

The Future of Energy Storage: Liquid-Metal Batteries and the Role of Antimony

written by InvestorNews | August 13, 2023

One of the standout attributes of the liquid-metal battery is its competitive edge over lithium-ion batteries. Not only is it more affordable, but its design simplicity, superior chemistry, and impressive durability make it particularly appealing. As Sadoway notes, the battery's non-flammable nature, resistance to capacity fade, and data suggesting an operational life of two decades retaining 95% of its capacity make it a formidable contender in the energy storage sector.

Critical Minerals Expert Lara Smith on the Increasing Demand for Antimony

written by InvestorNews | August 13, 2023

In a recent InvestorIntel interview, Tracy Weslosky spoke with Lara Smith, a global critical minerals expert and the Executive Director and CEO of Molten Metals Corp. (CSE: MOLT), an antimony exploration and development company.

Molten Metals Aims to Meet the Rising Demand for Antimony in Energy Storage

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Supply chain disruptions and geopolitical concerns caused Western governments to re-examine the source of critical metals that will drive the economic engine for decades to come.

Media attention seems focused on the battery metals required for electric vehicles (“EVs”), including lithium, cobalt, graphite, and rare earths, but antimony was one of the few metals that is on all of the critical metals lists across Australia, Canada, China, the EU, Japan, and the USA.

The importance of antimony

Currently, Antimony is primarily used as a flame retardant in items such as paints, plastics, and textiles. It is also used in brake pads, ceramics, glass for televisions and monitors, and rubber. When alloyed with lead, it is found in metal products used in ammunition and lead-acid batteries.

As we strive towards transitioning to a carbon-free society, it is essential not only to harness renewable energy but also to store it efficiently. The future increase in demand for antimony lies in its potential to become a crucial component in battery technology.

Antimony’s unique property as a heat retardant is essential in

preventing thermal runaway in batteries, making it a crucial element in the development of effective energy storage systems. Its heat retardant properties enable the mass scalability of batteries, making it the only metal capable of achieving this goal.

Antimony molten salt batteries

[Ambri Incorporated](#), a US-based energy storage company, has developed a long-duration liquid metal battery technology for the power grid with backing from prominent investors, including Bill Gates, [Khosla Ventures](#), and [SoftBank Group](#), and funding from the [US Department of Energy](#).

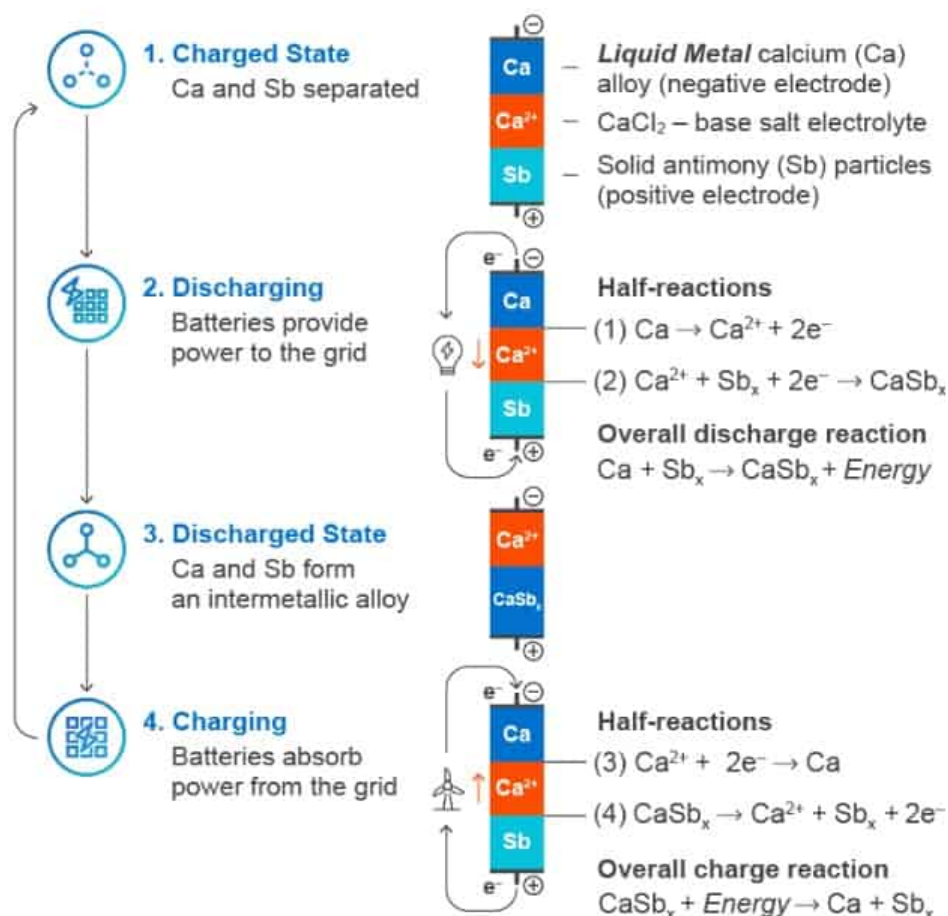
Ambri's battery technology uses solid antimony as the positive electrode, liquid metal calcium as the negative electrode, and a salt electrolyte consisting of calcium and chloride. The use of these metals allows for a reliable, low-cost, long-lasting, and safe energy storage solution that can enable the integration of renewable energy sources into the electric grid.

