announce the results of its Feasibility Study (the "FS") for the production of Battery Grade lithium carbonate (>99.5%  $Li_2CO_3$ ) from its Pastos Grandes Project in the province of Salta, Argentina.

The FS was prepared by WorleyParsons Chile S.A. (Worley) and Montgomery & Associates Consultores Limitada ("Montgomery") based in Santiago, Chile, a subsidiary of international hydrogeology firm E.L. Montgomery & Associates Inc. In April 2019, WorleyParsons and Jacobs' Energy, Chemicals and Resources division, two global leaders in engineering, technical and professional services, came together as a new brand – Worley. Worley has extensive experience in the design and construction of lithium brine projects in Argentina and Chile. All figures are quoted in U.S. dollars.

Farhad Abasov, President and CEO commented "We are very pleased that we have been able to advance our Pastos Grandes Project from exploration through to a completed Feasibility Study in just over two years. The results of the FS indicate that Pastos Grandes has the potential to be a robust lithium carbonate producer and be among the lower quartile of LCE costs. 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. With a strong cash position Millennial is now confidently moving the project into the next development stage, including seeking full funding for construction."

# **Feasibility Study Highlights**

Table N° 1: Main Results of the Feasibility Study

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Net Present Value ("NPV") @ 8% Discount Rate (after tax)	\$ 1,030M
Internal Rate of Return ("IRR") (after tax)	24.2%
Initial Capex	\$448.2M
Opex (per tonne of Lithium Carbonate)-Start-Up (Years 1-6) -Main Mine (Years 7-40)	\$3,377 \$3,388
Average Annual Production (Tonnes Battery and Technical Grade Lithium Carbonate-Start-Up Stage)	18,000
Average Annual Production (Tonnes Battery Grade Lithium Carbonate-Main Mine Stage)	24,000
Mine Life	40 years
Payback (from start of investment, after tax)	5.4 years
Sustaining Capital (LOM)	\$102M
Deferred Capital (salt harvest equipment, pond expansion)	\$66M

The economic analysis in the FS is based upon brine grades across the Company's Proven and Probable Mineral Reserves as described later in this news release.

### **Capital Costs**

The total Direct Capital cost of the Project for a maximum 25 KTPY production of battery grade lithium carbonate is estimated at \$351.6 million. The total initial capital cost estimate (initial Capex) is \$448.2 million which includes Direct Costs and Indirect Costs. Also included are Contingency Costs of \$49.8 million, based on 12.5% of the total initial capital costs. The project capex breakdown is given in Table 2 below.



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Table N° 2: Project Capex Breakdown

Area	Description	Projected Budget US\$
	Direct Costs	
1000	Brine Extraction	21,261,859
2000	Evaporation Ponds	115,015,794
3000	Brine Treatment Plant	10,870,040
4000	Lithium Carbonate Plant	70,025,037
5000	General Services	79,687,114
6000	Infrastructure	54,700,142
	Total Direct Costs	351,559,986
	Indirect Costs	46,881,469
	Contingencies	49,805,182
	TOTAL	448,246,638

# **Operating Costs**

Operating Cost estimates are presented for both the Start-Up Stage of the operation (Years 1-6) and the Main Mine Life Stage (Years 7-40) respectively. Both Opex estimates are further divided into Direct Costs and Indirect Costs (see Table 3 below). The Direct 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 mine. 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 per tonne of lithium carbonate for the Start-Up Stage and \$3,388 per tonne of lithium carbonate for the Main Mine Stage.

**Table N° 3: Project Operating Costs** 

	Start-Up Stage		Main Mine Life Stage	
Operation Costs - OPEX	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\$
DIRECT COSTS				
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
DIRECT COSTS SUBTOTAL	3,308	69,477	3,329	79,884
INDIRECT COSTS				
General & Administration - Local	68	1,438	60	1,438
INDIRECT COSTS SUBTOTAL	68	1,438	60	1,438
TOTAL PRODUCTION COSTS	3,377	70,915	3,388	81,322

Accuracy of both CAPEX and OPEX cost estimates prepared by WP are expected to be within -15/+15%.

#### **Mineral Resources and Mineral Reserves**

The Mineral Resources estimates for the Pastos Grandes Project were completed by Montgomery, and are outlined in the technical report "PHASE III MEASURED, INDICATED AND INFERRED LITHIUM AND POTASSIUM RESOURCE ESTIMATE PASTOS GRANDES PROJECT SALTA PROVINCE, ARGENTINA", effective date of May 31, 2019. The lithium and potassium resources estimated in that report are outlined in Table N° 4 below.

The FS focused on lithium carbonate production and did not evaluate the potential for potash production from the Pastos Grandes Project.

Table N° 4: Mineral Resource estimates, effective date of May 31, 2019\*\*\*\*

Phase III Resource Category	Brine Volume (m³)	Avg. Li (mg/l)	In situ Li (tonnes)*	Li <sub>2</sub> CO <sub>3</sub> Equivalent (tonnes**)	Avg. K (mg/l)	In situ K (tonnes)*	KCI Equivalent (tonnes***)
Measured	9.5E+08	446	425,000	2,262,000	4,734	4,508,000	8,597,000
Indicated	8.6E+08	406	349,000	1,858,000	4,114	3,537,000	6,745,000
M+I	1.8E+09	427	774,000	4,120,000	4,440	8,045,000	15,342,000
Inferred	3.5E+08	428	150,000	798,000	4,457	1,559,000	2,973,000



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Cut-off grade for brine used to calculate the resource was 300 milligrams per liter

- \*Tonnages are rounded to the nearest thousand
- \*\*Li Equivalency: each tonne of Li is equivalent to 5.3228 tonnes of Li<sub>2</sub>CO<sub>3</sub>
- \*\*\*K Equivalency: each tonne of K is equivalent to 1.907 tonnes of KCl
- \*\*\*\*The reader is cautioned that mineral resources are not mineral reserves and do not have demonstrated economic viability.

