Advantage Lithium Corp. Announces Positive Pre-Feasibility Study Results For The Cauchari JV

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Highlights

- Proven and Probable Mineral Reserves of 1.02Mt of LCE grading 480 mg/l Lithium sufficient to support 30 years of production
- Reserves and production plan derived from a Measured and Indicated mineral resource base of 4.8Mt LCE (April 2019) with appropriate modifying factors applied
- Reasonable prospects to convert 1 Mt of Inferred resources in the lower sand units of the salar into Measured and Indicated resources through recommended additional drilling and test work in the next phase of development
- Indicated Resources of 894,000t LCE in the West Fan Unit have not yet been included in reserve modelling.
- US$ 671 million after-tax NPV at 8% discount rate and after-tax IRR of 20.9 % based on a 25,000 tpa nameplate production facility of Battery Grade Lithium Carbonate
- Pre-Production CAPEX estimate of US$ 446 million for a 25,000 tpa Lithium Carbonate operation including contingency at 20 %
- Average OPEX of US$ 3,560/tonne Battery Grade Lithium Carbonate at steady state post ramp-up
- Processing facilities design based on proven solar evaporation technology and conventional lithium brine processing, leveraging and optimising JV partner Orocobre's project experience

VANCOUVER, Oct. 22, 2019 - Advantage Lithium Corp. (TSX Venture AAL) ("Advantage" or the "Company") is pleased to announce the results of a Pre-Feasibility Study ("PFS") based on production of Battery Grade Lithium Carbonate from a 25 ktpa nameplate capacity stand-alone plant located at its Cauchari JV in the province of Jujuy, Argentina. The PFS was prepared by Worley, Chile S.A. ("Worley"), a leading integrated independent engineering services firm with extensive experience in the design and construction of lithium brine projects in Argentina and Chile. FloSolutions SpA (FloSolutions) prepared the resource and reserve estimates for the PFS as summarised in this announcement.

Callum Grant, Interim CEO commented "The PFS now demonstrates that we have a solid project to a much improved level of confidence compared to the 2018 Preliminary Economic Assessment. Not only have we doubled the resource but more importantly those resources were upgraded to Measured and Indicated categories earlier in 2019. Now we have a Proven and Probable Mineral Reserve demonstrating the economic viability of the asset to support long-life supply of battery-grade Lithium Carbonate to the EV market; we're now at a different level where the value of the asset is clear.

Based on these encouraging results, our intention is to engage quickly with several parties who have expressed an interest in making an investment decision in the Cauchari JV project."

Table 1: Pre-Feasibility Study Highlights

	PFS 2019
Installed Production Capacity (lithium carbonate)	25,000 tonnes
After-Tax Net Present Value ("NPV") @ 8% Discount Rate	$671 million
After-Tax Internal Rate of Return ("IRR")	20.9%
Initial Capital Expenditures	$ 446 million
Cash Operating Costs (per tonne of lithium carbonate)	$ 3,560
Mine Life	30 years (note 3)
Payback Period (from commencement of production)	4yrs 10mo
Average selling price	US$ 12,166/tonne LCE

Notes:

1. All PFS costs are quoted in Q3 2019 U.S. dollars
2. Project economic evaluation includes current Argentinian federal and provincial fiscal legislation
3. Based on current Reserve Statement as of 15-September-2019

Capital Costs

The total Direct Capital cost of the Project for a 25 ktpa nameplate facility of lithium carbonate is estimated at US$ 318 million. The total initial capital cost estimate is US$ 446 million which includes Direct Costs, Indirect Costs and Contingency costs of US$ 74 million estimated at 20% of the total initial capital costs.

Table 2: Initial Capital Cost Breakdown

Item	US$ Million
Direct Capital Costs	318
Brine wellfield	13
Evaporation Ponds	120
Liming Plant	7
Lithium Carbonate Plant	60
General Services including power supply	88
Infrastructure	30
Indirect Capital Costs	54
Contingency (20%)	74
TOTAL CAPEX, MUSD	

$446

Deferred Capital Expenditure

The Project economic evaluation includes additional capital expenditure totalling US$ 157.5 million for expansion of the well field production from the initial NW sector into the SE sector along with increasing the evaporation pond area and additional salt harvesting machinery purchasing, in order to maintain stable lithium production over the life of mine. The deferred capital expenditure is planned for year 5 and year 9.

In addition, the Project includes sustaining capital expenditure of US$ 2.7 million per year and a peak working capital expenditure of US$ 33.5 million.