As Ambri continues with its commercialization efforts, it is estimated that its forward contract sales will require over 25% of the global production of antimony outside of China by 2026.

However, the current supply lacks the necessary capacity to fulfill this demand, leading to an imbalance in the supply-demand equation. This highlights the urgent need for investment in new antimony mines and refining ("roaster") facilities.

FIGURE 1: Ambri's Molten Salt Battery Chemistry

Our Chemistry



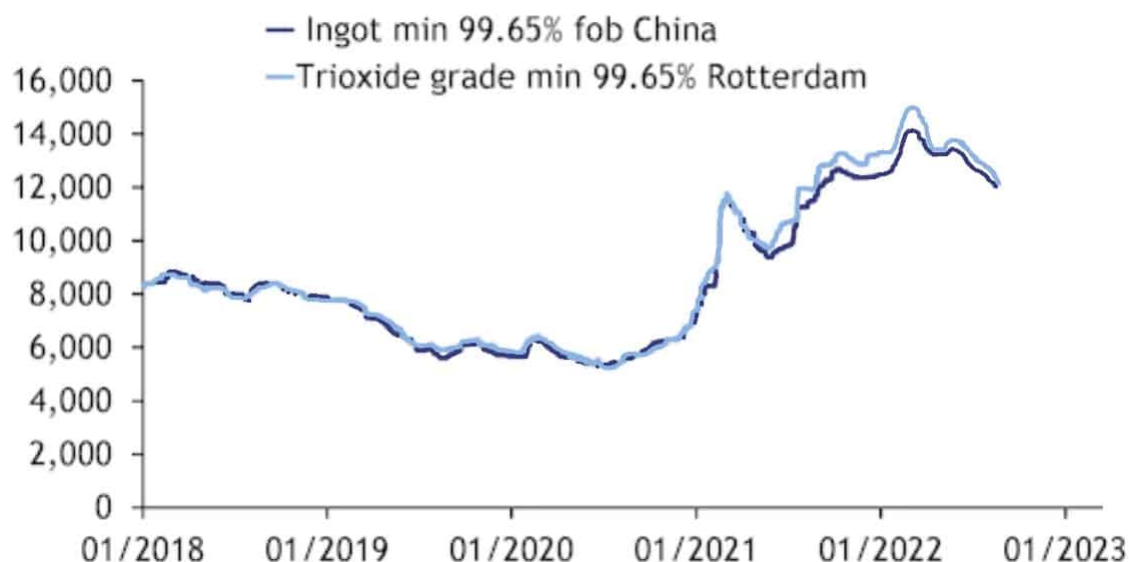
Source: [Ambri's website](#)

Lack of supply and increasing demand drives the price higher

Currently, the global supply of antimony is heavily reliant on China, Russia, and Tajikistan, which produced over 88% of the world's supply in 2022, according to the [US Geological Survey](#) ("USGS").

Antimony prices have surged this year to a record high, currently trading at US\$13,000 per tonne, more than double the US\$5,500 per tonne rate in 2019.

FIGURE 2: Antimony Market Prices (US\$/tonne)



Source: Argus Media

Newly Listed Molten Metals Corp.

Listed in August 2022, [Molten Metals Corp.](#) (CSE: MOLT| FSE: Y44) is a Canadian mineral exploration company and one of the few companies actively developing antimony assets in North America and Europe, reducing the foreign dependence on this resource.

The Company has four properties, which include a former antimony mine in Nova Scotia, Canada and it has two antimony-gold projects and one tin project in Slovakia. All of the Slovakian projects are brownfield sites, either past-producing mines or previously explored.

