

Lithium Americas (NYSE: LAC) (TSX: LAC)

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Lithium Americas overview and valuation

LAC has two projects, the Cauchari-Olaroz brine asset in Argentina and the Thacker Pass claystone asset in Nevada with very interesting economics. The net present value (current value of future cash flows minus cash outflows) is \$1.1 billion for the Argentinian project of which LAC owns 50% and \$2.6 billion for the American project. The NPV per share is \$35.

CAUCHARÍ-OLARÓZ 25,000 TPA FEASIBILITY STUDY



Minera Exar is exploring an increase in initial production capacity to 40,000 tpa from 25,000 tpa of lithium carbonate

	25,000 TPA DFS Results (100% basis)
Average annual production	25,000 tpa battery-grade Li ₂ CO ₃
Project life	40 years
Proven & probable reserves	1.5 million tonnes LCE at 698 mg/L Li
Construction capital costs	\$425 million (before VAT)
Operating costs	\$2,495 / t Li ₂ CO ₃
Lithium carbonate price assumption	\$12,000/t battery-grade Li ₂ CO ₃
Average EBITDA	\$233 million
After-Tax Economics	\$803 million NPV _{10%} , \$1.1 BB NPV_{8%} 28.4% IRR 3.4 year payback

The Cauchari-Olaroz feasibility study is modelled on an initial stage of 25,000 tpa of lithium carbonate; however, much of the production infrastructure is scalable. For additional information, please see the Cauchari-Olaroz technical report available on SEDAR. All figures on a 100% project equity basis unless otherwise noted.

Source: [Lithium Americas](https://lithiumamericas.com)

The combined net present value for LAC is \$3.15 billion. Compare that to the current market cap of \$318 million and we have a discount of 90%. Whether it is justified or not will be discussed in this article.

LAC - Lithium Americas Corp.

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\$3.43 0.00 (0.00%)

(9,590 followers)

NYSE | 9:43 AM 8/15/19 Bats BZX Real-Time Price

Summary Ratings Key Data Earnings Dividends Value Growth Profitability Momentum Peers

1D 5D 1M 6M 1Y 5Y 10Y MAX Advanced Chart



52wk high: 3.94
 52wk low: 3.32
 EPS (FWD): -0.42
 PE: -
 Div Rate (FWD): -
 Yield (FWD): -
Market Cap: \$318.15M
 Volume: 1,300

Source: [LAC CNN MONEY](#)

Cauchari should be up and running in 2021 and Thacker in 2022. However, a decision has still to be made for Thacker despite the positive pre-feasibility study.

THACKER PASS PRE-FEASIBILITY STUDY

	Thacker Pass PFS Results August 2018
Average annual production*	60,000 tpa battery-grade Li ₂ CO ₃ (Phase 1 - 30,000 tpa)
Mine life	46 years
Proven & probable reserves	3.1 million tonnes LCE at 3,283 ppm Li
Construction capital costs	\$1,059 million (Phase 1 - \$581 million)
Operating costs	\$2,570 / t Li ₂ CO ₃ (\$4,088/t before by-product credits)
Lithium carbonate price assumption	\$12,000/t battery-grade Li ₂ CO ₃
Average EBITDA	\$520 million (Phase 1 - \$246 million)
After-Tax Economics	\$2.6 billion NPV _{8%} 29.3% IRR

*Currently testing technology that can allow for both a lithium carbonate and lithium hydroxide product stream, the balance of which will be assessed as the market demand evolves

All figures on a 100% project equity basis unless otherwise noted. For additional information, please see the January 2018 technical report available on Lithium Americas' SEDAR profile.

LithiumAmericas | TSX: LAC
NYSE: LAC

AUGUST 2019 | 14

Source: [Lithium Americas](#)

Lithium Americas Cauchari- Olaroz brine asset in Argentina

The Cauchari- Olaroz plant is close to Orocobre's plant so we have an indication of the project's potential and profitability.

Figure 23.1 Orocobre Property Showing Boundary with LAC Property



Source: [Cauchari Olaroz Technical Report](#)

Orocobre is already producing there and margins are strong, above 50% even with the currently subdued lithium prices.

