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THREE WORDS WILL GUIDE MARKETS IN 2024: SUPPLY...SUPPLY...AND SUPPLY!

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PUBLISHER
Michael Fox
editor@theprospectornews.com

SOCIAL MEDIA MANAGER
Parm Walia PW Communications

GRAPHIC DESIGN
George Pitaru
george.pitaru@gmail.com

CONTRIBUTORS
Ryan Blanchette
Ted Butler
Christian Elferink
The Critical Investor
Doug Hornig
Rick Mills
David Morgan
Lynnel Reinson
Chris Temple

THE PROSPECTOR NEWS
Telephone: 604-639-5495
sales@theprospectornews.com

ABORIGINAL MINER
Dr. John Belhumer
Founder and Co-Publisher
AboriginalMiner@TheProspectorNews.com

THREE WORDS WILL GUIDE MARKETS IN 2024: SUPPLY…SUPPLY…AND SUPPLY!

By Chris Temple

The present monetary tightening cycle which now seems to be nearing its end (as far as rate hikes by Fire Marshall Jay and his crew, anyhow; the Fed will reportedly continue trimming its balance sheet for the foreseeable future) has been responded to by the markets in two very disparate ways. First—through much of 2022—the general stock market sold off ferociously at times, with the S&P 500 ending the year down over 20% and the Nasdaq by *nearly a third*. And those weren't even the worst levels of the year!

Introducing…Fire Marshall Jay

"Let me show you something!"

But in 2023—as rate hikes continued through the summer to their present/recent peaks—investors have been looking past this to the pined-for end of tightening; *and more so to the presumed beginning of a renewed Fed easing cycle*. As I have often said, in this the typical investor still can only envision a binary outcome here: if the Fed is about through tightening, then the next phase of things must be disinflation…an easing Fed…and once more what billionaire investor and former hedge fund manager Stan Druckenmiller quipped is an uber-friendly environment where, thanks to the Fed, investors feel like they are "surfing with a hurricane at their backs."

I have explained, though, why the outcome is going to be decidedly different. A plethora of things have changed in the world which will combine to galvanize "The Great Stagflation" going forward; and for many years to come. As I discussed recently with this publication's editor Mike Fox, a "slow, dull ache" is going to be hanging around and worsening as far ahead as the eye can see.

And that outcome is one that most investors are NOT contemplating. Indeed, when **you understand those three words in this missive's title (just one, of course—SUPPLY, albeit in varying contexts) you'll understand why *as a matter of simple mathematics* it's all but impossible at this point to turn back the clock and go back to those happy days of disinflation, low interest rates, etc.** (Check out https://www.youtube.com/watch?v=bsGVl0oquho&t=1s to listen to a recording of this discussion.)

The supply—*or lack thereof*—of commodities, credit, finished goods and much more will be a key driver of prices going forward. These dies have already been cast due to previous policy actions and more by both central banks and elected officials everywhere. We will be learning that the consequences of all these things will be hard to undo.

I'll be discussing all these following elements and more in far greater detail in the weeks ahead. But for now, I want to give you a rundown of the key ways in which the economy, the inflation vs. deflation debate and markets are going to be primarily driven by supply…supply…and SUPPLY:

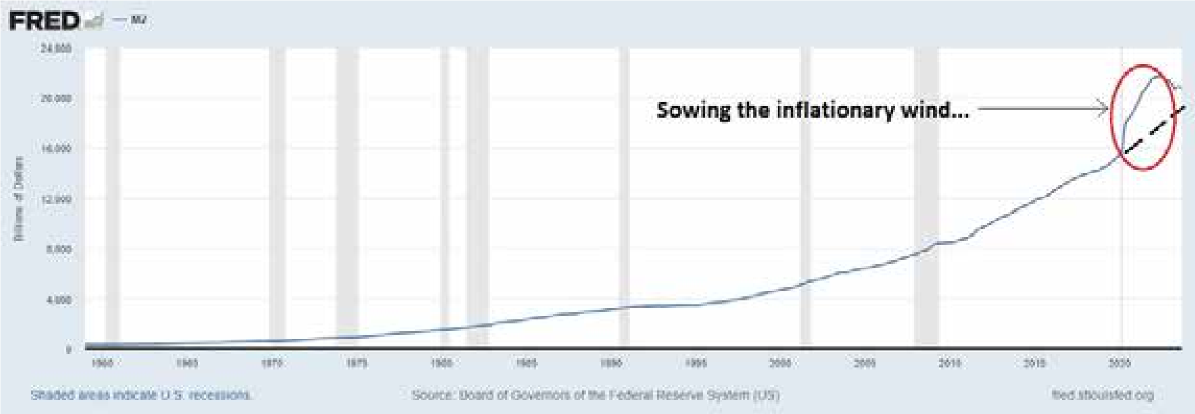
MONEY AND CREDIT GENERALLY; ECONOMIC IMPLICATIONS

Some pundits have been pointing to the decline in the broad money supply (M-2) of recent months as their explanation as to why the decline in headline/core inflation will continue and be durable. Yet that view is premature *at best* (and in the end, I insist, just plain wrong) due in great part to what came before: the most outrageous *and economically useless* expansion of M2 in the first place.

As you have heard from Yours truly and others, from the outset of the COVID Plannedemic and onward for a while, some 30% of ALL the U.S. dollars ever created came into being thanks to the arsonist Jerome Powell. To date, now-Fire Marshall Jay's ostensible "fire fighting" hasn't even taken long-term M-2 growth back to its accelerating trend line as you see above; let alone below it. So in retrospect, it makes a bit more sense (notwithstanding the effects of this *still to come*) that markets and the broad economy have held up better than some of us thought would be the case to date.

We are beginning to see, though, some of these pressures becoming too great for parts of the economy to bear: **most of all, so far, small businesses and average consumers**. While recent months have seen record corporate bond issuance and a notable resumption of M&A activity (and even new offerings/IPO's) on Wall Street, ***on Main Street*** **the supply of new credit is already being crimped**. Recent readings of the Federal Reserve's "SLOOS" report (Senior Loans Officer Opinion Survey) indicate an evolving tightening in lending standards.

This, in turn, is as all but the minority of consumers who are the best off financially are feeling more pressure. Delinquency rates for credit cards and sub-prime auto loans are at multi year highs. As reports from major retailers like Target and Walmart just told us, consumers are starting to pinch pennies *even on groceries*. Almost across the board—and even as it appears that travel will still be brisk this upcoming Christmas holiday season—retailers are dialing down expectations.



We already have even more a "Tale of Two Cities" than has been the case in our modern times, the "Haves" and Have-Nots" seeing their lots in life diverge more than ever. **As the former are finally prompted, too, to be a bit more careful in**

their spending going forward, this will lead to *some* disinflation *and even deflation*. Indeed, I think that by next year's post-Christmas clearance sales especially, retailers will really be pretty much *giving* stuff away.

Sadly, however, food, shelter, utilities, other energy and much more will continue to be rising in price due to all their supply constraints, even if *oversupply* of clothing, electronics and appliances brings their prices down.

BOND MARKETS AND MARKET INTEREST RATES SPECIFICALLY

The biggest dynamic affecting markets and the economy in 2024 is going to be **the behavior of *market* interest rates even if/when the point comes where the Fed (*and the Treasury*, as I discussed in a recent issue concerning their reported coming buyback scheme??) seeks to bring them down.** As I discuss in a new issue of *The National Investor* out just before the U.S. Thanksgiving holiday, it is a very real possibility that next year we will see yet new highs for long-term Treasury yields even as the economy slows and the Fed has ended its tightening. Indeed—as I explain in that issue—the long end of the yield curve surging anew may well come about *because the Fed has stopped tightening*.

And this is because of how *supply* informs the outcome of credit costs. Already—thanks to both the Fed for being the chief enabler of ever-increasing government deficit spending and its own inflationary actions to goose markets—annualized interest costs on the U.S. national debt have now crossed $1 trillion. With one third or so of all the outstanding I.O.U.'s of Uncle Sam needing to be rolled over in the next 18 months, that interest cost will very nearly be doubling in the next two years.

Especially if inflation is about through coming down—not to mention if it turns higher again due to the below factors—the resurrected Bond Market Vigilantes will REALLY make mincemeat out of the Treasury market (and that is why we probably will see at least an effort toward Yield Curve Control soon; a story for another day.)

And that would make matters even worse for *everyone but* the federal government needing to borrow rising amounts of money (talk about your "Tale of Two Cities!") Even if a scheme does come about limiting what the Treasury will pay on its obligations, the cost to everyone—and I mean everyone—else of the remaining supply will *really* deal a blow to growth/economic activity. *Nobody* is ready for a world where Uncle Sam borrows money at 4% (take it, because you can't leave it, if you are an insurer, pension fund or similar party) but the most credit-worthy corporations are paying two or three times that…and the rest of us perhaps more.

