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Lithium Americas: After Approval, What's Next?

In September, 2020, we initially presented our thesis on Lithium Americas (NYSE: LAC), which was on sale thanks to Battery Day. Much has changed with the story, punctuated by the Bureau of Land Management (BLM) approval of LAC's Thacker Pass project in Nevada

https://eplanning.blm.gov/public_projects/1503166/200352542/20033308/250039507/Thacker_Pass_Project_ROD_signed_2021-01-15.pdf.

Introduction

This record of decision (ROD) documents the United States Department of the Interior (DOI), Bureau of Land Management's (BLM's) selection of Alternative A from the Thacker Pass Lithium Mine Project Environmental Impact Statement (EIS), DOI-BLM-NV-W010-2020-0012-EIS. In September 2019 The Winnemucca District Office of the BLM received the Plan of Operations for the Thacker North-South Exploration Project (case file NVN-098582) and the Thacker Pass Project Plan of Operations and Reclamation Plan (case file NVN-098586), filed by Lithium Nevada Corporation (LNC). The North-South Exploration Plan of Operations would continue exploration to the north and south of the mine and processing facilities proposed in the Thacker Pass Project Plan of Operations. The Thacker Pass Mine Plan of Operations, herein referred to as the Thacker Pass Mine Plan, would include the proposed mine, necessary processing and ancillary support facilities, and a plan for reclamation (closure) of the mine and mine facilities. These Plans constitute the Thacker Pass Project (Project) analyzed in the FEIS. The Project is entirely on public land administered by the BLM in Humboldt County, Nevada, approximately 17 miles west-northwest of Oroville. Both Plans were revised in December 2020 to include corrections identified by BLM and NDEP, and mitigating measures developed in the course of the development of the EIS. The proposed action in each plan was not substantially changed.

The proposed mining activities located on public lands are subject to review and approval by the BLM pursuant to the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, and the BLM's surface management regulations (43 CFR 3809). The BLM's review and approval of a mine Amendment to Plan of Operations under the surface management regulations constitute a federal action that is subject to the National Environmental Policy Act of 1969 (NEPA). The BLM determined that the Project constitutes a major federal action and determined that an Environmental Impact Statement (EIS) was necessary in order to fulfill NEPA requirements. A Notice of Intent to prepare an EIS was published in the *Federal Register* (FR) on January 21, 2020 (85 FR 3413). Public scoping meetings for the EIS were held in Winnemucca and Oroville, Nevada, on February 5 and 6, 2020, respectively. A 45-day comment period was held for the draft EIS from July 31 to September 14, 2020, with public information meetings held virtually on August 19 and 20, 2020. The comments received during the scoping process and comment period were considered in developing the EIS.

This ROD contains the BLM's decision, a summary of alternatives considered, management consideration or rationale for the decision, a summary of public involvement, and other information. This ROD includes Attachment A: Thacker Pass Project and North-South Exploration Conditions of Approval, Applicant's Committed Environmental Design Features described in Appendix D of the EIS, and references mitigating measures described in the Plans of Operations. The approval decision for each plan of operations under surface management regulations (43 CFR 3809) is also included herein.

Decision

Based on the Thacker Pass Lithium Mine Project Final Environmental Impact Statement (FEIS), DOI-BLM-NV-W010-2020-0012-EIS, and the Management Considerations section in this ROD,

it is my decision to select Alternative A: the Proposed Action, including the Conditions of Approval, Applicant's Committed Environmental Design Features described in Appendix D of the EIS, and references mitigating measures described in the Plans of Operations as the preferred alternative. The Plans are subject to these measures, which are enclosed as Attachment A.

Alternative A is not anticipated to affect any threatened or endangered species or significant scientific, cultural, or historical resources, as these resources are either not present or the effects will be mitigated. BLM will issue a separate decision following this selection, which will carry forward the approval of the Plans under the applicable regulatory sections within subparts 3809 and 3715.

The results of public outreach, including consultation and coordination with state and local governments and other responsible agencies, as summarized in this ROD, were incorporated in forming the decision.

Alternative A conforms to the BLM's Record of Decision and Resource Management Plan for the Winnemucca District Planning Area, approved May 21, 2015, and amended by the ROD and Approved Resource Management Plan Amendments for the Great Basin Region, including the Greater Sage-Grouse Sub-Regions of Idaho and Southwestern Montana, Nevada and Northeastern California, Oregon, Utah, both the September 21, 2015, and March 27, 2019, versions. This is in accordance with the RMP Planning Criteria, #11, which states "Management of energy and non-energy mineral resources will be consistent with the acts of Congress relating to the Domestic Minerals Program Extension Act of 1953, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980, and the Energy Policy Act of 2005, and the 43 CFR 3100, 3200, 3500, 3600, 3700, 3800 regulations." and locatable mineral Objective MR 9, which states, in part, "Manage locatable mineral operations to provide for the mineral needs of the nation while assuring compatibility with and protection of other resources and uses."

Subject to any successful appeals by those opposed, the project has a green light to advance. As we look back to the three catalysts referenced in our initial research, this checks one of the three boxes; for a refresher, these were:

- Favorable legislation – The possibility of a “Green New Deal” is being widely discussed as part of the Biden campaign. Government programs aimed at reducing emissions and incentivizing the shift to EVs would also be a positive for LAC. In the event of a Republican victory, strategic concerns may provide additional impetus to domestic production.
- Spotlight on supply constraints – Despite the puffery at Tesla’s battery day, lithium is a potential chokepoint for achieving the vision many have for renewable energy, LAC is in a prime spot, both from an industry perspective as well as geographically.
- Approval of Thacker Pass – Perhaps the market is ignoring the company’s battery potential as it is just that: potential. Approval of the plan, including the proposed battery facility, may be a transformative event, and the clock is ticking.

The other two are in the process of coming to fruition as well. In terms of favorable legislation, the incoming Administration is emphasizing fighting climate change as a key component of its policy initiatives: <https://buildbackbetter.gov/priorities/climate-change/>.

We have written extensively on our enthusiasm for lithium, and what we see as the supply/demand dynamics: <https://www.forbes.com/sites/forbesfinancecouncil/2020/12/04/why-lithiums-salad-days-are-ahead/?sh=1689b30d6058>. Supply constraints have also been in the news, with Tesla agreeing to another supply deal; <https://www.streetinsider.com/Reuters/Chinas+Yahua+agrees+five-year+deal+to+supply+lithium+to+Tesla/17763237.html>

There have been other positive developments for the company, including divestment of LAC shares by Bangchak Corporation, which owned approximately 15% of LAC at the time of our initial paper. This selling pressure, which kept a lid on the stock in December, has now abated, with Bangchak now at less than 1% <https://www.marketscreener.com/quote/stock/BANGCHAK-CORPORATION-34591812/news/Bangchak-Divestment-of-Shares-in-Lithium-Americas-Corp-LAC-32065210/>

. LAC also raised capital through an ATM in Q4 as well to meet capital needs, modestly increasing its share count. On balance, the increase in free float makes the company more investible, not to mention opening a seat at the board table for a potential strategic partner on Thacker Pass, as we have seen with Ganfeng at LAC’s other project, Cauchari in Argentina.