RECORD MARCH QUARTER PRODUCTION

Highest March quarter of production achieved to date despite rainfall exceeding same period in 2017 / 2018 and lower evaporation rates

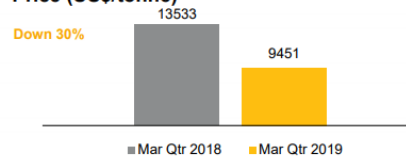
Sales de Jujuy Joint Venture (Olaroz)

- Production of 3,075 tonnes during March quarter, up 10% on the previous corresponding period (PCP) following pond preparation and a strategy of managing brine quality
- March quarter revenue of US\$33.4 million on sales of 3,530 tonnes
- Sales price in March quarter of US\$9,451 / tonne FOB¹, down 11% from the December quarter due to both direct and indirect impacts of China's prolonged market softness
- March quarter cost of sales of US\$4,193 / tonne² and strong gross cash margin of US\$5,258 / tonne (or 56% margin)
- Stage 2 expansion continues with new ponds, infrastructure etc.
- FID approval for the Naraha Lithium Hydroxide project announced April 2019

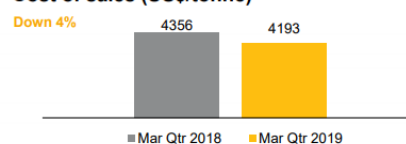
Orocobre

- Orocobre corporate cash balance at 31 March 2019 of US\$265.7 million, and Orocobre Group net cash of US\$192.9 million

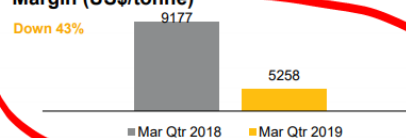
Price (US\$/tonne)



Cost of sales (US\$/tonne)



Margin (US\$/tonne)



Source: [Orocobre presentation](#)

However, LAC is expecting much higher margins from what I see in their pre-feasibility study technical report. LAC's expected profits on \$300 million in revenue are around \$150 million after-tax and \$225 million before interest and tax. This means that the cost of sales should be around \$3,000 per lithium ton sold or 30% below Orocobre's current costs.

TABLE 22.5
PROJECT EVALUATION MEDIUM PRICE SCENARIO (KUSS)