This is why the economic/market equation regrading interest rates and the like is changing now. It is no longer simply about consumer/producer inflation numbers. It is—as Mohamed El-Erian recently expertly and simply explained—about credit *risk and supply*; see https://www.bloomberg.com/news/articles/2023-11-09/el-erian-says-2024-s-big-fear-is-credit-risk-as-fed-rate-peaks?sref=AqatjHHy.

COMMODITIES WILL BE A KILLER

Just as investors do not understand how things have changed due to the burgeoning demand for new/rolled-over credit against a relatively more finite supply, neither do they yet "get" how the pricing of commodities going forward has drastically and *irreversibly changed*.

As we have already seen in spades with uranium—and have had occasional tastes of where oil, natural gas, lithium and other battery/industrial metals have been concerned—pricing for commodities going forward is no longer going to be driven by economic growth/expectations and the like. ***Instead, they will be driven by what, across the board, is a chronic and worsening lack of supply of most of them in ANY economic environment***.

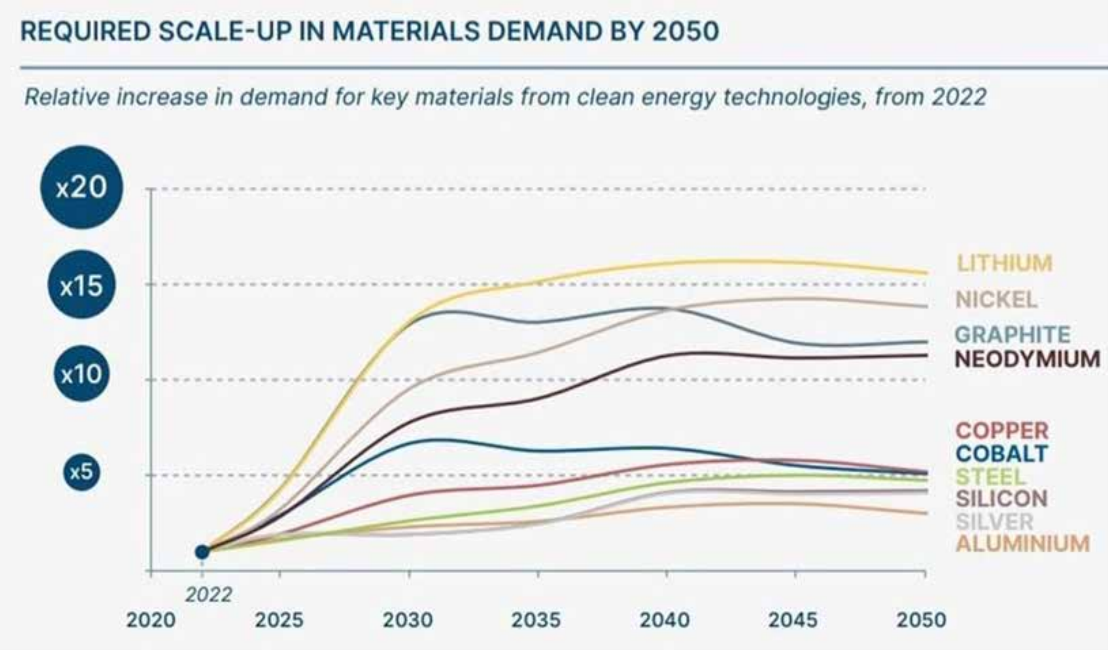
With others, I have been commenting/writing for a while now on the fact that surging commodity prices due to short supplies are going to be with us for many years to come; and Ill be discussing this in VERY great detail still in the weeks ahead via, chiefly, a series of Special Reports on precious metals, battery metals, "Old Energy" and the like. In short, due to disastrous (deliberately so in some cases) policy decisions and more, the world

Annual interest payments on US debt cross $1T: Bloomberg

Julia Shapero

Thu, November 9, 2023 at 9:48 AM CST · 1 min read does not remotely have the production capacity for just about everything needed going forward: from day-to-day and ever-growing energy needs, to those of infrastructure, the now-somewhat stalling "energy transition" and more.

These dynamics are going to keep costs high and rising further even as other parts of the economy go into recession. And here again, neither consumers nor investors yet "get" the *supply emergencies* here, which will be one of the key reasons—the other "biggie" being the supply/cost of credit which will likewise remain MUCH higher than is presently anticipated—why The Great Stagflation will *worsen*...and be with us for a *long* time to come.



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TRANSITIONING ROUGHRIDER: URANIUM ENERGY CORPORATION WORKS TOWARD PRODUCTION IN SASKATCHEWAN

By Lynnel Reinson Communications

Uranium Energy Corp (NYSE:UEC) is the largest and fastest growing diversified uranium company focused on projects in the Americas, including the United States, Canada, and Paraguay. UEC's near-term production plans in the U.S. are anchored by processing plants in Texas and Wyoming that will serve seven fully permitted U.S. In-Situ Recovery ("ISR") ISR uranium projects. ISR technology is a proven, low cost, environmentally friendly method of uranium extraction. In addition, the company has an extensive project portfolio of advanced and exploration-stage projects in the U.S. and Canada.

The company has rapidly grown, building up its project portfolio through acquisitions: Uranium One Americas was acquired in late 2021, UEX was acquired in mid 2022, and the Roughrider Project was acquired from Rio Tinto in late 2022, and most recently, further exploration projects near the Roughrider Project were acquired in mid 2023. Mr. Adnani, a founder of Uranium Energy Corporation, has developed UEC into one of the largest companies in the uranium sector. Amir Adnani stated "UEC offers un-encumbered, un-hedged exposure for investors and is positioned as a reliable supplier of uranium to western utilities. We have assembled the largest portfolio of diversified projects and resources in the mining friendly and stable geopolitical jurisdictions of North America." This places UEC in fantastic position to lead the North American energy sector in transitioning to a carbon-free future.


UEC's Roughrider Project in Northern Saskatchewan

The company's executive team includes professionals with decades of expertise working both in and around the nuclear energy sector. The company's team utilizes their extensive knowledge of working in the U.S. and Canada, giving the company the ability to advance its projects across the Americas, focusing on its development stage projects in the U.S. as well as its Roughrider asset in the Athabasca region of Saskatchewan, Canada. Despite being a rapidly growing multinational company, Uranium Energy Corp is dedicated to serving every community in which they work.


UEC's Texas Plant

Speaking with Chris Hamel, UEC's Vice-President of Exploration, Canada, about their work on the Roughrider Project, he emphasized how dedicated the company is to providing employment to local communities and contracting with local companies whenever possible. In the Athabasca Basin, Uranium Energy Corp has been working with several First Nations development groups: Hatchet Lake Development LP, Black Lake Ventures, and Points Athabasca, which is a majority community-owned company. Since acquiring the Roughrider asset, Uranium Energy Corp has been working with these groups to ensure the site is up to safety standards. Chris is passionate about the company's values, noting that the company's management and board fully support fostering the growth of community connections with local workers and contractors. As he said, "The workforce in northern Saskatchewan are the unsung heroes of the uranium mining industry, they're experienced, dedicated, and fantastic at solving problems with ingenuity, using what's available, and particular to working in the north." In addition to doing the work to prepare the site, UEC is working to complete their initial economic assessment of the project.


Stored Core Samples at Roughrider

The company's work to bring the project into production is benefitting from former owner Rio Tinto's previous work on the Roughrider project. Rio Tinto had previously submitted an advanced exploration proposal for the Roughrider project with the Saskatchewan Ministry of Environment, providing "a thorough technical, community engagement and an environmental assessment and review process" (UEC). The company is not too far from completion of this initial study. The environmental baseline studies of the site are being conducted by the well-known CanNorth, "one of the largest environmental service providers in Western Canada and 100% owned by Kitsaki Management Limited Partnership, the business arm of the Lac La Ronge Indian Band." (UEC). Additionally, helicopter and food services are being provided by local community groups. As shown by their actions and work at the Roughrider Project, community and local workforces are highly valued by Uranium Energy Corp.

As work progresses in Saskatchewan, the multinational Uranium Energy Corp will continue to advance their other assets. The company's "two-pronged approach combines best in-class 1) U.S. ISR production, and 2) Canadian high-grade conventional pipeline." (UEC). Their size and large portfolio position Uranium Energy Corp to achieve lasting success with the "unprecedented growth taking place in nuclear energy and growing demand for uranium, driven by net-zero goals and global decarbonization initiatives" (UEC). Supported by an advanced group of assets in the U.S. nearing production restart, the exploration and development of the Roughrider Project is likely to continue to bring prosperity and opportunity to Saskatchewan's Athabasca region.