We were disappointed to see the company remove its proposed battery plant from its mine plan of operation filed with the BLM; we thought this endeavor had the potential to truly transform the company from a valuation perspective. However, perhaps its omission portends a future strategic partnership for Thacker Pass is already in the works with a major player:

- Construction of a sulfuric acid plant for use in a leaching process;
- Construction and operation of a Clay Tailings Filter Stack (CTFS);
- Construction and maintenance of haul and secondary roads;
- Construction and maintenance of stormwater management infrastructures including diversions and sediment ponds;
- Construction of three growth media stockpiles (GMSs);
- Construction of water supply, conveyance pipeline, booster pump stations, and storage facilities;
- Construction of a 25-kilovolt (kV) power transmission line, substations, and distribution;
- Construction of ancillary facilities to support the Project such as septic systems, communication towers, guard shacks, reclaim ponds, monitoring wells, weather station, fiber optic line, buffer areas, and fencing.

In addition, exploration activities would occur as part of the Proposed Action, which would include surface disturbance associated with the development of drill pads and access roads, overland travel, monitoring well installation, geotechnical investigations, geophysical surveys, sampling, trenching, and bulk sampling.

The proposed battery production facility analyzed in the Draft EIS has been removed from the proposed Mine Plan of Operations by the applicant.

Reclamation of disturbed areas resulting from Project activities would be completed in accordance with BLM and NDEP regulations to prevent unnecessary or undue degradation of public lands.

LNC would initiate concurrent reclamation of areas no longer required for operations at the earliest economically and technically feasible time over the mine life.

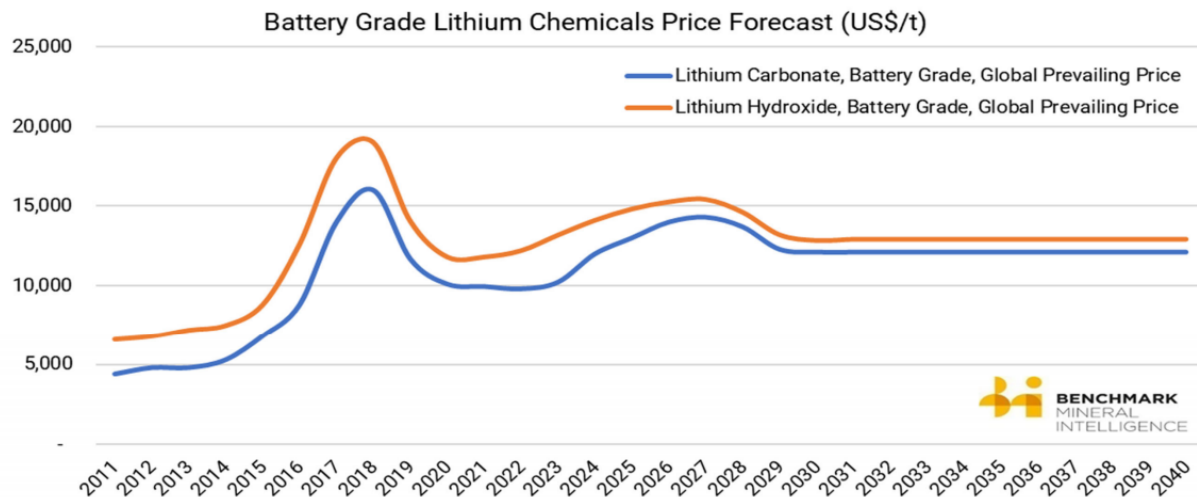
https://eplanning.blm.gov/public_projects/1503166/200352542/20030633/250036832/Thacker%20Pass_FEIS_Chapters1-6_508.pdf

Valuation – More Visibility and Enthusiasm Leads Us to Increase Our Targets

As we revisit valuation, we look again to comparable companies and our own estimates of net present value. First, comparable companies. The closest comp is the current valuation being ascribed to Piedmont Lithium, Ltd. (NASDAQ: PLL), which carries a market cap of \$569M. For those who may remember, it was PLL's deal with Tesla, combined with the comments about the ease of producing lithium, that sank most lithium producers (excluding PLL) post Battery Day. Like LAC, PLL has assets located in the United States (in North Carolina, to be precise) making it attractive as the U.S. moves toward insourcing critical raw materials. However, PLL's project has not yet been approved, and accordingly carries a higher risk profile. Moreover, the company recently made an acquisition viewed by lithium industry experts we respect as being, perhaps, ill advised. Regardless, based on our back of the envelope math, its valuation is roughly equivalent on a proposed production basis to the Wodgina acquisition we mentioned in our original LAC thesis; recall the Wodgina acquisition was made at a time when lithium prices were at their peak. (source:

<https://d1io3yog0oux5.cloudfront.net/6f86137dbf0fe15ab0e8643c4e3c2daf/piedmontlithium/db/299/2639/pdf/2146123.pdf>

LITHIUM PRICES



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Nasdaq: PLL ASX: PLL **PIEDMONT** LITHIUM

It is important to note PLL's project has yet to clear the regulatory hurdles cleared by Thacker Pass, has a shorter life (25 years), and is smaller (targeting 23k tons of lithium hydroxide per year). Applying LAC's metrics for Thacker (41 years useful life and 60 ktpa) and using the valuation ascribed to PLL's proposed output, we get a \$2.3 billion valuation for LAC, or approximately \$26, just for Thacker Pass. Cauchari, which is substantially de-risked and should begin production in early 2022 is worth about 1/3 of this value, when discounting for its joint ownership, political risk, and brine-based process. Just the same, this would put LAC's value at approximately \$35.

Using net present value of estimated future cash flows, we derive a conservative value of around \$23 per share. The only major change from our prior estimate here was reducing the discount rate from 15% to 10%, given the reduced risk associated with BLM approval. We assume lithium prices at a stable \$12k, in-line with the company's assumptions as the price for lithium carbonate (as well as long-term assumptions per the Benchmark estimates in the preceding graph), which is well below the peak of \$17k in 2018 though above current spot rates. We also assume LAC has to concede some of the economics from Thacker Pass to a joint venture partner, as it did with Cauchari; we assume 50% in our base case.

However, this may be an overly pessimistic view. With the market's enthusiasm for all things green energy related, LAC's stock price is far higher than when it negotiated its deal with Ganfeng. This has

reduced LAC's cost of capital, so it has options. Moreover, it is in a stronger strategic position with Cauchari production imminent (revenue and cash flow are helpful, obviously) and Thacker Pass approved, and more important than ever, given its location.

Below, we look at different potential deal structures (equity raise based on LAC's closing price as of 1/15/21) to go it alone on Thacker Pass versus a joint venture where LAC gives up revenue to a partner) at different price levels. We think dilution between 10% and 15% would likely be required to fund Thacker Pass.