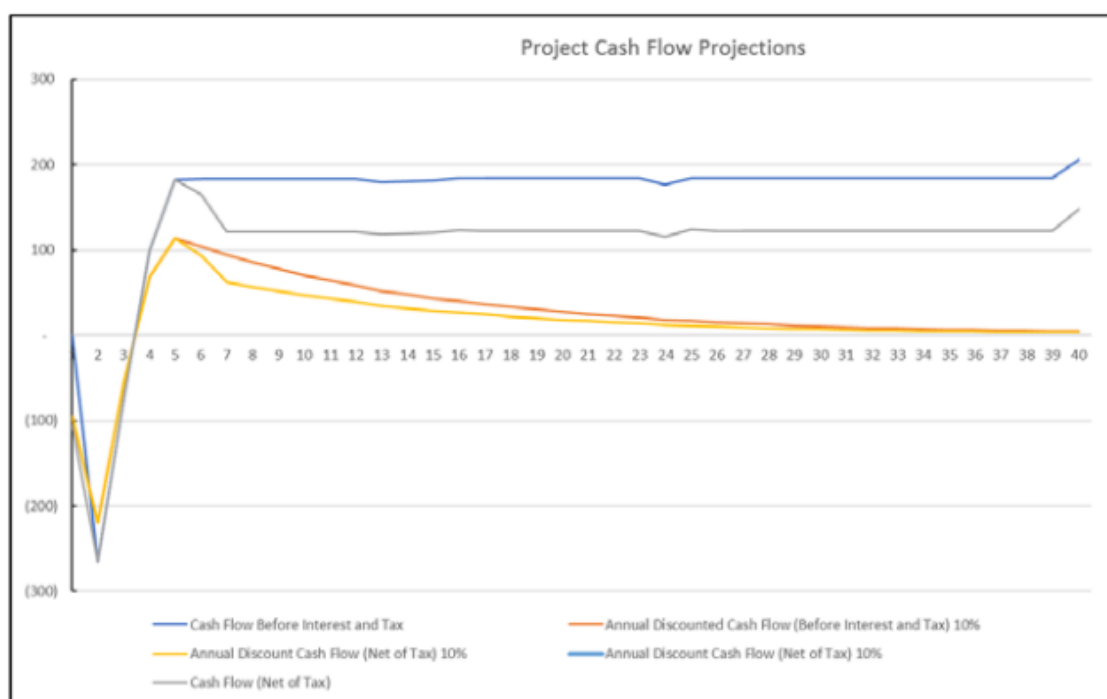
CAUCHARI OLARAZ PROJECT											
PROFIT & LOSS ACCOUNT		Price Scenario									
		12,000 US\$/ Tonne									
Tax Rate		35%									
Description 000 US\$		17	18	19	20	21	28	38	48	40	TOTAL
		1	2	3	4	5	12	22	32	40	000 US\$
Gross Revenues		-	-	72,000	168,000	300,000	300,000	300,000	300,000	300,000	11,040,000
EXPENSES		(3,325)	(4,877)	(19,380)	(44,248)	(62,865)	(59,115)	(58,315)	(58,315)	(58,315)	(2,190,707)
Operating Costs		(1,852)	(3,704)	(17,415)	(36,123)	(62,820)	(62,370)	(62,370)	(62,370)	(62,370)	(2,304,864)
TAXES AND ROYALTIES											
Provincial Royalties (1%)	1%	-	-	(720)	(1,680)	(3,000)	(3,000)	(3,000)	(3,000)	(3,000)	(110,400)
Export Refund value (2.5% of Li2CO3 revenue)	2.5%	-	-	-	1,800	4,200	7,500	7,500	7,500	7,500	268,500
Mining Licenses		(67)	(67)	(67)	(67)	(67)	(67)	(67)	(67)	(67)	(2,680)
Payment of Purchasing Option Los Boros		(800)	(800)	(800)	(800)	(800)	(800)	(800)	(800)	(800)	(12,000)
Aboriginal Programs		(106)	(106)	(178)	(178)	(178)	(178)	(178)	(178)	(178)	(6,963)
Los Boros		(300)	-	-	(7,000)	-	-	-	-	-	(14,300)
Borax		(200)	(200)	(200)	(200)	(200)	(200)	(200)	(200)	(200)	(8,000)
DEPRETIATION		-	-	(256,765)	(86,764)	(87,291)	(6,506)	(6,506)	(6,506)	(15,991)	(667,501)
PBIT		(3,325)	(4,877)	(204,145)	36,988	149,844	234,379	235,179	235,179	225,695	8,181,792
Tax Debt and Credits		(1,020)	(2,805)	(1,275)	(1,673)	(2,988)	(2,988)	(2,988)	(2,988)	(2,988)	(114,341)
Less Interest											-
Accumulated Losses	1,947	(389)	(389)	(389)	(389)	(389)					(1,947)
PAIBT		(4,734)	(8,071)	(205,809)	34,925	146,467	231,391	232,191	232,191	222,707	8,065,503
Cumulative PAIBT		(4,734)	(12,805)	(218,614)	(183,689)	(37,222)	1,590,154	3,902,551	6,217,460	8,065,503	
Tax After Funding		-	-	-	-	-	(78,362)	(78,642)	(78,642)	(75,322)	(2,731,051)
PAIT		(4,734)	(8,071)	(205,809)	34,925	146,467	153,029	153,549	153,549	147,384	5,334,452

Source: [Cauchari Olaroz Technical Report](#)

They plan to produce 25,000 tons at a price of \$12,500 leading to revenues of \$300 million and after-tax profits of around \$150 million. If lithium prices are \$10,000 and cost of sales \$4,300, like it is the case with Orocobre’s plant, the margin should be \$6,700. Put a 35% tax on that and you are left with a \$4,335 profit per ton. There are other taxes, like the 1% royalty, VAT, local taxes, and there might be more taxes in Argentina as the political environment changes. My estimate is that LAC will hardly reach expected profitability on the project.

In any case, if we assume after tax cash flows of \$3,500, the average cash flows per year should come out at \$87.5 million and not at \$150 million as the technical report estimates.