CLIMBING THE BRITISH COLUMBIAN SUMMIT

By Christian Elferink

British Columbia is not only known for its breathtaking coastlines, forests, mountain ranges and nature but is also know for its vast amounts of – undiscovered – metals, existing mining infrastructure, easy access, transparent permitting process and is overall a low-risk mining jurisdiction. **Sun Summit Minerals (TSX-V:SMN) (OTCQB:SMREF)** has established an impressive land position in British Columbia and is committed to environmental and social responsibility, with a focus on accountable development and building respectful and beneficial relationships with Indigenous and local communities.

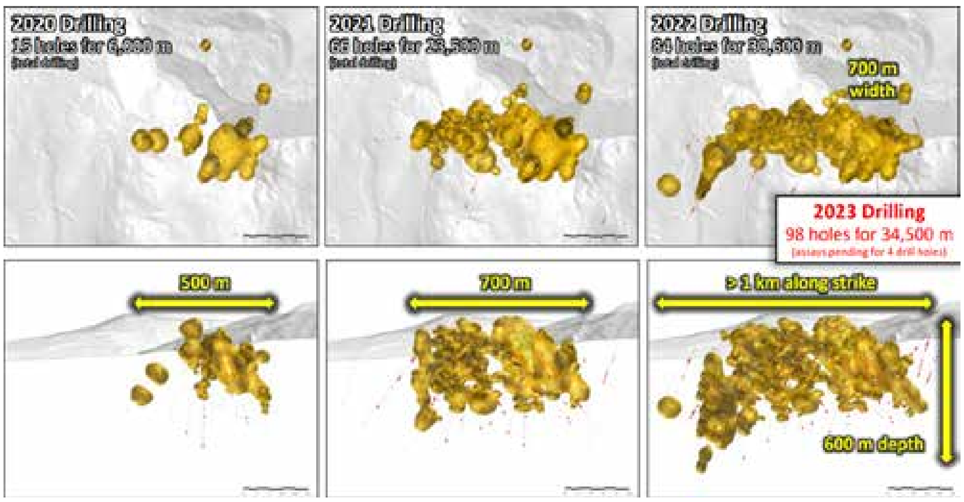
BUCK PROJECT

Sun Summits flagship project is the 100% controlled Buck project located in central British Columbia. The project is home to a Au-Ag-Zn epithermal system (Buck Main) and a Cu-Mo porphyry system (CR, acquired from Teck in June 2023). Exploration can be conducted year-round with access to electrical and gas utilities, major airports, highways, and excellent road access.

Since 2020 the company has completed 34,500m of drilling in 98 drill holes at Buck Main. The system comprises broad intercepts of bulk tonnage-style disseminated mineralization from surface, along with shorter higher-grade vein-hosted mineralization. Extensive drilling has indicated a current mineralized system of over 1 kilometre in strike, 700 metres width, and 600 metres at depth, which is open in all directions. The company recently announced an initial Mineral Resource Estimate will be calculated on Buck Main.

Buck Main Drilling Highlights:

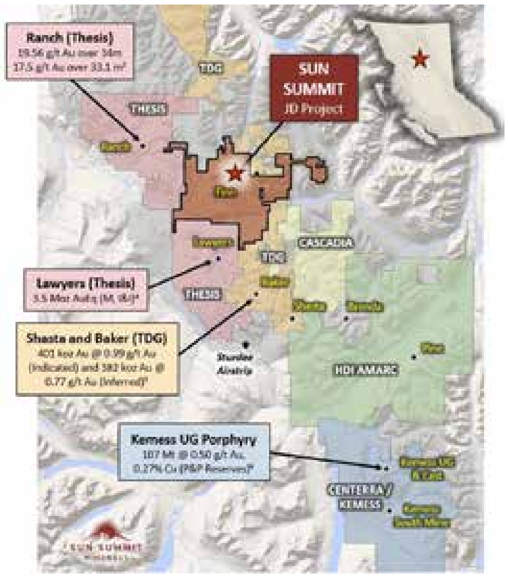
- Disseminated bulk tonnage-style mineralization
  - 109 m @ 1.07 g/t Au, 5.5 g/t Ag, 0.65% Zn (BK21-017)
  - 187 m @ 0.67 g/t Au, 4.4 g/t Ag, 0.46% Zn (BK21-032)187 m @ 0.71 g/t Au, 5.6 g/t Ag, 0.62% Zn (BK21-033)
  - 175 m @ 0.68 g/t Au, 4.8 g/t Ag, 0.46% Zn (BK21-038)
- High grade vein-hosted mineralization
  - 1.5 m @ 49.6 g/t Au, 10.8 g/t Ag, 0.06% Zn (BK20-012)
  - 0.5 m @ 246 g/t Au, 66.7 g/t Ag, 0.02% Zn (BK21-020)
  - 1.1 m @ 38.0 g/t Au, 137.0 g/t Ag, 5.9% Zn (BK22-083)



There are multiple additional targets on the 52,000 hectare Buck Project and there is significant discovery potential across the project area.

JD PROJECT – RECENT ACQUISITION

On November 8, 2023, Sun Summit Minerals signed a letter of intent to option the JD Project, located in the Toodoggone gold-copper mineral district in British Columbia, a historically significant mining camp that has seen considerable recent exploration and development activity. The project covers over 15,000 hectares, located adjacent to the north and east of Thesis Gold's Lawyers and Ranch properties, adjacent to the north of TDG Gold's Baker and Shasta properties.



The JD project provides a unique opportunity to explore two mineralization types, epithermal-related gold-silver and porphyry-related copper-gold. High-grade epithermal gold-silver mineralization is found between the Finn to Creek zones, where there has been historic drilling, and surface geochemistry outline strong potential for additional epithermal discoveries.

Epithermal-related Drilling Highlights:

- 77 m @ 2.4 g/t Au (Finn Zone, JD95-0471)
- 35.7 m @ 7.26 g/t Au (Finn Zone, JD12-0032)
- 22.0 m @ 11.7 g/t Au (Creek Zone, CZ97-0083)

The JD Project hosts additional exciting porphyry-related copper-gold targets that have been poorly tested and warrant significant exploration. Some historical holes intersected porphyry related alteration whereby one hole at the McClair zone bottomed in 0.46% Cu over 1.4 m (JD-13-025), indicating the potential for porphyry-related systems at lower elevations.

Sharyn Alexander, Sun Summit's President, stated:

"The acquisition of the JD Project represents an outstanding opportunity for Sun Summit and its shareholders. We are excited for the opportunity to expand and diversify the Company's project portfolio with the addition of a high-grade precious metals project in an emerging mining district in British Columbia. The JD Project is an underexplored land package in a favourable geological environment where previous drill results have yielded significant intercepts of near-surface high grade gold and silver mineralization.... The JD Project will augment our existing Buck Project, which will continue to see strategic advancement, including an upcoming initial Mineral Resource Estimate at Buck Main and ongoing drill target generation elsewhere on the project".

REACHING THE SUMMIT

Reaching the proverbial summit for junior miners – getting into production or getting bought – has proven to be a challenging journey. Sun Summit is well equipped to advance its journey to the top with a pending initial Mineral Resource Estimate (MRE) for its Buck Project. Sun Summit is expecting to release the results of the resource estimate, which will include 34,500m of drilling in 98 holes as well as historic drilling, in Q1 2024. Successful delineation of additional mineralization outside of the MRE at Buck Main could trigger a future update or expansion to the initial MRE, which is likely given the system is open in all directions. In tandem with completion of the MRE, drilling and exploration will continue throughout the Buck Project area with multiple additional target areas warranting exploration and drill testing.

The company is currently compiling and interpreting all historical data for its newly acquired JD Project. The compilation is expected to be competed in Q1 2024, after which an initial exploration program will be planned. With a current cash position of C$1.8 million Sun Summit Minerals is looking to start 2024 with a bang!

www.sunsummitminerals.com

HIGH GRADE GOLD IN ATLANTIC CANADA

By Christian Elferink

It's the middle of the 2021 when this junior mining company begins its first drilling program in New Brunswick, Canada. An initial 2,000 meters of drilling is planned below high-grade gold showings where multiple grab samples assayed over 30 g/t gold. The O'Neil Gold Trend has a geophysical signature over 7 kilometres long and trenching identified a gold showing strike length of 700 meters.

2 months after initiating their inaugural drilling program this company manages to complete 18 holes over a total length of 2,360 metres showing signs of a significant low sulphation epithermal model.