Lithium Price (in k; LCE)	Stock Dilution			
	5%	10%	15%	20%
\$10.0	25	24	23	22
\$12.0	34	32	31	29
\$13.5	40	39	37	35
\$17.0	56	53	51	49

Lithium Price (in k; LCE)	JV Stake (Thacker)			
	10%	25%	33%	50%
\$10.0	24	22	20	17
\$12.0	33	29	27	23
\$13.5	39	35	33	28
\$17.0	55	48	45	38

** Price estimates includes current economics of Cauchari*

What we see is an asymmetrically skewed risk reward profile over the intermediate term, i.e., three to five years. As long as prices do not revert back to an oversupplied situation, i.e., \$10k, LAC has upside. Even a small increase (10%) in LCE prices (up to \$13.5) offers material upside for LAC's share price. Were we to get a spike to prior highs (not without precedent and unable for the market to address with alacrity, given the lack of investment we have seen) there is significant additional upside for LAC. As Joe Lowry stated on a recent podcast regarding a mismatch between supply and demand, "I think we have the perfect storm coming."

Clearly, there is a lot of good news in the stock price for LAC right now (as well as for most of the electric vehicle space and its supply chain). However, we have yet to see larger generalist institutions start to add exposure to names like LAC. Moreover, as investors shift toward more ESG-friendly stocks, demand may persist. Finally, should we get a spike in lithium prices as demand steadily increases and supply is unable to move as quickly, stock prices may show similar price action as investors extrapolate current prices well into the future.

What You Need to Know About Batteries, Lithium and Lithium Americas¹

The U.S. consumer, and the market and investors, have all demonstrated an appetite for environmentally friendly electric vehicles. While the (in)famous companies like Tesla and Nikola garner the most attention, neither company will continue to produce a viable product without access to integral battery components like lithium. Who is most likely to fill their needs?

Battered on Battery Day

Current events dictate a little background before we dive into our analysis of Lithium Americas.

Misdirection is an entertainment and showmanship strategy employed by, most notably, P.T. Barnum. Recently, showmanship had been in vogue, but it has its pitfalls, as infamous former Nikola (NASDAQ: NKLA) Chairman Trevor Milton can attest. We, at Formidable, believe that Elon Musk, darling of Tesla (NASDAQ: TSLA) and SpaceX, witnessed Milton's recent Icarian descent, and promptly decided that there were 420 ways not to fly too close to the sun, which made the much hyped September 23, 2020, Battery Day a flop, at least judging by the reaction of not just Tesla's stock price but that of the entire electric vehicle complex. Seemingly everyone was battered on or around Battery Day

We believe his goal was to obscure that Tesla failed to announce any new imminent efficiencies. In fact, they stated that they were "multiple iterations from having a new battery." This is seemingly code for, "we're not there yet, but we have to say something because our stock is going to be hammered if we don't." The timeline for the improvements in range and reductions in cost were between one and three years in the future.

Musk also promised a \$25,000 Electric Vehicle that will be made available to the public in three years; even a cursory inspection of the historical records indicates the same "in three years" timeline was outlined in first 2018. On an inflation adjusted basis, that would equal, in today's dollars, about \$23,500. We have seen this before. This is astonishing and should worry Tesla's faithful, because, currently, the average price of a new car is about \$36,000. Hmm...wrong direction, misdirection, no directionwe don't know, and that is a problem.

Our guess is that Musk's rather robust risk management and legal team realized that Nikola's Trevor Milton's recent egregious puffery could draw regulatory scrutiny to Musk's statements (conspicuously absent was any mention of the million mile battery) on Battery Day, which has now turned out for shareholders, to be just that...although the different definition of battery. The realities are that Tesla is multiple iterations from getting this right. They don't have what they need, and it has neither been

¹ NYSE: LAC; TSX: LAC.

perfected or invented, so this apparent misdirection was their only move. Seeing the market's response is nonsensical and fashionable. Musk may become alarmed when he saw the DOJ and SEC turn the screws on Milton and Nikola.

We have no problem with Tesla as a company, and we believe that they are a transformative innovator technology company with an army of highly intelligent people. That said, we also believe its self-inflicted Battery Day lacked in substance and was an unusual unforced error. Relegated to this outcome of supposition and pseudo data sharing, Tesla and Elon Musk were seemingly cornered into an Asymmetric Dead End.

However, Musk's comments about the use of lithium during Battery Day were P.T. Barnum-esque. Tesla's new deal (**not** announced at Battery Day but concurrently) with fledgling North Carolina-based (though Australian-owned) Piedmont Lithium (NASDAQ: PLL) is seemingly nothing more than misdirection. It's also likely not a great deal for PLL since it's fixed price, not to mention conditional.

ASX RELEASE | September 23, 2020 | ASX: PLL; NASDAQ: PLL

LITHIUM

PIEDMONT LITHIUM SIGNS SALES AGREEMENT WITH TESLA

- Piedmont enters into binding sales agreement to supply spodumene concentrate to Tesla
- Five-year fixed-price binding agreement with optional five-year extension
- Agreement confirms the strategic nature of Piedmont's unique American spodumene deposit
- Discussions are ongoing with respect to other lithium and by-product sales arrangements

Piedmont Lithium Limited ("Piedmont" or "Company") is pleased to announce that it has entered into a binding agreement ("Agreement") with Tesla, Inc. ("Tesla") for the supply of spodumene concentrate ("SC6") from Piedmont's North Carolina deposit to Tesla.

The Agreement is for an initial five-year term on a fixed-price binding purchase commitment from the delivery of first product, and may be extended by mutual agreement for a second five-year term. The Agreement covers a fixed commitment representing approximately one-third of Piedmont's planned SC6 production for the initial five-year term as well as an additional quantity to be delivered at Tesla's option. The Agreement is conditional upon Tesla and Piedmont agreeing to a start date for spodumene concentrate deliveries between July 2022 and July 2023 based on the development schedules of both parties.

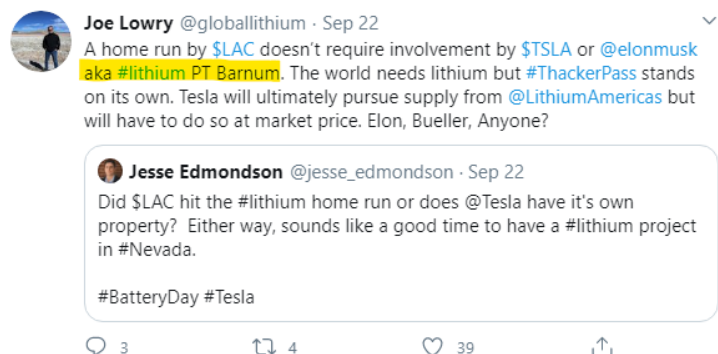
Keith D. Phillips, President and Chief Executive Officer, commented: "We are excited to be working with Tesla, which represents the start of the first US domestic lithium supply chain and a disruption to the current value chain. The Agreement highlights the strategic importance of Piedmont's unique American spodumene deposit and confirms the trend toward spodumene as the preferred feedstock for the lithium hydroxide required in high-nickel batteries.