In Nova Scotia, Molten Metals' [West Gore project](#) is home to one of Canada's foremost historic antimony mines, which has been abandoned since the 1960s. The Company is currently testing the remaining stockpiles and tailings at the site, in an effort to extract valuable antimony and revive the mine.

According to the Company's website, these stockpiles could

contain up to 570 tonnes of antimony and 2,500 ounces of gold, worth approximately US\$7.4 million and US\$5.0 million at today's price, respectively. These estimates were taken from a report released by George Packard in 1949 using a survey undertaken by Nova Scotia's Department of Mines.

The Company is also focusing on the past-producing [Trojarova project](#) in Slovakia with a well-preserved mining infrastructure and a historic resource calculation, which, if correct, would make it one of the world's largest unmined antimony projects globally.

Upcoming exploration plans include confirmation sampling and drill hole twinning to complete a NI 43-101 initial resource to validate the historical resource. Molten Metals could have one of the largest antimony resources globally if it can confirm the historical resources that were calculated in the 1980s and 1990s when Slovakia was part of the Soviet Union.

Offtake agreements and future capital

Molten Metals recently [announced](#) that it executed a non-binding Memorandum of Understanding ("MOU") for a long-term antimony supply agreement with Swedish company [Scandinavian Steel AB](#).

The agreement will be subject to a specific financial investment into the development of one or more of Molten Metals' projects and a provision to upgrade the MOU to a binding offtake agreement within a reasonable time frame.

Final thoughts

Molten Metals (CSE: MOLT| FSE: Y44) has a strong focus on antimony, which is increasingly in demand due to its use in batteries. In the short term, the Company plans to process the remaining stockpiles of tailings at its Nova Scotia project and

advanced its mines in Europe. The company has two antimony-gold projects and one tin project in Slovakia that could provide a near-term, large resource and additional upside.

With a market cap of only C\$1.9 million and a tight share structure of only 16.9 million shares outstanding, if you have confidence in the antimony theme, it should be a stock to watch.

Ian Chalmers Joins The Critical Minerals Institute As New Co-Chair

written by InvestorNews | August 13, 2023

Toronto, February 28, 2023 – The [Critical Minerals Institute \(CMI\)](#), which was founded for education, collaboration, and to provide professional opportunities to meet the critical minerals supply chain challenges, is pleased to announce that it has appointed renowned rare earths executive Ian Chalmers as its Co-Chair, and industry expert Lara Smith as a new director.

Ian Chalmers is a geologist and graduate of the Western Australia Institute of Technology (Curtin University) and has a Master of Science degree from the University of Leicester in the United Kingdom. He has worked in the mining and exploration industry for over 50 years. Ian has a 35-year involvement with ASX listed company Alkane Resources Ltd. (ASX: ALK) as both Technical Director and Managing Director, and has steered Alkane through discovery, feasibility, construction and development of gold and gold-copper projects in New South Wales, Australia.

With a 30-year involvement in the rare metal and rare earth industry, Ian was involved with the discovery and evaluation of the Brockman rare metal and rare earth project in northern Western Australia, and has managed the geology, process development and global marketing effort for the Dubbo rare metal and rare earth project in New South Wales, advancing it to the threshold of development.

“I am delighted that Ian has joined the Critical Minerals Institute as a director and Co-Chair,” said CMI Founder Tracy Weslosky. “No one knows better how to actually develop a critical minerals resource or its importance to battery materials and electric vehicles, as well as future green technologies and energy production. We all look forward to working with Ian to make the Critical Minerals Institute the leading international organization for critical mineral companies and professionals designed to address relevant issues relating to the establishment of secure supply chains from mine to manufacturing.”

“I am also pleased to welcome Lara Smith as a new director of the Critical Minerals Institute,” Tracy continued. “Lara is COO and President of [Molten Metals Corp.](#) (CSE: MOLT) (formerly “Battery Elements”), and Founder and Managing Director of Core Consultants Pty (Guernsey) Ltd, an internationally recognized name in the natural resources industry.” Lara is a renowned industry writer and speaker in the field of business and economics, commodity analysis, and forecasting. “Lara has been a keynote speaker at international mining and business conferences in over 20 countries,” Tracy said, “and brings a wealth of practical rare earths experience to the CMI.”

The Critical Minerals Institute held its sold out inaugural summit in November, 2022 in Toronto, Canada, with over a hundred international experts, investors and critical minerals companies

gathered to hear over 20 speakers and world-renown panelists. This year's expanded summit, **"Driving To The Near Future – Critical Minerals For the EV Transformation"**, is scheduled for June 14-15, 2023, in Toronto. Keynote speakers such as Constantine Karayannopoulos from Neo Performance Materials Inc. (TSX: NEO) and Mark Chalmers of Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR) have already confirmed and early registration is now open at <https://criticalmineralsinstitute.com/the-critical-minerals-institute-summit/>.