These exciting visual are confirmed by assays on September 15th, 2021. Hole WB21-02 shows a whopping intersection of 50.15 meters @ 5.55 g/t Au. An exceptional gold discovery is made.

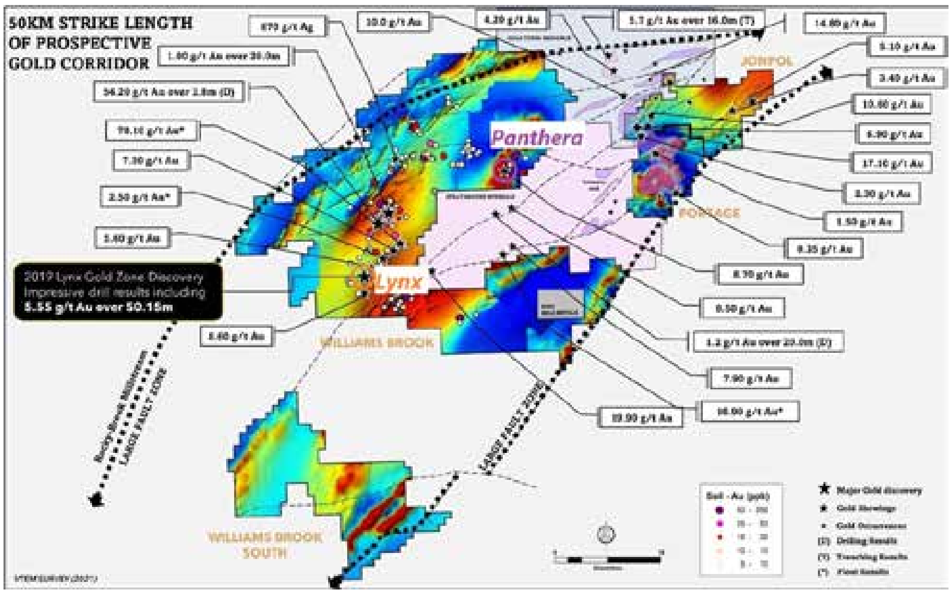
Puma Exploration Inc. (TSX-V:PUMA) is the company responsible for making this exceptional discovery in a very short period and with a limited budget. The discovery on The O'Neil Gold Trend is home to Puma's 100% owned Williams Brook Project located in Tier-1 jurisdiction New Brunswick, Canada. New Brunswick, consistently ranked among the top places in the world for mineral exploration in the Fraser Institute's Annual Survey of Mining Companies, is home to the Bathurst Mining Camp (BMC), which is a prolific mining camp for precious and base metals in Canada. The BMC hosts 46 mineral deposits of which 25 comprise reserves of 1 million tonnes or more. The BMC also hosted the Brunswick #12 mine, one of the largest underground zinc mines in the world.

The Williams Brook Project covers ~49,000 ha within Restigouche County where forestry dominates the local economy and where that part of northern New Brunswick is establishing itself as mining-friendly jurisdiction with skilled labour force and local communities' support. Support of local community and local First Nations is of utmost importance in Canada when it comes to exploration and mining. Puma takes this very seriously and has signed an Memorandum of Understanding (MOU) with Pabineau First Nation – Oinpegitjoig L'Noeigati (PFN) to collaborate on mutually beneficial initiatives in mining exploration in the traditional territory of Pabineau First Nation.

"We are pleased to be entering into an MOU with Puma Exploration to identify and pursue opportunities related to the mining exploration sector," said Chief Terry Richardson, Pabineau First Nation. "Our community is eager to benefit from the jobs and economic prosperity this new industry will bring to the province."

Assays showed impressive grades and continuity of mineralisation at depth:

- New high-grade gold veins were intercepted with 20.67 g/t gold over 5.50 m, within 32.15 m of 3.80 g/t gold in WB23-142, and 10.81 g/t gold over 5.65 m and 9.91 g/t gold over 5.10 m within 98.05 m of 1.24 g/t gold in WB23-145.
- Holes WB23-140, -142, -144 and -145 demonstrate the continuity of gold mineralization at Lynx, with mineralized envelopes extending over impressive lengths grading respectively 0.92 g/t gold over 43.70 m, 1.25 g/t gold over 100.90 m, 0.95 g/t gold over 25.60 m and 1.24 g/t gold over 98.05 m.

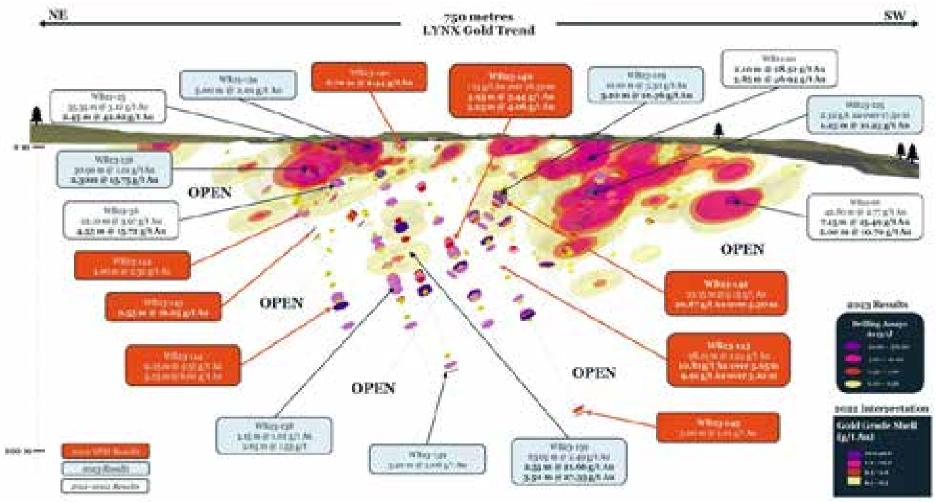


LOW-COST VALUE ADDING

In just 5 years and approximately C$10 million in expenditures Puma Exploration has managed to define a high-grade zone of 750 meters along strike, 75 metres wide and extends to 200 metres in depth at The Lynx Gold Trend. This is where the current focus lies of the company and the majority – 15,800 metres – of the drilling has been done. The fully funded and permitted 2023 drilling program consisted of 3,500 meters of drilling and was focused on extending the continuity of the LGZ at depth validating and refining the existing geological model, and corroborating our current geophysical pathfinder tool.

- Hole WB23-140 returned 4.06 g/t gold over 3.25 m from 155 m, WB23-144 returned 6.60 g/t gold over 3.25 m from 158 m, and WB23-145 returned 1.01 g/t gold over 3.00 m from 246 m expanding the known mineralization at depth and opening another area of gold mineralization.

Puma's President and CEO Marcel Robillard commented, "This latest set of results adds considerable scale and volume to the Lynx Gold Zone, which remains open along strike and at depth. Drilling shows impressive continuity downhole and between drill holes. We see similar geology, alteration, structural characteristics, geochemistry, and stacking of high-grade gold veins



in all drill holes. Our recent fieldwork shows that some of the same attributes characterize the Tiger Gold Zone, located 350 m away. The potential for a sizeable kilometre-wide and deep system, similar to Fosterville, is possible here, and we'll continue to expand the zone with our ongoing exploration program."

"The first phase of our 2023 drilling campaign was a huge success, with many intersections showing metal factors exceeding 10 and up to 165, proving the robustness of the gold system. The drill rig is now being mobilized, and our technical team is excited to test new targets at Lynx, at depth and along strike with the second phase of our 2023 drilling program." added Réjean Gosselin, Puma's Executive Chairman.

Puma will now focus on showing the lateral continuity of the Lynx Gold Zone along its 4 km extension to the NE. The Tiger Gold Zone, located 350 m away from Lynx shows lots of promise with a number of quartz veins at surface showing the same mineralogy and alteration as Lynx with initial grab sampling returning 5 g/t gold. Results from additional sampling at Tiger are expected shortly with drilling scheduled to follow.

Not a One-Trick Puma

Puma Exploration is committed to deploying its so called DEAR (Development, Exploration, Acquisition, and Royalties) to generate maximum value for shareholders with low share dilution. An option agreement with Canadian Copper (CSE: CCI) was struck whereby CCI must pay Puma C$2,000,000 in shares or cash by July 2025. Puma retains an NSR on the 4 properties and currently holds 10,001,968 shares of CCI – currently valued at ~C$750,000.

Besides its position in Canadian Copper, Puma Exploration also holds 2.7 million shares in BWR Exploration Inc. (TSX-V: BWR). With a current cash position of ~C$1,000,000 .Puma trades at an attractive C$11.5m enterprise value. With only C$30,000 per month in general and administrative costs Puma shows its dedication to creating value for shareholders.

