



Mining and Metallurgical Society of America

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The Size of The Prize - Building a Domestic Battery Metals Supply Chain

Presented by: Chris Berry
Webinar -- January 15, 2021

Chris Berry covered the following topics:

1. Why rebuild domestic supply chains? Jobs and industrial self-sufficiency are key factors here?
2. Availability of US reserves to critical metals/import dependence.
3. Discussion of how much lithium/cobalt/copper/nickel will be needed for certain Electric Vehicle (EV) penetration rates and what this means for metals, etc.
4. What does a Biden Administration mean for the domestic battery metals industry?
5. What is happening in this regard in the European Union and China?
6. How can US industry compete?
7. How has COVID accelerated changes to supply chains?

Presenter: Chris Berry - President of House Mountain Partners, LLC

Chris has been an independent analyst since 2009 with a focus on Energy Metals supply chains including lithium, cobalt, graphite, nickel, copper, vanadium, and rare earths. His advisory work provides strategic insights to asset managers, banks, corporates and academia and has a specific focus on how strategic metals supply chains are evolving to create opportunities and threats. Before shifting focus to analysis of these trends, Chris gained twelve years of capital markets experience on both the buy side and sell side.

Comments

From [Bill Wilson](#) to Everyone: 01:34 PM - Very few quality lithium deposits.

From [Mitchell Smith](#) to All Panelists: 01:35 PM - Thanks Chris. As always very insightful.

From [Steven Yopps](#) to All Panelists: 01:38 PM - Li-ion battery recycling will be a new industry in 10-years

From [Helena Khazdozian](#) to Everyone: 01:43 PM - The Department of Energy funds the ReCell Lithium-Ion Battery Center at Argonne National Lab, which focuses on R&D to enable direct

recycling of LIBs. DOE also funds the Critical Materials Institute, an Energy Innovation Hub that in part is advancing R&D for materials recovery from EOL LIBs.

From Steven Yopps to All Panelists: 01:47 PM - Does the US have a strategy of saving LI-ion for mobile applications while using other chemistry for stationary storage for supplementing the grid? Or will this allocation between the applications be market driven?

From Laurence James to Everyone: 01:48 PM - Recycling of lithium from small and disposable Li batteries is harder than for true metallic compounds that can be detected by electromagnetic or magnetic sorters. Lithium in "metal" or ionic states is lost into waste through contact with water.

From Anastasios (Tassos) Kladis to All Panelists: 01:50 PM - Also brines from geothermal fields could be viable at much higher Li prices

From Ankur Jariwala to All Panelists: 01:55 PM - Which has more viability in the future - Lithium carbonate or lithium hydroxide ? Keeping in mind that both has some cost differential in production.

From Erik Spiller to Everyone: 01:59 PM - thanks for a great webinar.... informative for sure.

From Robert Schafer to All Panelists: 02:04 PM - Great presentation! Thanks Chris and Betty!!

From Debbie Struhsacker to All Panelists: 02:04 PM - Excellent presentation — thank you!

From Bonnie McDevitt to All Panelists: 02:05 PM - Thank you , this was great!

Questions

Lee Gochnour 01:13 PM - Can you discuss the dichotomy between "ESG as a Driver" and the environmental opposition (and resultant delays in permitting) experienced in development of these minerals?

Anonymous Attendee 01:34 PM - What are the challenges/barriers contributing to capital markets being so hesitant to invest into domestic raw materials and refinement development?

Mitchell Smith 01:35 PM - How do you see recycling fit into the battery supply chain. Are there any groups leading these initiatives domestically?

Darby Stacey 01:37 PM - What are your thoughts on the refining side of the process? Great to mine our own metals, but we need to be able to refine them to a usable product. Do you suspect there will be capital and projects available for Cu/Co/Ni smelting/refining in the US?

Mary Little 01:38 PM - Given the case for domestic EV growth, can you prioritize the North American projects that may have near-term Lithium production? Brine in Clayton Valley (Pure Energy and ALB) versus clay (Lithium Americas and others in NV) vs potential in oil brines.

Walter Weinig 01:39 PM - Are downstream users (cathode/battery manufacturers, vehicle manufacturers) more willing than they have been in the past to take steps to secure their supply chains by investing upstream?

Michael Blois 01:41 PM - Can Chris please comment on the very high purity requirements demanded by the purchasers of battery grade lithium hydroxide and the fact that purchasers often have different specifications.

Walter Weinig 01:42 PM - Do you see sedimentary deposits like Thacker Pass or Rhyolite Ridge providing a significant fraction of lithium supply by 2025?

Debbie Struhsacker 01:46 PM - How much focus does the investment community place on a state's or a country's mining tax policies? Nevada state legislators are considering a huge increase in the Nevada mining tax in response to the pandemic budget crisis. How do you think investors will perceive this?

Greg Gillian 01:48 PM - Current low cost Li extraction is brine-based in areas of the globe. You noted the magnitude of our US/NAmerican Li resources, and we see there are US and NA opportunities in spodumene and other hard rock deposits. How do you view these deposits with regard to the comment on price pressures?

Greg Gillian 01:49 PM - NVM - sounds like you just answered this. Thank you!

Mary Little 01:54 PM - How does the lithium market compare with other new battery technology metals such as vanadium and zinc for batteries.?