Figure 22.2 Yearly Simple Cash Flow and Discounted Cash Flow (Before and After Tax) at 10% Discount Rate (in US\$ M)



If we make a net present value calculation, it differs significantly from what the company presents. It is actually 50% lower. That is a big risk for me as there will always be operating risk alongside unpredicted things happening when developing such a project.

Table 1. LAC’s technical report cash flows and my estimated cash flows

in millions	2019	2020	2021	2022	2023	2024	2025	2026	2027
cash flow LAC	-\$205	\$34	\$150	\$150	\$150	\$150	\$150	\$150	\$150
cash flow Sven	-\$205	\$20	\$88	\$88	\$88	\$88	\$88	\$88	\$88
PV LAC	-\$205	\$31	\$124	\$113	\$102	\$93	\$85	\$77	\$70
PV Sven	-\$205	\$18	\$72	\$66	\$60	\$54	\$49	\$45	\$41
	SUM PV	\$1,162							
	SUM PV	\$593							

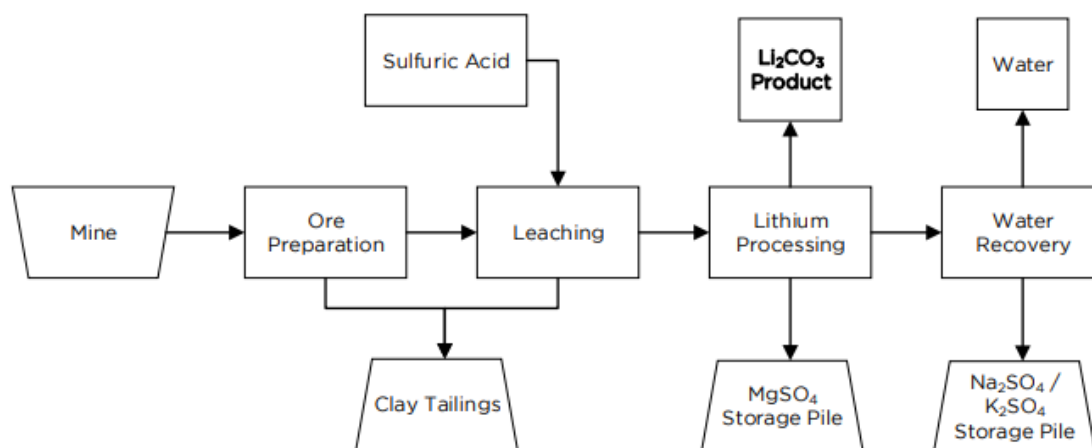
Thus, the value of Cauchari Olaroz should be around \$200 million for LAC based on higher operating costs and lower margins. If you add the usual discount to undeveloped projects of around 30% or even 50%, depending on lithium prices, you soon fall to \$100 million.

Lithium Americas – Thacker Pass Project Nevada

The Thacker Pass Pre-Feasibility Study says it is not precise and that estimations can vary 25% on the upside and 20% on the downside. An investment decision has not yet been made to develop the largest lithium source in the US.

A risk is also that the company will use a new process. “A process flow sheet that uses conventional leaching and purification technology has been developed, and replaces the roasting/calcining approach that was considered in a previous technical study (Tetra Tech, 2014).” I would add here that LAC quadrupled the number of issued shares over the last 5 years. Therefore, all estimations are likely to be stretched towards the positive as the company’s success depends on the stock price for capital raises.

Figure 1-2 Recovery Block Diagram



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Source: [LAC – Thacker Technical Report](#)

As we don’t have comparable production numbers from Thacker like plants, I will focus on the company’s estimates.

1.12 Economic Analysis

The financial results are derived from inputs based on an annual production schedule. A sensitivity analysis on the unlevered economic results over a 46-year operating period is summarized in Table 1-6, and reported on a 100% equity project basis. The data in Table 1-6 includes revenue from electricity and sulfuric acid sales.

Table 1-6 Thacker Pass – After Tax NPV and IRR Sensitivity Analysis

Discount Rate, (%)	Low Case NPV \$10,000/t Li ₂ CO ₃ (\$ millions)	Base Case NPV \$12,000/t Li ₂ CO ₃ (\$ millions)	High Case NPV \$14,000/t Li ₂ CO ₃ (\$ millions)
6%	2,790	3,800	4,811
8%	1,856	2,591	3,327
10%	1,259	1,816	2,373
IRR (%)	24.0	29.3	34.3

It all depends on lithium prices and the discount rate used. If lithium prices remain at current levels, the present value of the Thacker Pass project is at \$1.2 billion. This doesn't include financing and we know LAC doesn't have the \$581 million required to develop the first phase of the project.