"ROOK I PROJECT" ROCKS ON FOLLOWING EA APPROVAL BY PROVINCE OF SASKATCHEWAN

By Lynnel Reinson Communications

NexGen's Rook I Project is located in the uranium-rich district of the southwestern area of the Athabasca Basin in Saskatchewan, and is the largest single-source deposit of high-grade, low-cost uranium in the world. NexGen has been developing the Rook I Project, incorporating the most elite standards in both social and environmental governance in their plans to deliver a state-of-the-art mine and mill. The project footprint is optimized for maximum value in a minimum footprint, with minimized environmental effects to provide 25% of the world's uranium with a primary infrastructure that could fit inside Mosaic stadium.

On November 9, 2023, NexGen received Ministerial approval under The Environmental Assessment Act of Saskatchewan to proceed with the development of the Rook I Project; NexGen is the first company in over 20 years to receive full Provincial Environmental Assessment, or "EA", approval for a greenfield uranium project in Saskatchewan. Achieving approval for the project itself is a major regulatory milestone along NexGen's development pathway that includes provincial permit approvals for construction and the Canadian Nuclear Safety Commission hearing for the Federal EA and Licence that precede the issuance of those approvals.

While the project will create careers in northern Saskatchewan, the benefits for the province's people will be felt more widely. NexGen is investing in community, and has numerous programs and initiatives underway that focus on creating as much positivity as possible environmentally, socially, and economically. Their early engagement and investments are summarized in this infogram.

On the history of the project and working with community, CEO and Director Leigh Curyer stated in an interview that:

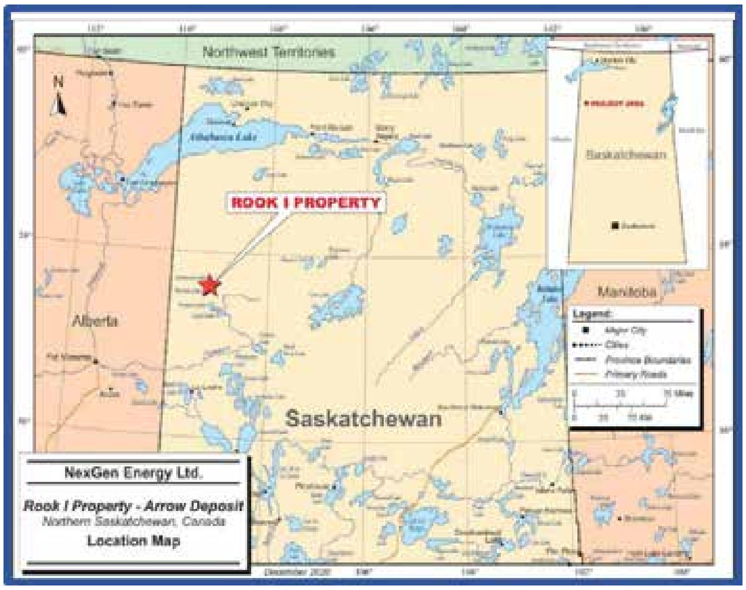
> **"It's been many years since Canada licensed a net-new uranium mine. As NexGen advances through the regulatory process, it's clear that Canada has the best interests of all parties at the centre of the decision-making process. I'm incredibly proud of the work that has been done to ensure that Indigenous communities have a say in what happens in their community, which strongly aligns with NexGen's way of working since we began".**

The company has industry-leading benefit agreements signed with four local Indigenous communities with tremendous advocacy for the Project: Clearwater River Dene Nation, Birch Narrows Dene Nation , Buffalo River Dene Nation, and the Métis Nation – Saskatchewan Northern Region II, in partnership with the Métis Nation – Saskatchewan. In these communities and more widely, the company is committed to continuing to create positive and generational opportunities through the responsible development of the Rook I Project.

These agreements did not result from quick or pressured negotiations, and Chief Commercial Officer, Travis McPherson attributes the quality of NexGen's relationships with these four communities to the nature of their engagement, as well as the time they all devoted to getting to know each other. He notes how important it was that they did not show up in communities with 'asks' beyond the chance to introduce themselves and learn about the communities they were visiting, and that "set the framework" because "we [NexGen employees] showed respect early and got to know them…" and since then, with aligned hopes for development, they "got to know community members along the way, and then [NexGen] just delivered" on what they said they would do, which strengthens their working relationships.

When asked what the collaboration looked like, Mr. McPherson emphasizes there was a genuine interest in understanding what matters to the community members, which was important in determining their mutual path. Specifically, tailings are most often the most important issue for communities concerned about mining waste affecting land, water, and potentially, the health of community members by contaminating the environment; and the question of tailings was indeed important to the Nations. In the context of knowing each other, it was straightforward for NexGen: what could they, and would they, do about their tailings? The answer appeals not only to people in the area, but holds significance for the mining industry as a whole: reduce the risks associated with tailings as much as possible. In the case of the Rook I Project, the answer was made possible in part by the nature of the deposit itself.

The Arrow uranium deposit itself is hosted underground in crystalline-granite rock, which is one of the many factors creating a prime setting for mining. The conditions are ideal for conventional bulk mining methods and facilitate storage of all tailings underground; additionally, with the rock holding little water, it will be easily managed during shaft sinking and casing. All waste streams can be used for backfilling mine stopes or managed in their innovatively designed underground tailings management facility that entirely eliminates surface tailings disturbance and reclamation, meaning a near zero



surface tailings failure risk, which mitigates one of the most significant risks in operating mining projects.

Mr. McPherson added that NexGen's approach to tailings management was not a response to the Nations saying "no" to any idea, but that it came instead from knowing what mattered to the people in the area ahead of time, and creating an engineering solution that would essentially eliminate the risk of tailings altogether. He adds that the shorter-term costs of the solution were higher, but that thanks to the solution being possible in the particular geotechnical setting of the project, it would likely be more economical over the long-term. This longer-term focus is indicative of more sustainable thinking, planning, and ultimately, the operation of a mine. Keeping costs in mind is key in operating sustainably, as the company must stay profitable while operating responsibly and transparently while providing conditions for economic development in the communities in which they operate.

With high grade mineralization and this setting, the all-in sustaining cost is only $10.69/lb, which, in the context of today's selling price of approximately US$57.65/lb helps highlight the dramatic economics of the project. The optimal setting and NexGen's approach allow for flexibility of production volumes and provide consistent grades along with predictable supply. NexGen certainly seems ready for the short- and long-term in Saskatchewan with its exemplary relationships and approaches to exploration, development, and plans for continuing to operate in cooperation with local communities and businesses. "A lot of what we've talked about, what we've done is, in retrospect, going to look small relative to what's coming for this company --for those communities-- for all those lives that this company is going to touch...", according to Travis McPherson's view of the project, communities, and industry in Saskatchewan.

TAX LOSS SELLING SEASON BOTTOM-FISHING CANDIDATE: BANYAN GOLD

By The Critical Investor

Lots of things are happening in the world around us recently, as the Israel-Hamas conflict intensifies to a degree that the rest of the world gets increasingly worried to see Israel crossing some lines regarding the use of proportional violence. Besides this, the Russian invasion isn't done yet after Ukraine failed to break through Russian lines and conquer Crimea, the BRICS nations intending to move away from the US Dollar as a reserve currency, Argentina just elected a president that makes Trump look like a sophisticated bookkeeper, and lots of areas around the world are recovering from numerous wildfires, although now it is Brazil's turn.

On the macro front, the Chinese economy keeps lagging despite lots of softening policies, and lots of European countries are into an official recession these days. However, the US keeps generating mixed economic data, increasing the likelihood of a soft landing by avoiding a recession, hereby causing the Federal Reserve to stay neutral and delay the anticipated pivot into rate cuts as inflation isn't back to the 2% target yet although it has come down lately, depending on which numbers of course. Although gold has been trading around US$1950-2000/oz for a while now, sentiment for gold mining stocks has been negative for some reason, maybe amplified by inflated opex and capex, neutralizing most of the gold gains and thus economic viability.

Banyan Gold Corp. (TSX-V:BYN) (OTCQB:BYAGF) is no exception to this, growing their Aurmac project located in the Yukon beyond the May 2023 NI43-101 compliant Inferred resource of 6.2Moz Au. Notwithstanding this, after finishing their 2023 drill program in July and releasing the results since, I noticed that the share price has been trending down during the summer, and could be an interesting candidate during upcoming tax loss selling season, and therefore this article will delve deeper into potential economics, peer comparisons and valuation.

