

Investor.Coffee (04.08.2024): Gold Continues to Rise, and Perpetua Resources Secures \$1.8B EXIM LOI

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This week, InvestorNews.com has scheduled two InvestorTalk.com's pre-market sessions. On Tuesday, April 9, 2024, Dr. Luisa Moreno from [Defense Metals Corp.](https://DefenseMetalsCorp.com) (TSXV: DEFN | OTCQB: DFMTF) will present from 9-9:20 AM EST. Similarly, on Thursday, April 10, 2024, John Carter from [Silver Bullet Mines Corp.](https://SilverBulletMinesCorp.com) (TSXV: SBMI | OTCQB: SBMCF) will present during the same time slot.

In the pre-market scenario, Canadian futures remained flat due to falling oil prices, counteracting gains from rising gold prices. Investors are anticipating a busy week ahead, particularly awaiting the Bank of Canada's rate decision. Meanwhile, U.S. stock index futures also remained flat, as Treasury yields increased amid speculations of the Federal Reserve delaying policy easing. The U.S. dollar showed minimal movement ahead of the release of U.S. inflation data. European stocks experienced a slight uptick, bolstered by robust industrial production data from Germany. In contrast, Japan's Nikkei rebounded, closing positively as investors capitalized on buying opportunities following recent market declines.

The Bank of Canada is widely expected to maintain its key overnight rate on hold during its upcoming Wednesday meeting. Analysts suggest that the central bank may wait for more evidence of cooling inflation before implementing its first

interest rate cut in four years, potentially in June.

In global markets, Euro STOXX 50 futures were up by 2 points at 4,966, FTSE futures added 8 points to 7,926, and German DAX futures gained 10 points at 18,418 by 0430 GMT. Additionally, oil prices experienced a decline, with Brent falling below \$90 as tensions in the Middle East eased.

Spot gold prices were reported at \$2,341.79, marking a 0.53% increase equating to \$12.29.

Looking back at the U.S. market performance, major averages closed positively on Friday despite a down week overall. The Dow Jones Industrial Average rose by 0.8% following its worst session in over a year. The S&P 500 and Nasdaq Composite also climbed by 1.11% and 1.24%, respectively. Friday's positive momentum was attributed to the Labor Department's report, which indicated [job growth](#) of 303,000 in March, surpassing expectations.

Federal Reserve Governor Michelle Bowman hinted at potential future rate hikes to control inflation, reflecting a cautious approach amid market uncertainty.

In corporate updates, Catalent Inc. (NYSE: CTLT) and Novo Nordisk A/S [refiled](#) their application for approval of a \$16.5 billion deal. JPMorgan Chase & Co. CEO Jamie Dimon [emphasized](#) U.S. economic strength while opposing stricter bank capital rules proposed by regulators. [Perpetua Resources Corp.](#) (NASDAQ: PPTA | TSX: PPTA) received a [letter of interest](#) from the U.S. Export-Import Bank for a loan worth up to \$1.8 billion. Bristol-Myers Squibb Co [reported](#) positive data from late-stage studies of its experimental schizophrenia drug, KarXT, showing symptom reduction without weight gain side effects.

Globally, Janet Yellen [concluded](#) meetings in China, advocating

for measures to address excess industrial capacity. Additionally, two key U.S. lawmakers reached a deal on draft bipartisan legislation for data privacy, while Peter Pellegrini won Slovakia's presidential election, reinforcing pro-Russian leadership.

The Department of Defense starts the Invest in Critical Minerals Strategy with the Letter "A"

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What's old is new again. How many times have we seen an old, either abandoned or suspended mining operation, all of a sudden come back into relevance? This seems to be happening more often as supply chains and global political maneuvering have sparked a race to "onshore" as many things as possible. However, today was a new one for me – antimony. It's not necessarily at the top of the list of critical materials, as everyone seems to be focusing on the big five (lithium, manganese, nickel, cobalt, graphite) for EV batteries along with copper.