Table 22-1 Initial Capital Costs Summary

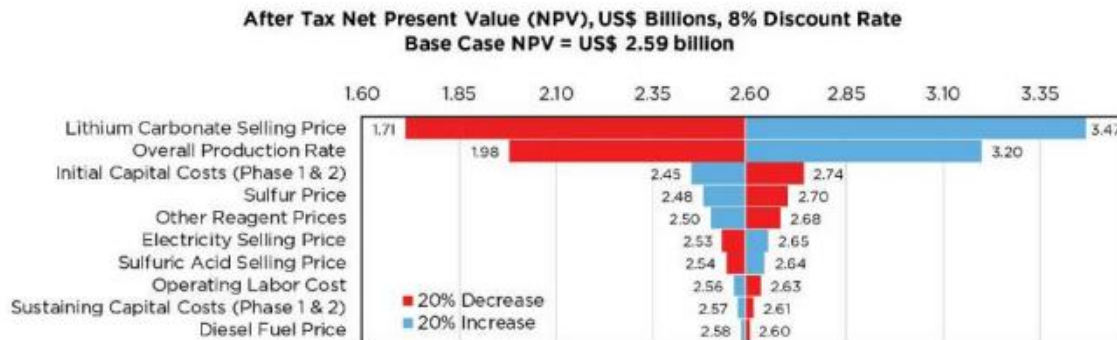
Initial Capital	Construction Phase		Total Amount (US\$)	Percentage of Total
	Phase 1 (US\$)	Phase 2 (US\$)		
Open Pit Mine	67,011,312	880,213	67,891,524	6%
Lithium Processing and Infrastructure	287,007,327	125,909,806	412,917,133	39%
Sulfuric Acid Plant	182,595,569	210,173,120	392,768,689	37%
Railroad and Yards	3,717,891	104,928,980	108,646,870	10%
Owner's Costs	41,003,151	36,429,439	77,432,590	7%
Total	581,335,249	478,321,557	1,059,656,806	

If there are lower lithium prices for just a while, LAC will not be able to issue equity to finance the project like it did over the last 4 years where it quadrupled the number of shares outstanding. It is also hard for a company with a \$318 million market cap to issue shares to get to a similar amount where the remaining \$200 million could be covered with debt to develop the Thacker Pass project. Therefore, issues with financing and lower temporary

lithium prices are a big risk for LAC shareholders. It is always possible that somebody comes and buys the project or the whole company at a 25% premium on the subdued stock price.

Further, when it comes to developing mining projects, it is really rare that something is done under budget. Plus, when you take a look at sensitivity charts, those always focus on only one moving part. The combination of lower lithium prices, higher initial capex, operational issues, possible higher taxes or whatever, significantly changes the initial net present value and internal rate of returns.

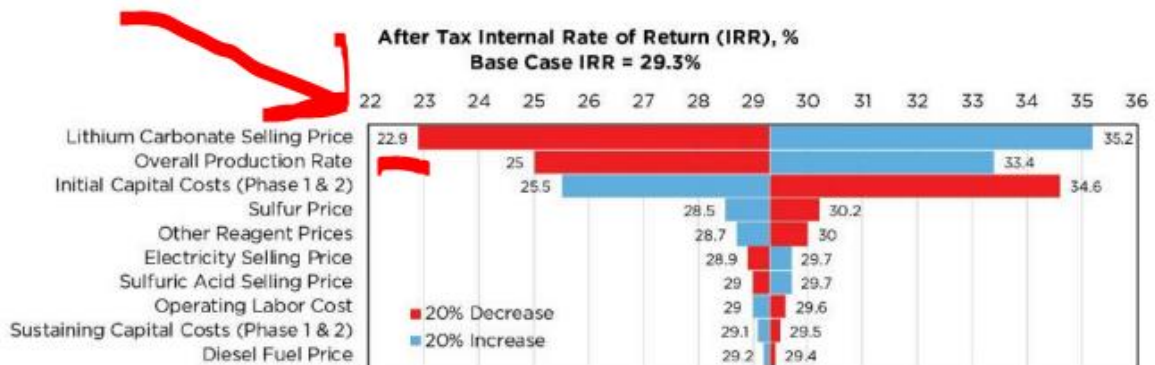
Figure 22-5 Sensitivity Analysis of Various Variables, Net Present Value, 8% Discount Rate



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At current lithium prices, the IRR is already very close to 20% which is usually a mining threshold that you don't go under.