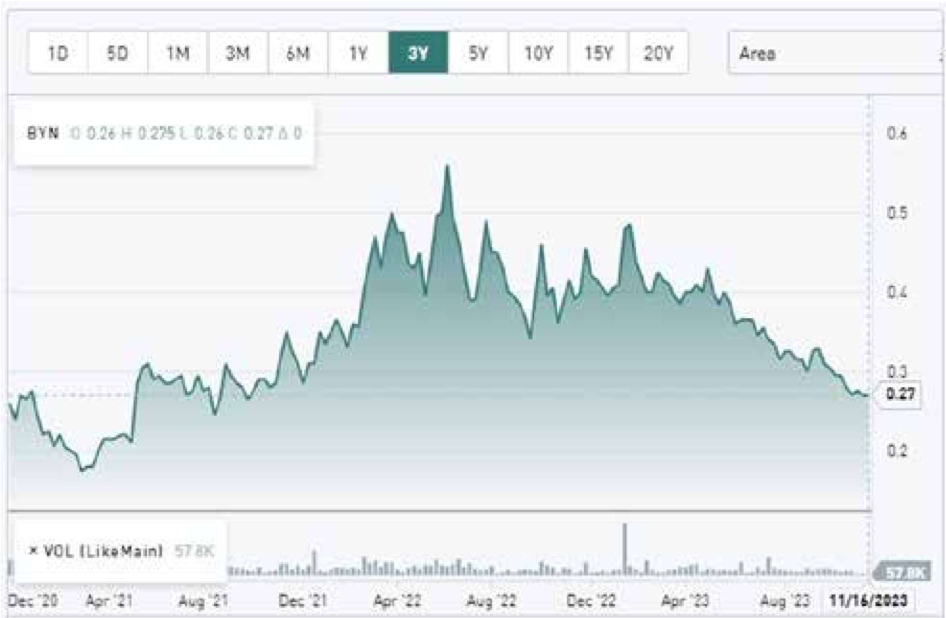
All pictures are company material, unless stated otherwise.

All currencies are in US Dollars, unless stated otherwise.

All tables are my own, unless stated otherwise.

Please note: *the views, opinions, estimates, forecasts or predictions regarding Banyan Gold's resource potential are those of the author alone and do not represent views, opinions, estimates, forecasts or predictions of Banyan or Banyan's management. Banyan Gold has not in any way endorsed the views, opinions, estimates, forecasts or predictions provided by the author.*

Tax loss selling is an annual phenomenon, causing many Canadian investors to sell losing positions to off-set gains they made during the same year, in order to pay as little capital gains taxes as possible. The selling is usually the most intense in the last 2 weeks before the Christmas holidays for obvious reasons, and usually stocks start to pick up again in between Christmas and New Year, and the first weeks of January. 2023 wasn't a good year for many investors, so one could think there aren't many gains to off-set, but nonetheless the selling continues and might provide better entry points. I do believe Banyan Gold is no exception, as it trades at 2 year lows:



Share price 3 year timeframe (Source: tmxmoney.com)

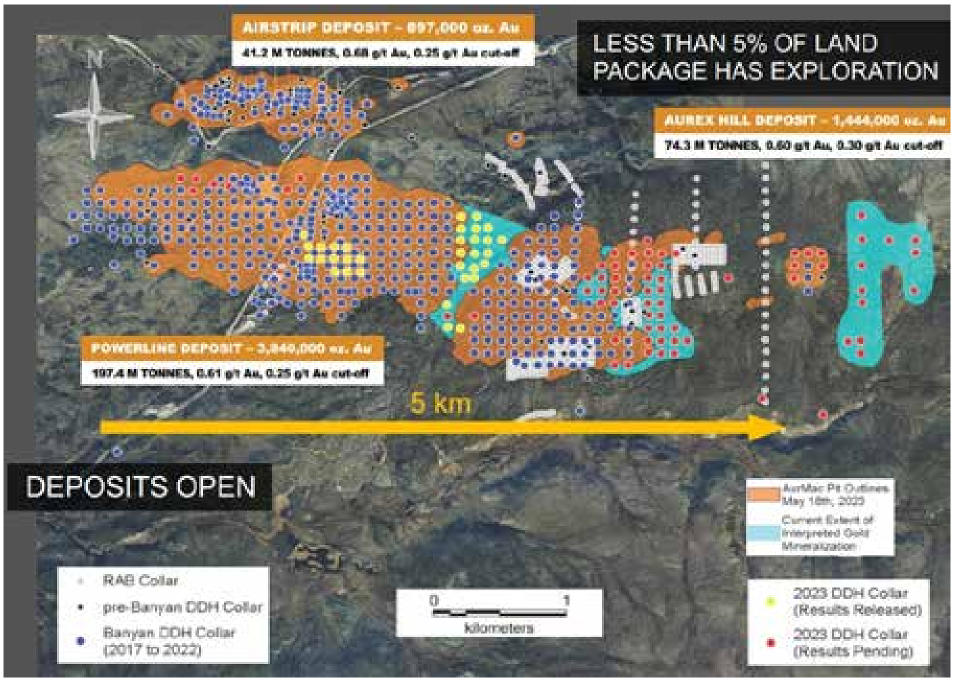
Banyan didn't loose too much of its value, and this is probably due to the fact it has a lot of things in common with producing neighbour Victoria Gold which operates the Eagle Mine. This mine is one of the peer projects I will reference to in order to analyze Banyan's flagship Aurmac.

Before I delve into project economics and valuations, let's have a look the latest drill results, and potential impact for the current resource. In July and September Banyan released two batches containing assays of

38 drill holes, as part of its ongoing Phase I drill program. The holes were intended as infill exploration at Powerline, and to potentially connect Powerline to Aurex Hill:

Highlights included:

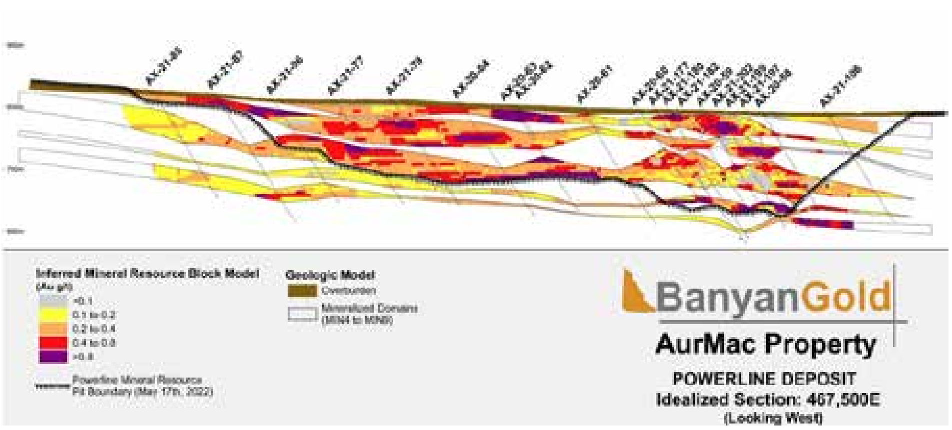
- AX-23-415: 37.4 metres ("m") of 0.82 g/t Au from 103.4 m
- AX-23-429: 28.0 m of 0.81 g/t Au from 80.5 m
- AX-23-429: 18.5 m of 2.22 g/t Au from 182.0 m
- AX-23-436: 53.8 m of 0.81 g/t Au from 194.5 m
- AX-23-451: 17.7 m of 1.44 g/t Au from 141.1 m
- AX-23-455: 39.9 m of 0.60 g/t gold from 61.6 m
- AX-23-458: 34.2 m of 0.95 g/t gold from 33.5 m
- AX-23-458: 16.1 m of 1.66 g/t gold from 85.8 m
- AX-23-460: 70.0 m of 0.31 g/t gold from 10.0 m
- AX-23-460: 37.4 m of 0.65 g/t gold from 165.7 m
- AX-23-461: 90.3 m of 0.52 g/t gold from 10.0 m
- AX-23-462: 61.5 m of 0.39 g/t gold from 72.1 m
- AX-23-463: 144.5 m of 0.38 g/t gold from 8.5 m
- AX-23-464: 115.0 m of 0.31 g/t gold from 27.0 m
- AX-23-466: 59.4 m of 0.53 g/t gold from 72.1 m
- AX-23-467: 73.7 m of 0.48 g/t gold from 90.1 m
- AX-23-469: 65.1 m of 0.50 g/t gold from 27.2 m



Keep in mind most holes returned multiple intercepts like you can see in the table below showing just a few holes as an example, so the highlights only show the best parts of the best holes:

Hole ID	From (m)	To (m)	Interval (m*)	Au (g/t)
AX-23-412	21.3	41.5	20.2	0.22
And	61.0	77.0	16.0	0.40
And	103.6	110.0	6.4	0.29
And	169.3	174.5	5.2	0.94
And	228.6	233.2	4.6	0.32
AX-23-413	38.3	45.6	7.3	0.64
And	71.9	105.5	33.6	0.33
And	125.1	142.0	16.9	0.75
And	172.0	184.0	12.0	0.33
AX-23-414	9.1	19.8	10.7	0.42
And	50.3	71.0	20.7	0.50
AX-23-415	22.9	50.3	27.4	0.24
And	64.3	80.3	16.0	0.38
And	**103.4**	**140.8**	**37.4**	**0.82**
Including	136.4	136.8	0.4	51.60
And	198.1	207.8	9.7	1.00
And	238.5	246.5	8.0	0.24

Be aware of the Aurmac mineralization very much consisting of a layered stratigraphy, often stacking 4-5 mineralized layers on top of each other.