But here are some little known facts that may change your mind about antimony, which is on the U.S. Department of the Interior's critical minerals list. Antimony trisulfide is essential to national defense as a key component for munitions and primers used in every branch of the armed services. Additionally, every military uniform is coated with antimony to

provide fire protection and minimize infrared detection. It is also a useful material for the energy transition as a glass clarifier in solar panels or as a metal strengthener to wind turbine components. More recently, antimony is gaining recognition as a battery metal for its role in liquid metal battery technology. Yet, the U.S. has no domestic antimony production at present. Even more challenging, roughly 90% of global antimony production is controlled by China, Russia, and Tajikistan. Not exactly, the names you want at the top of your list of a “must have” commodity.

This explains why a domestic mining company was just [awarded a Technology Investment Agreement](#) of up to US\$24.8 million under Title III of the Defense Production Act (“DPA”). That’s right, the Department of Defense has stepped up to the plate to work with [Perpetua Resources Corp.](#) (NASDAQ: PPTA | TSX: PPTA) to complete environmental and engineering studies necessary to obtain a Final Environmental Impact Statement, a Final Record of Decision, and other ancillary permits to sustain the domestic production of antimony trisulfide capability for defense energetic materials. All of this would be for the [Stibnite Gold Project](#) where Perpetua Resources is focused on the exploration, site restoration and redevelopment of gold-antimony-silver deposits in the Stibnite-Yellow Pine district of central Idaho.

The Stibnite Project is one of the highest-grade, open pit gold deposits in the United States and is designed to apply a modern, responsible mining approach to restore an abandoned mine site and produce both gold and the only mined source of antimony in the United States. Further advancing Perpetua Resources’ ESG and sustainable mining goals, the Project will be powered by the lowest carbon emissions grid in the nation and a portion of the antimony produced from the Project will be supplied to Ambri, a US-based company commercializing a low-cost liquid metal battery essential for the low-carbon energy transition.

There's a lot of interesting things at play here but before you get too excited about this project, it should be noted that there is a lot of work to be done because of all the work that wasn't done back in the 1930's and 1940's. In the absence of modern environmental knowledge and regulation, and later to meet wartime demands, the first generation of miners at Stibnite placed mill tailings wherever they could in the Meadow Creek Valley. By the time mining operations ceased in the 1950's, more than four million cubic yards of tailings had been placed in the upper valley. In 1959, government officials ordered the mine to breach the tailings containment and Meadow Creek flowed through, rather than around, the tailings. Over the next 20 years, an estimated 10,000 cubic yards of tailings were eroded by wind and water and washed downstream into the East Fork of the South Fork of the Salmon River system.

Not surprisingly, the proposed Stibnite Gold Project is in the sixth year of review under the National Environmental Policy Act. However, Perpetua expects that current cash resources, combined with the full DPA agreement, would provide the Company with sufficient liquidity to complete permitting and early restoration activities on the current timeline as well as additional liquidity to begin advancing construction readiness. Once back in production, Stibnite is expected to average ~35% of U.S. antimony demand. Plus, the gold component of the mine has pretty appealing economics as well with a 2020 feasibility study suggesting an NPV (5%) of US\$1.3 billion using US\$1,600/oz gold price, average annual gold production of ~465,000 ounces at a very impressive AISC of <US\$450/oz leading to average annual EBITDA >US\$550 million.

I harken back to a saying used by Tom Hanks' character in "A League of Their Own" (although that isn't the original source, it's just one of the more notable ones) "If it were easy, everyone would do it". Reclaiming and resuscitating the Stibnite

Gold project is not an easy task. But Perpetua definitely has momentum on its side and a very influential supporter in the form of the Department of Defense. It would appear they have as good a chance as any to restore commercial operations at what is arguably a very important (and potentially lucrative) asset.

Antimony – Critical or Strategic or Both?

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China has a very strong position in Antimony and long has had. Indeed this is the metal it has been dominant in for the longest. However, like so many other resources this was squandered through overproduction, predatory pricing and high-grading. China now finds its domestic share of global production plunging and to prop up its dominance it has become a leading importer of artisanal and “conflict” ore from all around the world. It then processes this imported ore/concentrate and manages to hold a still dominant position in processed end-product Antimony Trioxide and other products.