"We will now accelerate our mine/concentrator development to support Tesla's plans, work to further expand our mineral resources, and potentially increase our planned annual spodumene concentrate production capacity. We will simultaneously be advancing our plans to produce lithium hydroxide in North Carolina, using a combination of internally produced spodumene concentrate as well as material sourced from other producers around the world."

Musk's message seems to be, "lithium bad...sell lithium," yet it appears that Tesla is going to go into the lithium mining and cathode business in Nevada? That is an interesting contrast behind what they say and what they do.



Moreover, while most of Battery Day seemed well rehearsed, the lithium piece was somewhat slapdash, demonstrating a lack of understanding. Based on Musk's analysis of the lithium mining process it sounds like anyone could walk outside, find some lithium, dump table salt and water on it, and, presto, become a supplier. Voices of reason disagree, including Joe Lowry, who does a wonderful podcast on all things lithium² and probably first made the Elon/P.T. comparison:³



² See <https://anchor.fm/globallithium>, accessed September 24, 2020.

³ See <https://www.reuters.com/article/us-tesla-batteryday-lithium-idUSKCN26E3G1>, accessed September 24, 2020.

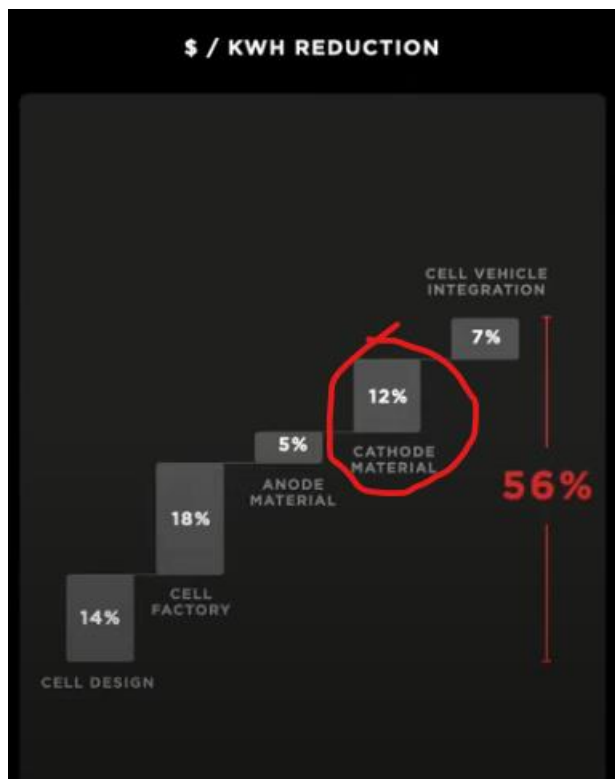
Showmanship is not the same as innovation. Nothing has changed. The lithium miners will still face geometric upside demand for their products in the months, years, and decades to come, whether from Tesla, upstarts with products not reliant on gravity for propulsion, or established automakers intent on grabbing share. Wall Street and the herd of sheep listening to their “after the house has burned to the ground shouting “fire!”” analysis is what we have all come to expect. Nothing.... nothing has changed in the lithium space; the only noise around it is the sound of the air coming out an event.

Tesla's move into lithium mining could hurt prices, Morgan Stanley says

Sep. 23, 2020 11:21 AM ET | About: [Albemarle Corporation \(ALB\)](#) | By: [Carl Surran](#), SA News Editor 

- Lithium stocks ([LC:COM](#)) plunge after Tesla [said at its Battery Day](#) that planned improvements to its battery technology likely will [reduce its dependency on outside battery metal supply chains](#), and Morgan Stanley analysts say the news is negative for the sector.
- [ALB -11.8%](#), [LAC -14.4%](#), [SQM -10.1%](#), [LTHM -6.5%](#), [FMC +0.4%](#).
- "Tesla announced improvements to battery technologies that are likely to support EV sales in the longer term, but also to reduce lithium usage and production costs. They also announced their own lithium mine with a new, lower-cost and more sustainable process," Stanley's Javier Martinex de Olcoz Cerdan says, and "lithium stocks [likely] to react negatively."

With the pressure increased and scrutiny high, Musk qualified cost reductions by stating “...probably to fully realize the advantages it’s three years or thereabouts.” Even if President Donald Trump compares you to Thomas Edison and says “we have to protect our genius,” if our genius wants to mine lithium in Nevada, he has to go through a process that takes a heck of a lot longer than three years. So either, a) these cost reductions won’t be achieved (possible), or b) Musk’s statement that Tesla, “got rights to a lithium clay deposit in Nevada...over 10,000 acres” is a reference to Thacker Pass (much more on it later).



This leads us to a deep dive on the value of Lithium Americas (NYSE: LAC), which is on sale thanks to Battery Day, and maybe that's what Musk wanted. Is it possible for Musk to claim to have 10,000 acres (no record of that; no permits filed), a magical process for extracting lithium unknown to any other lithium experts, convince a small player into a poor offtake agreement, and torpedo the prices of lithium and its miners so he could drive a harder bargain with a company that actually has the necessary resources?

Lithium Americas: Preposterous Valuation and Prime Location Make This a Compelling Name

Preposterous, from an etymological perspective, means to put the beginning before the end. It seems like our research at Formidable in the green energy/electric vehicle space has worked this way. Beginning with Workhorse (NASDAQ: WKHS), a manufacturer of vehicles, then going to battery technology with Nano One Materials Corp (OTCMKTS: NNOMF) (as a sidebar, much of Tesla's Battery Day commentary was proof of concept for Nano One's battery technology), we now find ourselves at the beginning of the supply chain: the producers of the raw materials that go into the batteries that power the vehicles. In this case, the lithium at the heart of the chemical processes.

We are just as dubious as anyone else when it comes to owning commodities-oriented businesses. They tend to be capital intensive, highly regulated, and a victim of the reflexive nature of commodity

cycles. One need look no further than the carnage in the U.S. shale industry to understand what the combination of cheap capital and a commodity cycle can do to share prices.