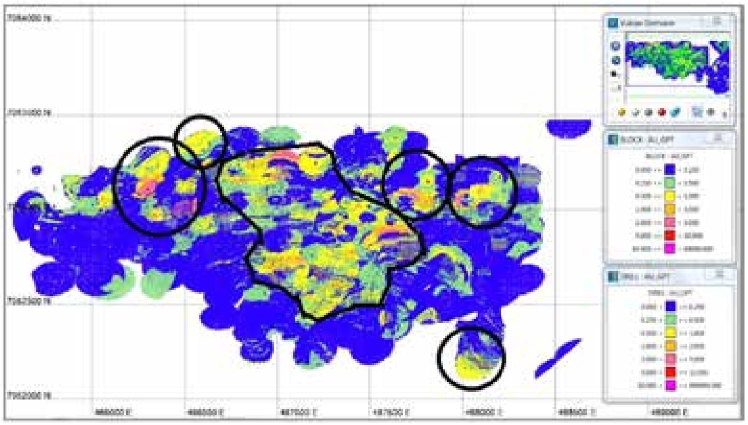
The infill drill results of Powerline were pretty solid (see highlights of holes 455 to 469 above), capable in my view to add another estimated 300-400koz Au. The infill exploration results connecting Powerline and Aurex Hill were less convincing and consistent, as mineralized intercepts were also stacked but often short and lower grade. On average, I do believe they could add 200-300koz Au at an estimated average grade of 0.40-0.50 g/t Au. This grade can only be economic when the ore is heap leachable in this time with highly inflated opex and capex. I was wondering what CEO Christie had in mind for exploration plans for 2024. She stated:

> **"We are waiting until late Q1 to announce our program for 2024 as we have a lot of technical work underway on our results and need to strategize what to do. This will help maximize our program and we can also see a bit what the market wants".**

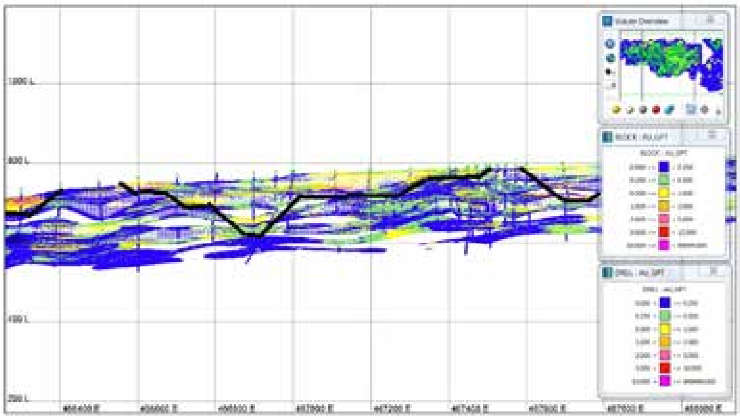
So far, 2021 metallurgical studies (bottle rolls on pulps) indicated an average recovery of 90% for Powerline and Airstrip. Bottle rolls are a first step to determine amenability to heap leaching and management was pleased to see both the sulphide and oxide leach at similar rates.

Banyan is completing its metallurgical work with VAT tests, gold deportment studies and Column testing which will help them understand what the optimal crush size and actual heap leach recoveries might be, and results are expected by first quarter of 2024 according to management.

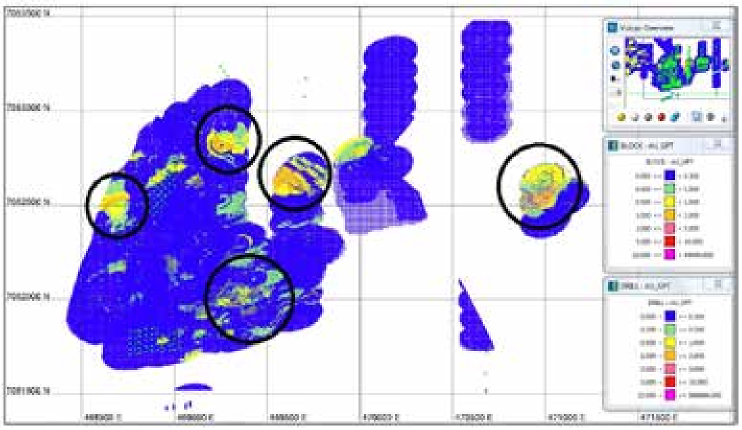
Management isn't quite sure yet about heap leachability, and although they are testing all sorts of recovery methods, they are also taking into account conventional mining (flotation, CIP and CIL). With other nearby discoveries, including Victoria Gold's high grade Raven just across the valley, there is a case that a district mill will be built somewhere. CEO Christie has made the case for increasing the cut-off grade significantly which highlights there are areas of higher grade, which a mine plan could mine early to get payback and also which might support more conventional methods, creating an average grade that closes in on 1g/t Au, within a 2Moz Au operation. Connected with this was the idea to create multiple small "honeycomb" pits, in order to high-grade the resource effectively. I tried to visualize this for Powerline in the following map by simplified circles:



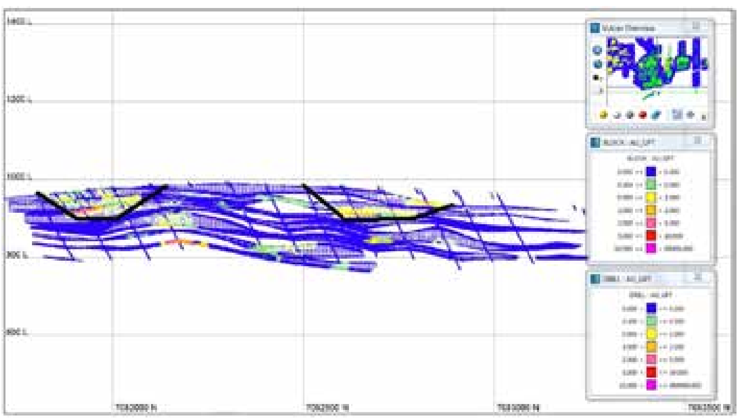
The focus would be on mining blocks with a cut-off grade above 0.50g/t Au (yellow to red), with stockpiling the blue/green material until later times. A simplified section would look like this (scale of sections is different from the map):



Another example would be Aurex Hill:



With a conceptual section:



Pits would be pretty superficial with a low strip ratio, to a maximum depth of 80-100m (other sections have different profiles for >0.50g/t Au mineralization). As low grade material from the blue/green zones has to be stockpiled, it is probably safe to say it will be treated as waste in a mine plan, and therefore increasing the strip ratio somewhat. Keep in mind the previous NI43-101 report uses an extremely low strip ratio of 1 : 0.34 for the Powerline deposit. (The current 43-101 did not provide a strip ratio as most inferred resource 43-101 reports don't provide that detail).

By increasing the cut-off grade to 0.50g/t Au, the resource would look like this for the 3 separate deposits:

Pit-Constrained Inferred Mineral Resources
Powerline Deposit

Au Cut-Off (g/t)	Tonnage (t)	Average Au Grade (g/t)	Au Content (oz)
0.10	331,368,156	0.430	4,581,105
0.15	285,436,781	0.479	4,395,785
0.20	236,090,333	0.543	4,121,630
0.25	197,415,463	0.605	3,839,967
0.30	164,380,919	0.672	3,551,499
0.35	136,186,839	0.744	3,257,610
0.40	116,308,029	0.807	3,017,687
0.45	98,254,150	0.877	2,770,394
0.50	84,494,249	0.943	2,561,709

Powerline Deposit

Au Cut-Off (g/t)	Tonnage (t)	Average Au Grade (g/t)	Au Content (oz)
0.25	197,415,463	0.605	3,839,967
0.50	84,494,249	0.943	2,561,709

Aurex Hill Deposit

Au Cut-Off (g/t)	Tonnage (tonnes)	Average Au Grade (g/t)	Au Content (oz)
0.30	74,343,560	0.604	1,443,681
0.50	31,077,155	0.913	912,227

Airstrip Deposit

Au Cut-Off (g/t)	Tonnage (tonnes)	Average Au Grade (g/t)	Au Content (oz)
0.25	41,155,729	0.678	897,121
0.5	19,053,218	1.050	643,204

The total Inferred resource would come in at 4.1Moz Au, at an average grade of 0.943g/t Au, being just 43% of tonnage at the 0.25-0.30g/t base case cut-off. A mineplan based on a combination of "starter" pits would lose the ounces below those pits, and therefore the base case for such a scenario would involve the upper high grade part, estimated at 1.9-2Moz Au.