The Critical Minerals Institute website at www.criticalmineralsinstitute.com was created to offer education, collaboration and an online resource to learn about critical mineral projects, emerging technologies, legislative initiatives, government funding, human capital needs, and capital market investment opportunities.

There is no charge or sign-up required for access to the Critical Minerals Institute website. A range of enhanced benefits are available to individual and corporate members of the CMI, including attendance at the CMI Summit, virtual events and additional resources. For details see: www.criticalmineralsinstitute.com/cmi-membership/.

For more information, please visit the Critical Minerals Institute website at www.criticalmineralsinstitute.com or to secure a CMI Corporate Membership, please contact CMI Director Tracy Weslosky at Tracy@criticalmineralsinstitute.com. For CMI inquiries, please contact Director, Membership Services Tom Park at +1 416 792 8228 or email tom@criticalmineralsinstitute.com.

About the Critical Minerals Institute: The [Critical Mineral Institute](http://www.criticalmineralsinstitute.com) (CMI) is an international organization for companies and professionals focused on battery materials, technology

metals, defense metals, ESG technologies and practices, the general EV market, and the use of critical minerals for energy and alternative energy production. Offering an online site that features job opportunities that range from consulting roles to Advisory Board positions, the CMI offers a wide range of B2B service solutions. Also offering online and in-person events, the CMI is designed for education, collaboration, and to provide professional opportunities to meet the critical minerals supply chain challenges.

Special Thanks to the Critical Minerals Institute Corporate Sponsors, which include the following companies: [ACME Lithium Inc.](#), [American Rare Earths Limited](#), [Appia Rare Earths & Uranium Corp.](#), [Auxico Resources Canada Inc.](#), [Avalon Advanced Materials Inc.](#), [Clean Air Metals Inc.](#), [Critical Metals PLC](#), [Critical Minerals Americas Inc.](#), [Defense Metals Corp.](#), [dynaCERT Inc.](#), [Elcora Advanced Materials Corp.](#), [Energy Fuels Inc.](#), [F3 Uranium Corp.](#), [Geophysx Jamaica Ltd.](#), [Grant Thornton LLP](#), [Imperial Mining Group Ltd.](#), [Kraken Energy Corp.](#), [Lithium Ionic Corp.](#), [Nano One Materials Corp.](#), [Neo Performance Materials Inc.](#), [Panther Metals PLC](#), [Power Nickel Inc.](#), [Save Canadian Mining](#), [Search Minerals Inc.](#), [Silver Bullet Mines Corp.](#), [Texas Mineral Resources Corp.](#), [Ucore Rare Metals Inc.](#), and [WCPD Inc.](#)

For more information, go to CriticalMineralsInstitute.com or email info@criticalmineralsinstitute.com for more information. You may also call +1 416 792 8228.

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Molten Metals sees opportunity in bringing antimony projects back into production

written by | August 13, 2023

[Molten Metals Corp.](#) (CSE: MOLT) is a relative [newcomer](#) to the world of antimony (Sb) and tin (Sn). Formed by Christopher Ecclestone in 2021 to look at near term production of lesser-known battery material antimony, the focus of the company is to look at previously operating mines to develop [non-Chinese sources of material](#).

Molten Metals' first target was the historic [West Gore antimony/gold mine](#) in Nova Scotia, Canada, that produced antimony and gold from the 1880s to 1917. From 1915 to 1917 operations were expanded, and over 35,000 tons of ore were milled yielding 7,761 tons of concentrate at 46% antimony. The total amount of gold obtained from the deposit up to 1917 was 6,861 oz. According to reports, high grade material (46% Sb) was shipped to England but lower grade material was kept on site, which would be readily available with no mining cost. The mine site is located one hour by road north of the provincial capital, Halifax.

Molten Metals' second move was to incorporate a company in Slovakia, Slovak Antimony Corporation. Slovakia was the key source of antimony for the Soviet Union. They have purchased a processing plant in July in Eastern Slovakia. It is planned to process material from the tailings from their Tienesgrund project. Samples from this project show antimony levels of 39.4% and 9.69 g/t of Au.

I am a strong believer in looking at ex-producing mines or mine

tailings as new sources of raw material. Typically, they have infrastructure and possibly tailings that were processed using old technology which can be economically recovered with today's improved processes.