However, we believe we have identified a differentiated operator in the lithium space in Lithium Americas (NYSE: LAC; TSX: LAC). **Formidable Asset Management (“Formidable”) recently established a position;** and the following are the key pieces of our investment thesis behind this action:

- Imminent Production
- Strategic Location
- Undervalued Assets

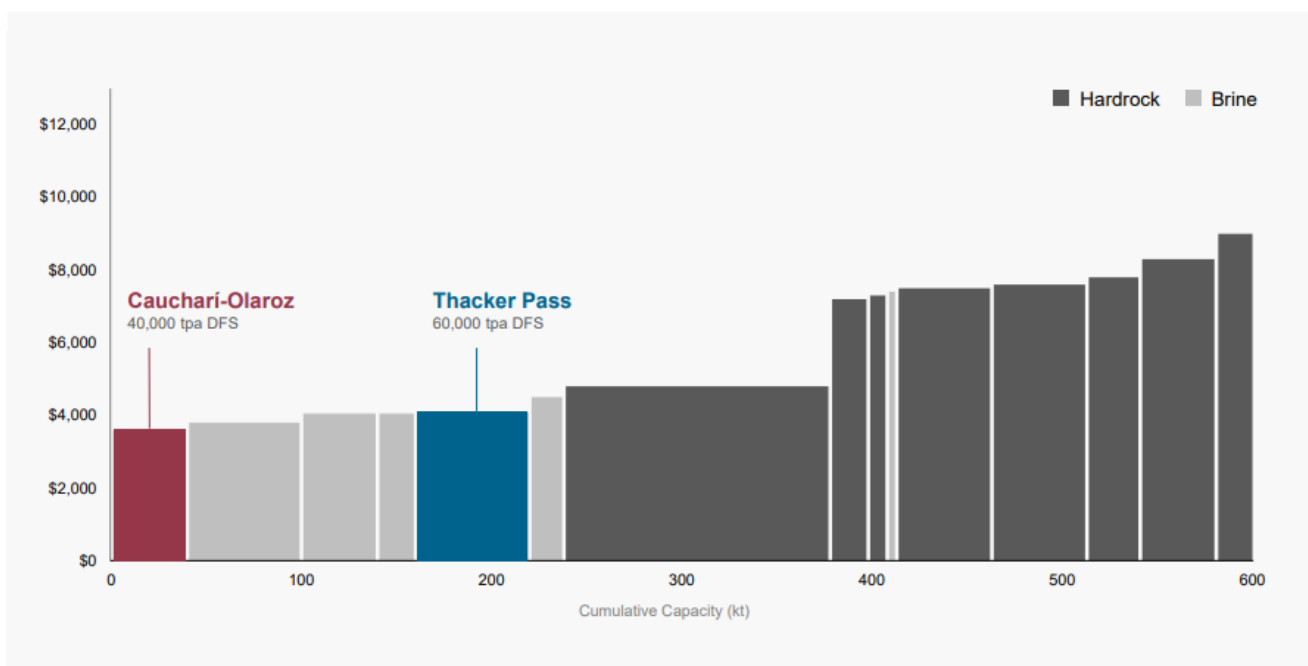
Overview

Lithium Americas is based in Vancouver, Canada, though the stock is dually listed in both the United States and Canada. The company is developing two lithium mines: one in Argentina and the other in the United States.

LAC’s joint venture with Ganfeng Lithium, Minera Exar, aims to produce 40 ktpa from the Cauchari-Olaroz site, located in western Argentina. Work on the project began in 2017 and relies on extracting lithium from brine. LAC’s Thacker pass is estimated to be able to produce 60 ktpa and uses material sourced from an open pit mine. Over 50% of the total reserves for the company are relatively cheap on the cost curve:

Operating Cost Curve

(\$/tpa LCE, 2020 estimates)



Source: Industry research including Cauchari-Olaroz DFS and Thacker Pass (before by-product credits). Includes CORFO royalty assuming price of \$9,000/t of lithium carbonate

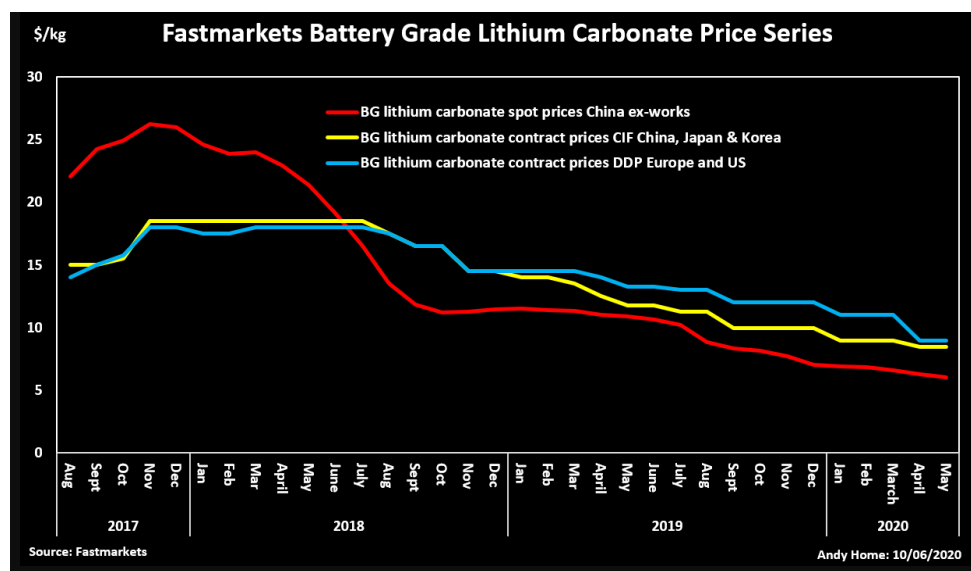
Approximately 30% of the company is owned by two large foreign entities: China's Ganfeng Lithium and Thailand's Bangchak Corp. Insiders and directors own over 12%.

Imminent Production

While LAC is moving forward with its plans to bring the Cauchari-Olaroz site online, major competitors like Chile's SQM (NYSE: SQM) and U.S.-based Albemarle (NYSE: ALB) and Livent Corp. (NYSE: LTHM), on recent earnings calls, announced reductions in capital spending. The project has seen setbacks due to COVID restrictions, though construction is over 45% complete. Best guess is that, barring unforeseen setbacks, the mine should be producing by the end of 2021.

The timing may be perfect. Even before the announcements, research from Cannacord estimated 450kt of lithium carbonate equivalent (LCE) had been removed from the global lithium pipeline since August 2019.

One reason is that, unlike other commodities, there is not currently a functioning futures market for lithium⁴. Per Reuters, even spot pricing is "opaque and fractured"⁵, and individual end clients required bespoke products, i.e., lithium is less of a commodity in the traditional sense, which is a positive for LAC. However, this inability to hedge produces wild swings in price, affecting capex decisions and leading to the boom/bust cycle that has plagued lithium.



⁴ Home, Andy; Lithium—The Metal of the Future with a Futures' Problem, published June 10, 2020 and access via URL on September 24, 2020: <https://www.reuters.com/article/us-metals-lithium-ahome/column-lithium-the-metal-of-the-future-with-a-futures-problem-andy-home-idUSKBN23H2B8>.

⁵ *Id.*

The company's assumptions for Cauchari-Olaroz use \$12k per ton as the price for lithium carbonate, which is well below the peak of \$17k in 2018 though above current spot rates, which have been impacted by COVID.