Operating Costs

The Operating Costs estimates are also divided into Direct Costs and Indirect Costs, as shown below in table 3. This table reflects the variations in costs produced by the effect of expanding the well field production from the initial NW sector into the SE sector along with increasing the evaporation pond area.

The life of mine (LOM) average Direct Costs associated with the brine extraction and processing operations are estimated at US$ 3,493 per tonne of lithium carbonate. Indirect Costs include G&A and some local costs and are estimated at $67 per tonne for a Total OPEX average of US$ 3,560 per tonne.

Table 3: Operating Cost Breakdown

Operational costs	Initial costs	Phase 1 (yr. 5)	Phase 2 (yr. 10)
	US$/tonne	US$/tonne	US$/tonne
DIRECT COSTS			
Chemical reagents	1,676	1,707	1,610
Salt removal and transport	458	524	666
Energy	260	265	273
Manpower	168	181	209
Catering and camp services	94	98	109
Maintenance	300	313	409
Freights	225	225	225
DIRECT COSTS SUBTOTAL	3,181	3,314	3,501
INDIRECT COSTS			
General & Administration - Local	67	67	67
INDIRECT COSTS SUBTOTAL	67	67	67
TOTAL PRODUCTION COSTS	$3,248	$3,381	$3,569

Accuracy of both CAPEX and OPEX cost estimates are within – /+ 25%.

Mineral Resources, Reserves and Mine Plan

The Project's Mineral Resources were defined in the Technical Report: "Cauchari JV Project, Updated

Mineral Resource Estimate" prepared by FloSolutions with an effective date of April 19, 2019 and summarized in Table 4 below:

Table 4: Cauchari JV Project Lithium and Potassium Resources estimate[1, 2](April 19, 2019)

	Measured (M)		Indicated (I)		M+I		Inferred	
Aquifer volume (km^3)	10		21		31		11	
Mean specific yield	6.6%		5.9%		6.1%		5.6%	
Brine volume (km^3)	0.6		1.2		1.9		0.6	
	Li	K	Li	K	Li	K	Li	K
Mean grade (g/m^3)	35	291	26	238	29	255	27	225
Mean concentration (mg/l)	527	4,438	452	4,145	476	4,238	473	3,867
Resource (kt Li, K)	345	2,800	550	5,000	900	7,800	290	2,400
Resource (kt LCE, kt potash)	1,850	5,400	2,950	9,600	4,800	14,900	1,500	4,600

Note 1: numbers may not add due to rounding

Note 2: lithium is converted to lithium carbonate equivalent (LCE) with a conversion factor of 5.32. Potassium is converted to potash with a conversion factor of 1.91

The resource estimation work was followed by the development of a three-dimensional numerical flow and transport model (FEFLOW Code) to evaluate options for wellfield configurations and brine production schedules and to develop a Reserve Estimate. The modeling work was carried out by the DHI Group[1] under supervision of FloSolutions. Table 5 summarizes the Reserve Estimate for the Cauchari JV Project.

Table 5: Cauchari JV Project Lithium Reserve Estimate (September 15, 2019)

Category	Year	Brine Volume (Mm3)	Average Li concentration (mg/l)	Li metal (kt)	LCE (kt)
Proven	1-7	75	560	42	223
Probable	8-31	317	470	149	793
Total	1-31	392	480	191	1,016

Notes to the Cauchari JV Lithium Reserve Estimate:

1. Effective date of this Reserve Estimate is: 15 September 2019.

2. The Lithium Reserve Estimate represents the lithium contained in the brine produced by the wellfields as input to the evaporation ponds. Brine production initiates in Year 1 from wells located in the NW Sector. In year 9, brine production switches across to the SE Sector of the Project.

3. The PFS wellfield configuration maintains LOM Li concentrations from all pumping wells above 350 mg/l, which is considered a practical cut-off grade for the lithium reserve estimate.

4. Approximately 21 percent of M+I Resources are converted to Total Reserves.

5. Potential environmental effects of pumping have not been comprehensively analysed at the PFS stage. Additional evaluation of potential environmental effects will be done as part of the next stage of evaluation.

6. Additional hydrogeological test work will be required in the next stage of evaluation to adequately verify the quantification of hydraulic parameters in the Archibarca fan area and in the Lower Sand unit as indicated by the sensitivity analysis carried out on the model results.

7. Mineral Reserves are derived from and included within the M&I resources in the resource Table 4 above.

8. Indicated Resources of 894,000t LCE contained in the West Fan Unit are not included in this PFS production profile. There is a reasonable prospect that through additional hydrogeological test work Inferred Resources in the Lower Sand Units will be converted to M+I Resources.