The largest applications for metallic antimony are in alloys with lead and [tin](#), which have improved properties for [solders](#), [bullets](#), and [plain bearings](#). It improves the rigidity of lead-alloy plates in [lead-acid batteries](#). [Antimony trioxide](#) is a prominent additive for [halogen-containing flame retardants](#). Antimony is used as a [dopant](#) in [semiconductor devices](#). It is increasingly important as an essential element in high-capacity molten metal batteries. Antimony production in 2016 was 130,000 tonnes with China producing 100,000 tonnes. A recent report from the USGS shows that total global production of antimony fell to 110,000 tonnes in 2021, and Chinese production dropped to 60,000 tonnes, with Russia in second at 25,000 tonnes and Tajikistan at 13,000 tonnes. Some of the reduction in China was due to COVID production problems and China's focus on environmental issues. As a result, antimony prices rose from an average of \$2.67 per pound versus \$6.65 per pound in October of last year.

A growing fear is that China can use rare earths as a weapon against the USA by throttling back or even banning rare earth exports to the USA. However, I believe there would be a more direct and immediate impact on American industry if China curtails shipments other key minerals like antimony, which would result in problems for the manufacturing of bullets and electronics plus lead-acid batteries. The USA buys components and assemblies with rare earths in them but not much of key rare earth oxides/carbonates. However, antimony goes directly into manufacturing companies like East Penn, which is the world's largest lead-acid battery producer. It is not hard to imagine the consequences of a sudden reduction in bullet manufacturing

and batteries for new vehicles.

On the corporate side, Molten Metals [recently announced](#) additions to their advisory board. An impressive group has been assembled including Donald Sadoway, an inventor of the liquid metal battery for large scale stationary storage and Professor Emeritus in the Department of Materials Science and Engineering, Massachusetts Institute of Technology (“MIT”). Also on the board is Anthony Balmmeis who is active in both private and public companies and David Henderson who is very familiar with opaque markets and critical materials over his 35-year career. The fourth member is Alon Davidov, an Angel investor in several companies in the construction-tech, FMCG, natural resources and media industries.

There is much to applaud in Molten Metals’ enlightened approach to pursuing opportunities in some of the less-followed elements. I am sure there are other opportunities out there in tailings and old mines which traditionally have been shunned by the markets just waiting to be recognized for their potential.

Christopher Ecclestone of Molten Metals talks about breaking China’s grip on antimony production

written by InvestorNews | August 13, 2023

In this InvestorIntel interview, host Tracy Weslosky talks

to [Molten Metals Corp.](#)'s (CSE: MOLT) Executive Director & CEO Christopher Ecclestone about the importance of antimony as a critical mineral and breaking China's grip on its mining and processing.

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here to access InvestorChannel.com](#)), Christopher tells Tracy that "China still dominates the processing of the metal and until recent years also dominated the production of the metal from mines. Their production has been going down from mines, but they've still got a pretty strong grip on the processing, and they like to think that they have a grip on the pricing as well." He goes on to say that Molten Metals' goal is to "release that death-like grip on the antimony market and hopefully become the largest non-Chinese producer of antimony maybe in five years from now."

Christopher also talks about the resurgence of molten salt batteries as a mass electricity storage device and its commercialization potential.

To access the full InvestorIntel interview, [click here](#)

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About Molten Metals Corp.

Molten Metals is developing Antimony & Antimony-Gold mine projects. Antimony is a critical element with many industrial applications, including ammunition and fire retardants. The upcoming potential new usage is in the mass- storage devices – molten-salt batteries.

To know more about Molten Metals Corp., [click here](#)

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Christopher Ecclestone of Molten Metals talks about why now is a good time to be in antimony

written by InvestorNews | August 13, 2023

In this InvestorIntel interview, host Tracy Weslosky talks to [Molten Metals Corp.](#)'s (CSE: MOLT) Executive Director & CEO Christopher Ecclestone about the newly-listed antimony and antimony-gold company.

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here to access InvestorChannel.com](#)), Christopher tells Tracy that Molten is "totally dedicated to production. We're not interested in fooling around, we're not interested in spending enormous number of years and amounts of money on exploration – we just want to get to production because the prices are up and we want to harvest those prices."

Christopher also tells InvestorIntel that Molten Metals, with only 17 million shares issued, planned a fairly quiet entry into the market to preserve their first mover advantage in this niche but important critical mineral market. "At the moment we are the only non-Chinese listed miner dedicated to antimony," he says, which has many industrial and military applications. With prices again on the rise, Christopher says, "it's a pretty good moment to be in antimony."

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