Like the metal itself, prices for lithium are volatile, and the reflexive nature of commodities prices are likely to give a bid to lithium over the coming years. The supply chain for lithium mining is relatively long, so prices tend to overreact on both the downside and upside, making LAC's investment in the teeth of a challenging price environment a good contrarian bet. According to Emily Hersh, managing partner at US consultancy firm DCDB Group, in the short term the market will face oversupply, but a lower supply scenario is expected in 2023-25 due to the lack of financing to build new projects or expand those that exist.⁶

Strategic Location

Argentina is not exactly a hotbed of electric vehicle production, nor is it the most stable political or economic regime. On the other hand, LAC's Thacker Pass mine is in the United States; Nevada, to be more precise. Approval of the site is not a *fait accompli*. A draft Environmental Impact Statement was published July 29, 2020.⁷ A Definite Feasibility Study is due in Q4 on what is the largest known lithium resource in North America.

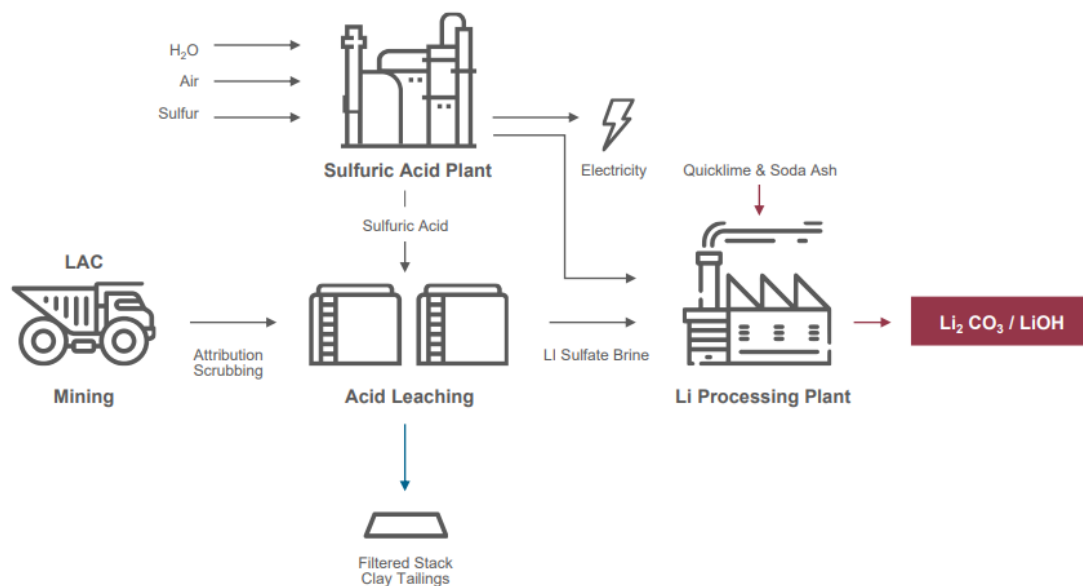
Relative to Cauchari-Olaroz, Thacker Pass can be brought online in a shorter period of time, i.e., ***within two years of the start of construction***. The former, as mentioned, uses a traditional brine extraction process. Thacker Pass uses the following process, which uses open pit mining (not the greenest thing in the world, we know):

⁶ Bnamericas; Lithium Market Weakness Exposed By COVID-19; published June 11, 2020; accessed September 24, 2020 via url: <https://www.bnamericas.com/en/features/lithium-market-weaknesses-exposed-by-covid-19>.

⁷ https://eplanning.blm.gov/public_projects/1503166/200352542/20024530/250030734/TP_Scoping_Report_2020-05-11_FINAL.pdf

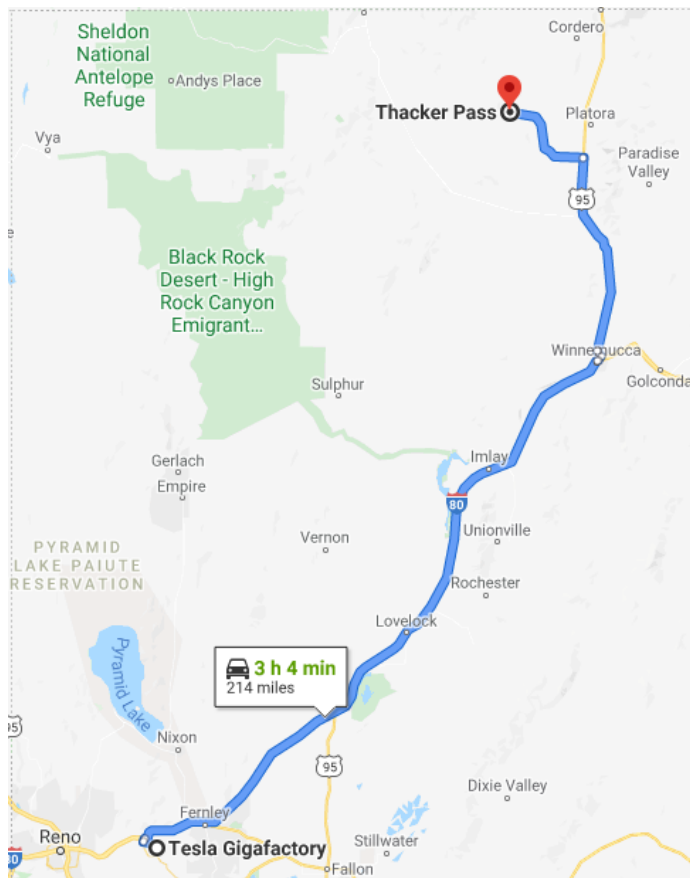
PROCESS FLOWSHEET

Thacker Pass' flowsheet applies a simple acid leaching process used by the phosphate industry



Setting aside the quicker timeline, the most compelling thing about Thacker Pass is its location. There are two main considerations here: one economic, one strategic.

In the case of the former, proximity to end users provides an economic advantage for commodity producers, given transportation cost is a key component of price. Tesla (NASDAQ: TSLA) located its Gigafactory 1, a lithium-ion battery and vehicle factory near Reno, Nevada.



In the case of the latter, as a result not just of COVID but other strategic and security concerns, there is an increasing emphasis on sourcing inputs nearer to home to develop a more resilient supply chain. Cathode and anode production is dominated by Asia, especially China. Lithium supply is dominated by South America and Australia, with the former exposed to political risk. One need look no further than recent headlines, when SQM had operations halted in its home country.⁸

Politically speaking, the drive to encourage domestic production of “strategic metals” has come from the Republican party on defense grounds, i.e., to eliminate dependence on China. However, the prospect of any Green New Deal promoted by the Democratic party will ultimately, we believe, compel environmentalists to acknowledge what Benchmark Mineral Intelligence Managing Director Simon Moores, a global authority on lithium-ion batteries supply chains, told the resources committee, specifically “We are in the midst of a global battery arms race in which the U.S. is presently a bystander,” and “Those who control these critical raw materials and those who possess the manufacturing and processing know-how, will hold the balance of industrial power in the 21st Century auto and energy storage industries.”⁹

⁸ <https://www.reuters.com/article/us-chile-lithium-sqm-idUSKCN25A2PB>

⁹ <https://www.miningnewsnorth.com/page/us-leaders-address-critical-minerals/5742.html>.