Is the metal strategic? Thus far it does not have the type of sexy applications that other high-tech metals possess, but it is still a key component in the things it is used for such as fire retardants and its historical application as an alloy used to harden Lead in ordnance/ammunition and Lead-acid storage batteries.

And now the latest new technology to utilize the metal is Antimony molten salt batteries for mass storage. The potential

here is for a quantum surge in demand. This new application may be its own undoing if the price of the metal goes too high and unravels the economics.

Lighting a Fire Under the Price

After a price slump that lasted several years, and sank the prospects of several Antimony wannabes, the price of Antimony started to uptick in 2016. It got to around \$8,500 per tonne and then plunged again to around \$5,500. That price was the result of a regulator-induced swoon over the use of the metal in fire retardants in children's pajamas (the culprits being the EU and State of Massachusetts), however the main application in fire retardants has not gone away and in the wake of Grenfell Tower fire in London the regulators act against fire retardants at their own peril. This was further complicated by the ever-looming liquidation of the [FANYA](#) stockpile, which amounted to around 19,000 tonnes, which was finally sanctioned by Chinese courts in 2019. The talk in the trade was that the FANYA stocks were bought by one of China's largest Sb producers.



Source: Argus Metals

In the wake of the pandemic and with the marketplace dry of product, the price has had a fire lit under it by Molten Salt batteries capturing the *Zeitgeist*. This move was compounded by global shortages caused by the Pandemic, the coup in Burma, long term underinvestment, declining Chinese production and the arrival of Molten Salt batteries in the commercial marketplace.

The worries about regulators evaporated like Gorillas in the Mist in the last quarter of 2020 and a stampede to rebuild stocks occurred sending buyers (notably in the US) into a feeding frenzy with Antimony becoming the hottest metal in the

last six months (though tussling with Tin for that title) doubling in price from around \$5,500 in late 2020 to nearly \$11,000, from where it has eased back slightly.

On the supply-side protracted low prices have stymied anything beyond small-scale production by artisanals outside China.

Molten Salt Batteries as Icing on the Cake

We have written before on how [Molten Salt batteries](#), based on Antimony are starting to make waves. If Liquid Metal Batteries become the “killer application” in grid-linked storage (or non-grid linked) then it potentially lights a fire under Antimony demand and pricing. The announcement that United States Antimony Corporation (NYSE: UAMY) had secured an offtake deal with Ambri for its output lit a fire under the price of that stock in late 2020.

To mix some metaphors, molten salt batteries have flown under the radar thus far but definitely have a place in the evolving battery universe and hopefully will take the Antimony market along for the ride.

In this Third Wave of battery metals, Antimony (the prime component in Molten Salt batteries) has joined the ranks of battery metals and the hunt is on for that scarce commodity, the non-Chinese Antimony miner.

Each GWh of Ambri batteries requires around 1% of current annual production of these (calcium and Antimony) anode and cathode materials. This is the closest we have to divining how much Antimony that the Ambri product line might consume if it gains traction. Current Sb production is around 170,000 tonnes per annum, implying that a Gigawatt of Ambri cell utilizes 1.7 tonnes of Antimony.

Thin Pickings amongst Actual & Wannabe Producers

Despite the metal price excitement, the equities markets are starved for options in this metal. The small field consists of the gold/silver miner, Mandalay Resources Corporation (TSX: MND) that has Antimony as a by-product from its Costerfield mine in the Australian state of Victoria, and United States Antimony with its curious focus upon the Los Juarez Silver-Antimony mine in Mexico. Red River Resources Limited (ASX: RVR), another developer basically focused on gold is trying to revive the Hillsgrove mine in New South Wales (which has Sb as a by-product) and Perpetua Resources Corp. (NASDAQ: PPTA) which was formerly called Midas Gold, has a mega project in Idaho (again with a gold focus) that also has the potential to supply half the current US demand for Antimony displacing China as the main supplier to the US. It will be interesting to see if the price surge broadens the offering in equities markets.

