

Senate Committee on Energy and Natural Resources

May 14, 2019

Testimony by Jonathan Evans, President and COO of Lithium Americas

Madame Chairman, Senator Manchin and members of the committee, my name is Jonathan Evans, and I am the President and Chief Operating Officer for Lithium Americas Corporation. I greatly appreciate your including Lithium Americas in the discussion of minerals critical to our economy and national security. Indeed, Lithium is a mineral on which we all depend and one that is critical to the electrification of transportation and the coming revolution of the auto industry; yet, the United States is reliant on a supply chain that extends from Australia and South America to China, Japan and Korea.

Lithium Nevada Corp, a wholly-owned subsidiary of Lithium Americas, is headquartered in Reno, Nevada and is developing a lithium project that will significantly reduce U.S. reliance of foreign mining, processing and manufacturing. Since 2010, Lithium Americas has invested more than \$75 million in Lithium Nevada. The project is called Thacker Pass, which is the largest known lithium resource in the U.S., and it is expected to produce enough lithium chemicals to fulfill 25% of today's global lithium demand when in full production. Currently, the U.S. produces just 1 percent of lithium minerals and 7% of lithium chemicals. Once in production, Thacker Pass will produce enough domestically sourced lithium chemicals to encourage the development of large-scale cathode, battery and end-user manufacturing in the U.S.

Lithium Nevada is on track to begin construction of Thacker Pass in the first quarter of 2021, but we will not stay on schedule without the swift and dependable permitting emphasized in S. 1317. Lithium Nevada faces additional challenges securing a trained workforce and providing levels of financial certainty to our investors and business partners. We greatly appreciate your efforts to address these issues. This testimony provides a brief summary of the Thacker Pass project and sets forth recommendations for a sustained commitment to developing the domestic supply, production and manufacturing aspects of the critical minerals supply chain.

Thacker Pass

The Thacker Pass project is located in northern Humboldt County Nevada, 60 miles north of Winnemucca and 20 miles south of the Oregon Border on public land managed by the U.S. Bureau of Land Management (BLM). The area was first explored by Chevron in the 1970s in an effort to locate meaningful uranium deposits. Chevron found high concentrations of lithium bound in sedimentary clay deposits close to the surface. The project has been in active development since 2008 by Western Lithium Corporation and then by Lithium Nevada Corp after a 2015 merger. Over the last three years, Lithium Nevada has extensively explored and defined the largest known lithium deposit in the United States. Additionally, we have developed a proprietary cost-competitive process to extract lithium from our uniquely high-grade ore and to produce lithium based chemicals. The area we are currently permitting will provide 30,000 to 60,000 tons of lithium carbonate equivalent per year for the next 40 years. Current world demand for lithium is 250,000 tons and is expected to grow to ~1 millions tons by 2025

Environmental Stewardship and Permitting

Lithium Nevada is finalizing its mine and plant design. We submitted a Conceptual Plan of Operations to the BLM in late 2018 and will submit a Detailed Plan of Operations to the BLM this

summer. We have completed all the necessary baseline environmental studies required to conduct a thorough Environmental Impact Statement (EIS). Consistent with the framework provided by Executive Order 13817, our early collection of baseline information relating to water resources, wildlife, cultural resources, and other environmental receptors will allow the BLM to ‘hit the ground running’ when the BLM begins to prepare its EIS. The BLM is currently undertaking an RFP process to retain an experienced contractor who will prepare the EIS. We also have been working closely with State and local agencies to ensure they have the environmental data they need to evaluate our permit applications. We anticipate the BLM will publish a Notice of Intent to conduct the EIS in December and complete the study by December 2020, in accordance with the Executive Order 13817.

Active management of the EIS process and effective coordination with State and Federal permitting agencies will be critical to regulatory permitting and the environmental-review process. In our experience, NEPA processes may be slowed due to administrative tasks occurring at State, Regional and Head offices that are removed from the actual environmental assessment process. We welcome the spirit of Executive Order 13817 and other administrative reforms that recognize the value in concentrating the NEPA process on substantive environmental review and encouraging State and Federal permitting agencies to be diligent in their review of critical minerals projects.

I have worked in the chemical industry the bulk of my career, including running the lithium division for a major public company and building projects around the world. In all cases, adhering to schedules like the one prescribed for Thacker Pass has boosted confidence among employees, prospective employees, community partners and financial supporters. Conversely, jurisdictions that have failed to consider permit applications in predictable timeframes have experienced minimal private investment, and essential workforces leave for other more dependable projects. Clearly, you appreciate the need to ensure a stable, thorough permitting process. This committee, the administration and Department of Interior should be commended for working to provide predictability in permitting.

Ensuring a stable supply of critical minerals like lithium also requires a high level of scrutiny on the potential environmental impacts caused by those projects. It is essential for the United States to have an uncompromising, thorough permitting process and to do it swiftly; Lithium Nevada expects this balance and these goals aren’t mutually exclusive. We insist on being a part of a project that goes beyond simply getting through the approval process. After all, we’ll produce critical chemicals for batteries that will dramatically improve the environment by reducing world carbon production. Consistent with that mission, it is our responsibility to ensure these essential chemicals are made responsibly, without compromising the benefits they ultimately bring to the environment.

To that end, Thacker Pass’s mining and processing facilities are being designed to be as efficient and environmentally sensitive as possible. In particular, Thacker Pass will utilize very little water—2,000 acre-feet per year, which is roughly equivalent to 3 alfalfa pivots or slightly more than one day of current annual water usage in Humboldt County.