Open pit mining in Nevada is probably not high on the list of environmentalists, but in this case the ends may justify the means. Moreover, cognizant of these concerns, Thacker Pass is designed to be environmentally friendly:

Environmental & Social Responsibility

Carbon Accounting The proposed Thacker Pass mining and metallurgical process is being designed to achieve or exceed carbon-neutral scope 1 emissions status as defined by the Greenhouse Gas Protocol (“**Scope 1**”). The low carbon footprint is expected due to 1) the unique nature of the ore, which requires low energy to extract, beneficiate and process, and; 2) heat from the exothermic process which is designed to be captured to generate carbon-free electricity and steam. The cogeneration facility is expected to provide enough electricity to operate the plant and mine with the potential for excess electricity to be sold to the grid. Carbon-free steam is expected to be used in the plant (no natural gas or other fuel is required to make steam). Furthermore, solar power generation and electric trucks are also being evaluated to further reduce carbon emissions beyond Scope 1.

Through innovative design, Thacker Pass is being developed as a potential model of sustainability in the extraction and processing of critical minerals required for a low-carbon economy. Many years of environmental monitoring data was collected and used to locate project infrastructure in areas of lowest environmental impact. The sound and air emissions control systems have been engineered to use the best available technology, resulting in a design that exceeds regulatory requirements. Within the proposed processing facility, water recycling is expected to be employed throughout the facility to minimize consumption (Phase 1 requires approximately the same amount of water as 2-3 alfalfa irrigation pivots).

Undervalued Assets

We will delve into specifics in the valuation section, but suffice it to say based on the valuation of its competitors (relative to their potential production/earnings) as well as recent prices paid for assets by its competitors, LAC’s current market cap is well below what we believe the value of its assets to be.

Given the secular tailwinds for electric vehicles and the corresponding demand for lithium, such a mispricing is unlikely to persist. Moreover, the company’s Draft Environmental Impact Statement, dated July 31, 2020,¹⁰ contained the following nugget of information (emphasis ours):

¹⁰ <https://eplanning.blm.gov/eplanning-ui/project/1503166/570>

2.2.5.8 Lithium Sulfide Production

Lithium sulfide for use in solid state batteries would be produced in a three-step process with a pressurized reactor in an aqueous solution or in a non-aqueous high temperature reactor operating between 900 and 1,400 degrees Fahrenheit (°F). Lithium sulfide would be packaged in 55-gallon drums and sold to the market and/or consumed internally to produce solid-state batteries.

Approximately 3,300 tons of annual lithium sulfide production would be produced for internal consumption at the battery production complex.

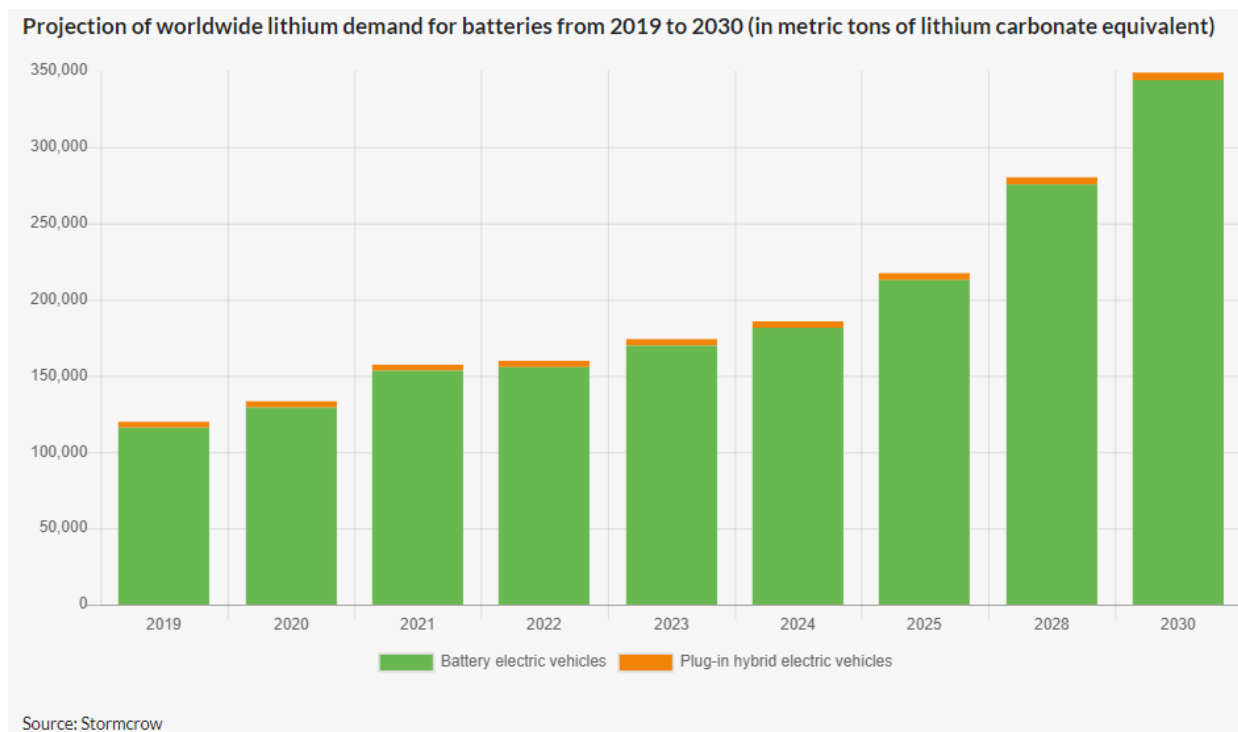
2.2.5.9 Battery Production

The battery manufacturing process would start with mixing the lithium sulfide electrolyte material produced in the processing plant (Section 2.2.5.8) to create a slurry. The slurry would then be fed into a roll-to-roll coater, which would deposit the material onto a metal substrate. The coated cathode and separator battery components would be combined with a lithium metal anode, produced at the process plant facilities (Section 2.2.5.5), via a lamination step to create a single layer of a battery cell. The layer would then be slit and stacked into the desired battery format. The battery manufacturing facility would be sized for 10 Gigawatt hours of annual all-solid-state batteries production in Phase 1.

There are three huge takeaways. One, this is no simple lithium mine but a battery manufacturing facility as well. Two, the quantity of batteries is not insignificant. For sake of comparison, Tesla's Gigafactory has about 35 Gigawatt hours of capacity currently, enough to produce 500k battery packs, which is not enough to produce the volume of cars the company hopes. Third, LAC is going to be making solid-state batteries, which are the key to things like the mythical million mile battery.¹¹ Given this foray into batteries and the fact that both LAC and Nano One are located in Vancouver, could this be a match made in heaven?