Molten Salt Batteries – Hot but not Flammable

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When we first wrote for InvestorIntel on Molten Salt battery technology almost half a decade ago, the technology was already five years in the making, but it has now taken a further five years for it to get traction amongst end-users.

However, in this Third Wave of [battery metals](#), Antimony (the prime component in Molten Salt batteries) has joined the ranks of battery metals and the hunt is on for that scarce commodity,

the non-Chinese Antimony miner.

Antimony – Lighting a Fire under the Price

The price of this metal has taken off in recent times on a combination of global shortages caused by the Pandemic and the coup in Burma, long-term underinvestment, declining Chinese production, and the arrival of Molten Salt batteries in the commercial marketplace.

The effect was stunning, with Antimony breaking out of a multi-year malaise and becoming the hottest metal in the last six months (though tussling with Tin for that title).



Mass Storage Devices

The important consideration is that mass storage devices do not even need to be connected to the grid and thus can be in the middle of nowhere bridging the infrastructure gap (and cost) that weighs on emerging economies (and isolated mine sites).

And then there are liquid metal batteries using molten salts. The origin of using these salts for storing energy goes back to the Second World War.

Molten salt is a solid at standard temperature/pressure but enters the liquid phase under elevated temperatures. Liquid metal batteries can be stored indefinitely (over 50 years) yet provide full power in an instant when required. Once activated, they provide a burst of high power for a short period (a few tens of seconds to 60 minutes or more), with output ranging from watts to kilowatts. The high power is due to the high ionic conductivity of the molten salt, which is three orders of magnitude (or more) greater than that of the sulphuric acid in a Lead-acid car battery.



A team of researchers at MIT led by Professor Donald Sadoway worked on a liquid battery system that could enable renewable energy sources to compete with conventional power plants.

The research was put into a commercial venture, called [Ambri](#), which was funded to the tune of \$15M by Bill Gates, energy giant Total, the US Department of Energy's Advanced Research Projects Agency and Khosla Ventures (run by Sun Microsystems co-founder Vinod Khosla).

What this means for antimony Demand

Each GWh of Ambri batteries requires less than 1% of current annual production of these (calcium and antimony) anode and cathode materials. This is the closest we have to divining how much Antimony that the Ambri product line might consume if it gains traction. Current antimony production is around 170,000 tonnes per annum, implying that a Gigawatt of Ambri cell utilizes 1.7 tonnes of Antimony.

Higher prices are rather a “chicken-and-egg” issue for the likes of Ambri. To be sure of adequate supplies of metal higher prices are needed (probably over \$8,000 at least) and yet if they go too high then the viability of the economic equation is cast into doubt.

[United States Antimony Corporation](#) (NYSE American: UAMY) – Collateral Beneficiary?

As the main Antimony producer in North America (and we use the word “producer” very generously) this company was finding it hard to get two dimes to rub together in 2020. To add to the woes its long-term CEO (who was in his 80s) died.

The price of the stock started to rise slightly on the Antimony

price rally but then.... in February of 2021 it announced an offtake deal with Ambri... then followed a massive financing (\$14.3M) with Roth Capital Partners... the stock then soared and the rest is history. The fact that it doesn't have a proper mine is a mere detail.



Despite all that such is the uplift that Antimony stocks can achieve in a market starved for options in this metal. The only other plays are the gold/silver miner, [Mandalay Resources Corporation](#) (TSX: MND | OTCQB: MNDJF) that has Antimony as a byproduct from its Costerfield mine, and [Perpetua Resources Corp.](#) (NASDAQ: PPTA | TSX: PPTA) (formerly called Midas Gold – that is controlled by the famed Paulson hedge fund group) but is not in production at its Stibnite Mine.

Conclusion

If Liquid Metal Batteries become the killer application in grid-linked storage (or non-grid linked) then it potentially lights a fire under Antimony demand and pricing.

To mix some metaphors, molten salt batteries have flown under the radar thus far but definitely have a place in the evolving battery universe and hopefully will take the Antimony market along for the ride.