Figure 22-6 Sensitivity Analysis of Various Variables, Internal Rate of Return

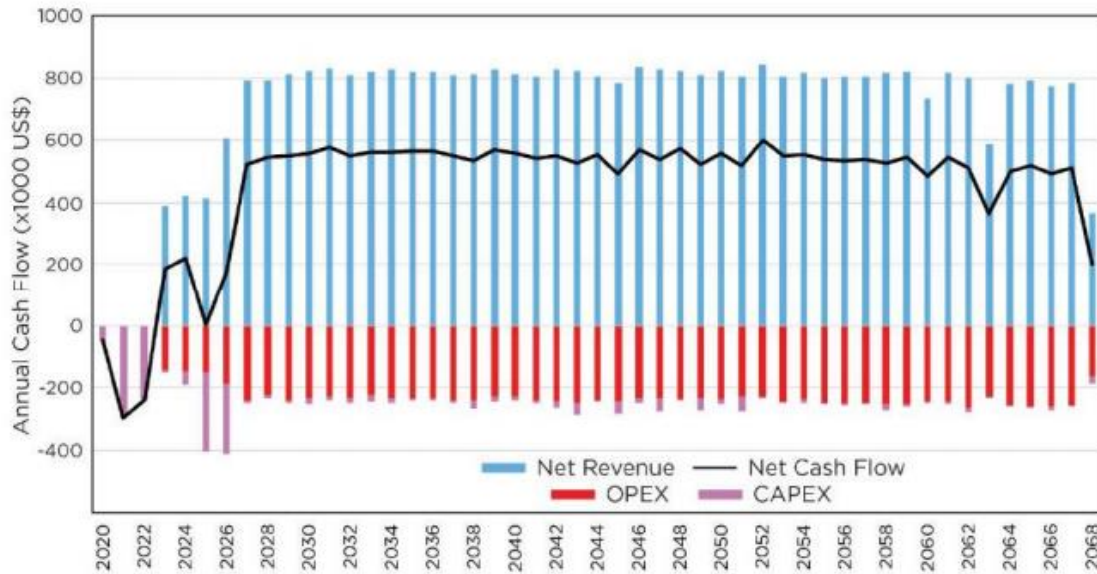


Add other possible issues and you get why there is no decision yet on whether to develop Thacker or not.

From a valuation standpoint, it all depends on lithium prices, higher prices would make this a guaranteed cash machine with net cash flow easily surpassing \$400 million per year from 2026 onwards. With high lithium prices, the cash flows per year could be double the current market capitalization in the future, not even taking Cauchari Olaroz into account.

Thacker pass estimated cash flows:

Figure 22-3 Undiscounted Annual Cash Flow



Lithium Americas Stock Price potential

LAC is an extremist an investment. If all goes well, it could be a 10x investment over the next 5 years. However, if they need to issue 50 million shares to develop the Thacker pass, the net present value per share immediately drops from \$35 to \$22. If there is debt of \$200 million, at let’s say 5%, and things don’t go as planned with higher costs and lower margins, the annual cash flows quickly fall from \$\$600 million to \$200 or even lower. That would also lower the NPV of the Thacker pass to less than a billion and to actually reach the \$600 million in cash flows after phase 2, you need to invest another \$500 million.

So, this can easily get complicated. I would say there is just a 10% chance that all works well, a 50% chance we see higher lithium prices and the stock returns to where it was, and 40% chance things turn south for one of the mentioned risks and investors lose money or see lots of volatility.

\$3.43	RISK AND REWARD 5 years			VALUE	\$7.64
	10X	3X	2x	down 50%	down 100%
	10%	30%	10%	30%	10%
PRICE	\$34.30	\$10.00	\$7.00	\$1.70	\$0.00