If, as bulls might say, Tesla is a battery company, not a car company, then ascribing a value to LAC's battery operation produces a valuation well in excess of anything we might envision.

¹¹ <https://www.machinedesign.com/mechanical-motion-systems/article/21836767/solidstate-batteries-for-evs-the-key-to-longdistance-driving>.



Valuation

The most salient valuation methods for LAC are comparisons with competitors, both in terms of their existing valuations versus LAC as well as prices recently paid for other lithium assets; discounted cash flow analysis also offers a valid framework.

Comparable M&A

U.S.-based Albemarle (NYSE: ALB) paid \$1.15 billion in December 2018 to Mineral Resources Limited (ASX: MIN) for a 50% interest in its Wodgina Project. The project is anticipated to produce 100 ktpa of lithium carbonate equivalent (LCE), though the division into two stages of 50 ktpa each seems to indicate some difficulty in extracting the second half. The project uses spodumene, which is mined from hard rock as opposed to being produced from brine; some consider the spodumene approach superior, given it uses fewer steps, so a premium from a valuation perspective was warranted. The effective price per ktpa (kiloton per annum) was \$23 million.

If we use a similar framework for LAC, we derive a value of \$450M for Cauchari-Olaroz and \$1.4 billion for Thacker Pass, for a total of \$1.8 billion. If we discount the former for its use of brine (we have seen brine given as much as a 50% discount) we still get an equity value of \$1.6 billion. Albemarle's transaction was at a time when spot lithium prices were much higher; approximately 50% greater than today. Applying such a discount still yields a valuation of \$800M, above LAC's current market cap.

Pure Play Competitor

Though SQM and LAB are the largest players, neither is a pure play in lithium. Domestically, Livent (NYSE: LTHM) is the closest thing to a pure play. Looking simply at its capacity per its 2019 annual report, we see around 55 ktpa; the breakdown between performance and base is roughly even. Given its market cap of \$1.1 billion, the implied market cap for LAC, given its production capacity, would be \$1.6 billion (LAC's current market cap is \$640M).

Net Present Value

A little more dubious but worth the exercise is an attempt to calculate an NPV for the company's assets.

We used the following assumptions:

- Cauchari-Olaroz begins production at the end of 2021
- Thacker Pass begins production at the end of 2023
- Company's cost curve is accurate
 - Low cost regime lasts for 60% of useful life
 - High cost regime for remainder
- 40-year useful life
- Tax rate of 20%
- Weighted average cost of capital of 15% (considers higher risk profile of mining)

At the company's projected lithium price of \$12k, we get an NPV for Cauchari-Olaroz of \$618M, with Thacker Pass at \$1.4 billion; total is approximately \$2 billion, or around \$22 per share. The company's estimate of \$12k is not too different than the average price over the last year, though clearly that average does not reflect the large swings we have seen. There is a reasonable chance that the company introduces a joint venture partner for Thacker Pass. If we assume that occurs (and that LAC retains 50%), we get a price of approximately \$15 (over 100% above its 9/23/2020 close).

Were we to use current spot, which we believe are extremely depressed, we would get a market cap of approximately \$605 million for the company as a whole. Conversely, at peak prices (approximately \$16k), we get a total market cap of just over \$3 billion.

With 90 million shares outstanding, we estimate a fair value between \$15 USD and \$22 USD, 110% and 220% above the stock's closing price on September 23, 2020, respectively.

Importantly, this **excludes** the market re-rating LAC as a battery company as opposed to simply a lithium miner.

Lithium Americas' Challenges

As stated at the outset, this is a commodities business from a perception perspective at a minimum. Though the company has strategic advantages in terms of proximity of its Nevada location, the global

price for lithium will affect its revenues. Currently, the market is oversupplied, and projections from some on the sell side see a glut for the foreseeable future.

Risks exist for both projects. As stated previously, Argentina's political and economic situation is not the most stable. Additionally, partner Ganfeng owns 51% of the venture and, as a Chinese company, is entangled with the Chinese government from a governance perspective. Approval from the Chinese government was required for recent financing to be approved. It also likely precludes Ganfeng as a potential joint venture partner for Thacker Pass, though other entities are likely to have a high degree of interest.

What could unlock the value?

Formidable believes any of the following events could help the market begin to close the gap between LAC's current price and our estimates of fair value. Each event has a reasonable probability of coming to fruition:

- Favorable legislation – The possibility of a “Green New Deal” is being widely discussed as part of the Biden campaign. Government programs aimed at reducing emissions and incentivizing the shift to EVs would also be a positive for LAC. In the event of a Republican victory, strategic concerns may provide additional impetus to domestic production.
- Spotlight on supply constraints – Despite the puffery at Tesla's battery day, lithium is a potential chokepoint for achieving the vision many have for renewable energy, LAC is in a prime spot, both from an industry perspective as well as geographically.
- Approval of Thacker Pass – Perhaps the market is ignoring the company's battery potential as it is just that: potential. Approval of the plan, including the proposed battery facility, may be a transformative event, and the clock is ticking.¹²

¹² <https://sierranevadaally.org/2020/08/28/thacker-pass-lithium-mine-draft-environmental-impact-statement-reaction/>

THACKER PASS LITHIUM MINE – DRAFT ENVIRONMENTAL IMPACT STATEMENT REACTION

By **Brian Bahouth and Scott King** - August 28, 2020



A panoramic view of the proposed Thacker Pass lithium mine in northern Humboldt County, Nevada - photo: Lithium Nevada

In the summer of 2019, Lithium Nevada Corporation (LNC) submitted a detailed plan for the Thacker Pass lithium mine project in northern Humboldt County, Nevada to the US Bureau of Land Management (BLM) and Nevada Division of Environmental Protection (NDEP).

On February 5 of this year, the BLM published a Notice of Intent to Prepare a Draft Environmental Statement (DEIS) for the mine. Once the notice of intent was published, the agency has 12 months or fewer to process the EIS under a Trump Administration executive order that mandates a one year timeline.

On July 29, the [Draft Environmental Impact Statement](#) was published, which started a 45-day public comment period that ends on September 11.

Adding impetus to the approval of the mine is another Trump Administration executive order that gives the project strategic significance.

[Executive Order 13817](#) is dated December 20, 2017 and gives the Department of the Interior, in consort with the Department of Defense and other related agencies, the directive to create a list of critical minerals. Lithium is on the list.

To meet the NEPA decision deadline, a Record of Decision must be issued by February 5 of next year. Lithium Nevada said it is prepared to begin a 2 year construction phase soon after.

Conclusion

Formidable believes the market has a tremendous appetite for electric vehicles, as do investors. While the OEMs like Tesla may get the attention, they have no product without access to integral battery components like lithium. Despite current weakness, the supply/demand dynamics for the lithium market appear favorable over the coming years, and LAC appears well positioned to take advantage. Moreover, even at “normal” lithium prices, the company is being given almost no credit for its Thacker Pass opportunity, which has the potential to be twice as valuable as its Argentinian operation.



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