Water use will be contained mostly within the processing facility where it will be recycled in a closed-loop process. There will be no evaporation ponds, which are common at lithium-brine operations, and our tailings will be dry-stacked instead of using a more conventional wet-slurry impoundment.

While Lithium Nevada has a broad network of unpatented mining claims extending into Nevada's biologically diverse Montana Mountains, the Thacker Pass mine will be located off the mountain, away from sensitive headwaters and vast plant and animal species.

Lithium Nevada is investing more than \$5 million in acoustic insulation, so the processing plant noises are contained and don't disrupt nearby bird populations.

Our operation will be nearly carbon free. Heat from our plant will be captured to generate as much as 60 megawatts of clean energy, which is more than enough to power the Thacker Pass operation and to provide surplus power to the grid.

We are proud of the project we are building and realize the Environmental Impact Statement may identify ways in which we can build an even better facility. We are up to the challenge.

Dependable Supply Chain

Demand for battery-grade lithium chemicals is soaring. All of the major car manufacturers have announced billions of dollars of investment in electric vehicle manufacturing. The current demand of approximately 250,000 tons of lithium carbonate equivalent is anticipated to grow 500% by 2025 with Australia fulfilling 1/3 of that demand followed by Chile, Argentina and China.

Lithium travels a long journey before ultimately rolling down American streets in a new plug-in vehicle. The supply chain is physically distant and highly vulnerable to transportation risk, political disruptions and foreign economic policy. By and large, lithium minerals are currently mined in Australia, Chile and Argentina. Lithium concentrates and chemicals are then shipped mostly to China, Japan and Korea and formulated into cathodes utilized by battery manufacturers such as Panasonic for electric vehicles, home storage and personal device batteries. This global supply movement produces financial inefficiencies that are ultimately shouldered by domestic consumers. In addition, the necessity of transporting every ounce of lithium material on two overseas journeys before becoming a final product in the U.S. generates greenhouse gas emissions from shipping that could be avoided by developing a vertical supply chain in the U.S.

Cathode and anode materials for lithium-based battery cells are produced almost entirely in China, Japan and Korea. There has been substantial under-investment in this business within the United States; it will take a sustained public-policy commitment to promote the development of the technology, expertise and capital needed to make the U.S. competitive in this area. The Thacker Pass project presents a critical catalyst that will ignite extensive downstream business development, with the right public support.

Workforce

Another challenge we are working to address is finding the skilled workforce required to operate our facility. Thacker Pass is a \$1.3 billion project that will require 900 people to construct and 300 permanent employees to make the operation run on a 24/7 basis. Although Thacker Pass jobs will pay an appealing \$86,000/year compared to the state average of \$55,000/year, we will still struggle to fill our openings. This problem is due to both the remote location of our project—the nearest Home Depot is more than 200 miles away—and also the historic under-investment in domestic critical mineral processing, which has limited the pool of technical professionals and skilled operators in this field. We have begun working with the local community college and school district to provide the necessary training to nearby residents, including tribal communities. Despite

our efforts, so long as critical minerals remain a niche sector in the U.S., this business will continue struggling to appeal to our next generation of engineers and skilled production-plant operators. I welcome your help highlighting the critical minerals industries as vital to our economic future and areas where young people can have fulfilling, problem-solving, careers.

Capital

While Lithium Nevada's Thacker Pass project is well-funded by private interests, Lithium Nevada will need to solidify the confidence of potential business partners and potential investors who are interested in allying with our project. The technologies for lithium processing are not widely understood in the U.S. Because lithium processing is a relatively nascent business here, we believe a dependable source of federal loan guarantees would confirm the government's commitment to the development of a critical mineral supply chain and would help to solidify investment interest among technical services firms and other potential business partners. Federal loan guarantees would also lower the project's cost of capital helping U.S. projects be competitive with government supported investments in Japan, Korea and China.

We appreciate that Section 301 of the Defense Production Act authorizes loan guarantees for contract performance or other operations related to national defense, subject to amounts annually authorized by Congress, but we would appreciate greater certainty about the availability of federal loan guarantees for businesses within the critical minerals supply chain. All portable battlefield communications equipment uses lithium-ion, and specialized cells are used in weapon systems for guidance. Lithium-ion batteries provide power supply to aircraft in the case of power failure, and are increasingly used due to their low weight. Confirming the availability of federal loan guarantees would support the growing domestic demand for crucial critical minerals in defense applications.

Conclusion

Lithium Nevada greatly appreciates the attention this committee is giving to securing critical mineral production—particularly lithium production—in the U.S. We support S. 1317. If enacted, it will bring invaluable assurances to those pursuing developments like our Thacker Pass project that the permitting process will be thorough and completed in a reasonable timeframe. It strives to invest in our next generation of engineers and operators ensuring a stable workforce going forward. And, it creates mechanisms to inject essential capital into our critical minerals supply chains. Without this assistance in the lithium-ion industry, the U.S. will remain decades behind China, Korea and Japan while we continue depending on the stability of their supply chain to furnish the U.S. with essential battery components.

I am pleased to be a part of the project that will profoundly accelerate the United States' efforts to secure a lithium chemical supply and will also help spur the growth of a domestic supply chain for lithium-ion batteries. I am happy to provide additional information about Thacker Pass and answer questions you may have.