A numerical groundwater model was developed by Montgomery to support the reserve estimate and development of a 40 year production period. Total tonnages for the Mineral Reserves estimates are outlined in Table 5 and account for anticipated leakage and process losses of lithium:

Table N° 5: Mineral Reserves, effective date of July 15, 2019

Reserve Category	Time Period (years)	Average Li Concentration (mg/l)	Tonnes Li*	Tonnes Equivalent Li <sub>2</sub> CO <sub>3</sub> **
Proven	1-8 (8 years total)	470	34,000	179,000
Probable	9-40 (32 years total)	431	143,000	764,000
TOTAL	40 years total	439	177,000	943,000

<sup>\*</sup>Tonnages are rounded to the nearest thousand, totals may not sum correctly due to rounding

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 pumped to the surface from up to 30 wells at an average rate of 20 liters per second (I/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 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.

The production model is divided into two stages: 1) Start-Up Stage from Years 1-6 (first 6 years of production) and 2) Main Mining Stage from Years 7-40 (remaining 34 years of production). One year of commissioning predates the Start-Up Stage and a small amount of

<sup>\*\*</sup>Li Equivalency: each tonne of Li is equivalent to 5.3228 tonnes of Li<sub>2</sub>CO<sub>3</sub>

technical grade lithium carbonate production is planned. The Start-Up Stage is supported by brine flow rates totaling 480 l/s with brine supplied from 20 extraction wells pumping at different rates but focused on the higher-grade areas of the project. The average grade for the Start-Up Stage is 469 mg/l Li resulting in production of approximately 21,000 tonnes per year (TPY) 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 each pumping between 12 l/s and 30 l/s for the remaining 33 years of the mine life. The average grade for this stage is approximately 431 mg/l Li resulting in a maximum production of up to approximately 24,000 TPY battery grade LCE. The lithium carbonate production schedule is given in table 6 below.

Table N° 6: Lithium carbonate production schedule

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Project Li2CO3 Production Schedule					
	Li2CO3	Li2CO3 Li2CO3			
Production Year	Technical Grade	<b>Battery Grade</b>	Total		
	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		
Total Production	16,000	926,000	942,000		

#### **Lithium Markets and Price**

Millennial engaged Benchmark Mineral Intelligence (BMI), a UK based market research company, to produce a comprehensive Market Research report to outline lithium price forecasts to 2040. The Market Research report included pricing forecasts for Battery Grade and Technical Grade lithium carbonate as well as lithium hydroxide. However, the Millennial project, with the CO<sub>2</sub> purification stage, is expected to produce primarily high purity battery grade lithium carbonate. Based on the Market Research report, and assuming that for the period after 2040 lithium carbonate prices remain unchanged in real terms, the average price for lithium carbonate used in the FS over the 40-year mine life of the project is \$ 13,199/tonne of lithium carbonate.

#### **Economic Analysis**

The data compiled in the FS forms the basis for the Discounted Cash Flow Model (the "DCFM") for the FS. The DCFM yielded the following results:

**Table N° 7: Economic Analysis Results** 

<b>Discount Rate</b>	NPV (After Tax) US\$ Million	IRR (After Tax)	NPV Pre-Tax \$US Million	IRR (Pre Tax)
6%	1,480	24.2%	2,262	28.1%
8%	1,030	24.2%	1,588	28.1%



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10%	729	24.2%	1,140	28.1%
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For the Economic Analysis of the Pastos Grandes Project, mine production rates as outlined in Table 6 were utilized.

The FS on the Millennial Pastos Grandes Project demonstrates attractive economics for the potential production of lithium carbonate. The Company is constructing a pilot plant at Pastos Grandes which is supported by approximately 32,500m² of pilot evaporation ponds together with a liming plant and is projected to produce up to 3 tonnes of battery grade lithium carbonate per month. Millennial is well financed to complete this work and has a strong technical team with extensive lithium experience leading its efforts in Argentina.

In June 2019 Millennial submitted to the Environmental and Mining Authority in Salta Province, Argentina, the Environmental Impact Assessment for Construction and Operations for its Pastos Grandes Project (the "EIA"). The objectives of the EIA are to identify, prevent, minimize, correct and mitigate any potential impacts to the environment or the social framework at the Pastos Grandes Project. The Company continues to engage with the provincial mining agencies and we anticipate approval by the end of 2019.

The Company is not aware of any particular current legal, political, environmental, or other risks that are expected to materially affect the potential development of the mineral reserves. An NI 43-101 report is required to be filed, in conjunction with the disclosure of the FS in this news release, within 45 days.

The information contained in this news release relating to the FS has been compiled by the WorleyParsons, Santiago, Chile team. The technical information contained in this news release has been reviewed and approved by Marek Dworzanowski, P. Eng., B.Sc. (Hons), FSAIMM of WorleyParsons and Mike Rosko, CPG, SME Registered Number 4064687. Mr. Dworzanowski and Mr. Rosko are "Qualified Persons" as the term is defined in National Instrument 43-101 and are independent of Millennial.

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