9. Numbers may not add due to rounding.

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[1] The DHI Group is a global leader in surface and groundwater modeling solutions; DHI is the developer of the FEFLOW modeling software. For more information see www.dhigroup.com

Processing

The process is unchanged from the PEA design and scaled up due to the increased production capability resulting from expanded lithium resource. Brine is pumped to the surface and directed to a series of evaporation ponds and since Cauchari brine is a low Mg/Li type of brine, the magnesium is removed with slaked lime as magnesium hydroxide. The brine also contains sufficient sulphate in order to precipitate the calcium as gypsum liberated from the lime. During the evaporation process principally halite salts, glaserite and some sylvite and borate salts are crystalized generating a concentrated lithium solution suitable to precipitate lithium carbonate. The concentrated lithium solution is further polished in order to reduce the calcium, magnesium and other metal levels in order to produce an industrial technical grade, which is then re-crystallized in order to make a very pure battery grade product. Battery grade lithium carbonate product is planned to be transported to Antofagasta, Chile for shipment overseas. Production is modelled to start in 2022 with the plant ramping up over 3 years to a steady state of 25 ktpa lithium carbonate.

Production Profile Over Life Of Mine

Advantage Lithium's marketing and product development strategy has been established to meet customer specifications and develop QA/QC protocols for offtake arrangements to achieve Battery Grade as the operation ramps up.

The production mix and profile used in the cash flow model during the ramp-up and operational life is as follows:

Table 6: LCE Production Profile[2] (tonnes per annum)

Year	Technical Grade	Battery Grade	Total
1 (Q3&Q4)	5,000	0	5,000
2	5,000	12,000	17,000
3	1,500	18,500	20,000
4-18	0	25,000	25,000
19-25	0	21,000	21,000
26-30	0	20,000	20,000
31 (Q1&Q2)	0	8,000	8,000
Total	11,500	660,500	672,000

Note 2: based on recovery factor of 66% from brine produced from wellfield bore to final product

The operation plan for the PFS is based on the extraction of the lithium-rich brine by a conventional wellfield with pump installations and proven processing techniques. This has been simulated over the life of mine by FloSolutions, resulting in the Reserve Estimate, summarised in table 5 above.

The Reserve Estimate represents the lithium contained in the brine produced by the wellfields as input to the evaporation ponds. Brine production initiates in Year 1 from wells located in the NW Sector. In year 9, brine production switches across to the SE Sector of the Project until year 31 when currently defined reserves are depleted.

Lithium Markets and Price

A marketing and product pricing study, used in the project economic analysis, was completed by Roskill, UK an independent marketing consultant engaged by Advantage Lithium.

Economic Analysis

Project design, production and cost parameters were input to the Worley Discounted Cash Flow Model for the PFS. Table 7 summarises the model results based on discount factors 6%, 8% and 10% with mid-range 8% selected as the base case:

Table 7: Economic Evaluation Results

Discount Rate	After Tax		Before Tax	
	NPV US$ million	IRR %	NPV US$ million	IRR %
6%	959	20.9	1,609	26.2
8%	671		1,158	
10%	468		841	

Project economic evaluation incorporates current Argentinian federal and provincial fiscal tax legislation and royalties, including assumptions regarding provincial participation, to be confirmed during the next stage of development.

The economic analysis is based on brine grades and lithium volume estimated from the company's updated Resource and Reserve Estimates used to develop the production plan.

A weighted average price of US$ 12,166 per tonne of lithium carbonate Battery Grade was used over the life of mine.

An NI 43-101 report is required to be filed, in conjunction with the disclosure of the PFS in this news release, within 45 days

The technical information contained in this News Release has been reviewed and approved by Marek Dworzanowski, of Worley and Frits Reidel of FloSolutions. Both Marek Dworzanowski and Frits Reidel are "Independent Qualified Persons" as the term is defined in National Instrument 43-101.

To find out more about Advantage Lithium Corp. please contact the company at (604) 343-3760 or by email at info@advantagelithium.com

ADVANTAGE LITHIUM CORP.

Per: "Callum Grant"

About Advantage Lithium Corp.

Advantage Lithium Corp. is focused on developing its 75% owned Cauchari lithium project, located in Jujuy, Argentina. The Company also owns 100% interest in three additional lithium exploration properties in Argentina: Antofalla, Incahuasi, and Guayatayoc. The Company is headquartered in Vancouver, British Columbia and trades on the TSX Venture Exchange (TSX-V: AAL) and OTCQX Best Market in the U.S. (OTCQX: AVLIF).

Further information about the Company can be found at www.advantagelithium.com.

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