4. POTENTIAL ECONOMICS

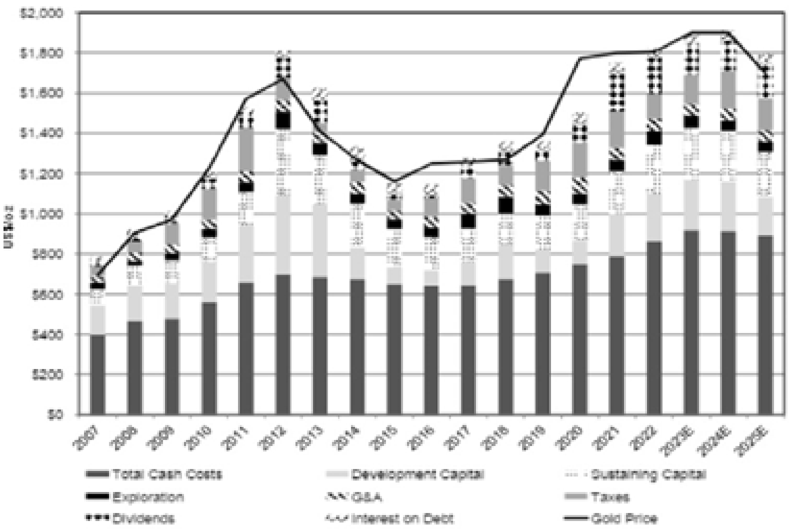
Since cost inflation has been considerable in 2023, it is important to look at recent opex and capex figures from peers. Ideally these should be Canadian heap leach projects, but for credible data I'm also looking into open pit projects with conventional milling and processing, and conventional open pit producers.

It is interesting in this regard to keep the nearby Eagle Mine performance in mind, who had its fair share of delays, lower recoveries, higher strip ratio, lower gold production, technical issues and wildfires since commencing production. Besides this, the Yukon climate is pretty harsh, Eagle couldn't stack ore on its leach pad during the winter for the first few years, and as a consequence, gold production in Q1 and Q2 usually was substantially lower compared to the other quarters, at higher costs.

High inflation almost doubled the AISC compared to the 2019 FS, but is also substantially higher compared to the 2023 report, with grade, recovery and production being lower than calculated in this report. So Eagle isn't out of the woods yet. And keep in mind this is a heap leach operation, with supposedly lower AISC in general. The guidance for 2023 FY comes in at US$1500/oz, and there is no guidance for 2024 yet.

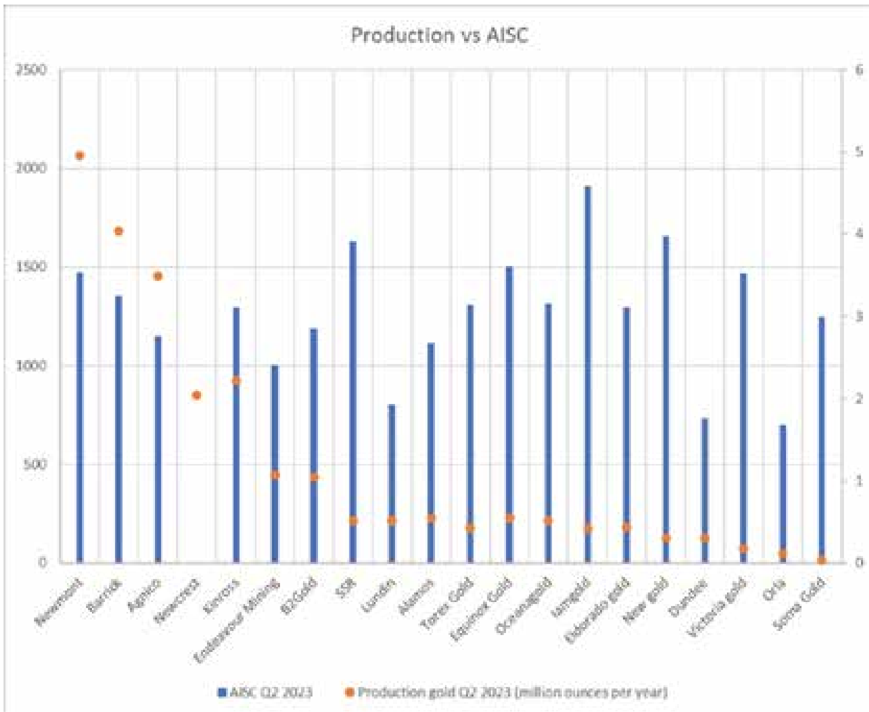
This is just one example, showing the ramp-up of a new mine isn't a walk in the park. Many new mines failed completely over the last 5 years, destroying incredible amounts of mine financiers capital and shareholder equity, but at least Eagle Gold seems on its way to make it as it doesn't have excessive debt, enjoys elevated gold prices and is looking to expand the operation to 250koz Au per annum, to incorporate newly found ounces, increase cash flow and thus enhance value for investors.

Be aware increasing costs for precious metals producers is something that isn't just connected to inflation, but also to the curious habit of all-in costs neatly following the gold price itself, although often significantly surpassing inflation itself as this chart for fully loaded (including capex, taxes, dividends etc) costs from Scotiabank research shows:



Victoria Gold - Eagle Mine production															
	2019 FS					2023 Technical Report					Production				
	Oz Au	Grade	Recovery	Stripratio	AISC	Oz Au	Grade	Recovery	Stripratio	AISC	Oz Au	Grade	Recovery	Stripratio	AISC
Quarter															
Year 1 - 2020	205000					N/A					116644			1,65	
Q1	51250	0,79	73,50%	1,23	783	N/A	N/A	N/A	N/A	N/A	10544	0,83	44,50%	1,65	N/A
Q2	51250	0,79	73,50%	1,23	783	N/A	N/A	N/A	N/A	N/A	28352	0,88	46,40%	1,45	N/A
Q3	51250	0,79	73,50%	1,23	783	N/A	N/A	N/A	N/A	N/A	35312	0,85	67,80%	2,13	1315
Q4	51250	0,79	73,50%	1,23	783	N/A	N/A	N/A	N/A	N/A	42436	0,81	73%	1,37	1120
Year 2 - 2021	226000					N/A					164222			1,74	
Q1	56500	0,77	83,10%	1,56	631	N/A	N/A	N/A	N/A	N/A	26759	0,87	N/A	2,99	1586
Q2	56500	0,77	83,10%	1,56	631	N/A	N/A	N/A	N/A	N/A	32140	0,81	51,20%	1,45	1485
Q3	56500	0,77	83,10%	1,56	631	N/A	N/A	N/A	N/A	N/A	55827	0,9	59%	1,23	961
Q4	56500	0,77	83,10%	1,56	631	N/A	N/A	N/A	N/A	N/A	49496	0,83	72,90%	1,27	1052
Year 3 - 2022	218000					N/A					150182			1,52	
Q1	54500	0,72	73,60%	1,24	648	N/A	N/A	N/A	N/A	N/A	24358	0,72	83,90%	1,71	1409
Q2	54500	0,72	73,60%	1,24	648	N/A	N/A	N/A	N/A	N/A	32055	0,85	50,90%	1,00	1371
Q3	54500	0,72	73,60%	1,24	648	N/A	N/A	N/A	N/A	N/A	50028	0,89	84,40%	1,48	1489
Q4	54500	0,72	73,60%	1,24	648	N/A	N/A	N/A	N/A	N/A	43741	0,9	N/A	1,88	1376
Year 4 - 2023	188000					180184					170000*				1500*
Q1	47000	0,64	66,90%	1,09	743	45046	0,82	72,20%	1,76	1244	37619	0,86	64,90%	1,43	1420
Q2	47000	0,64	66,90%	1,09	743	45046	0,82	72,20%	1,76	1244	45568	0,74	76,20%	0,91	1466
Q3	47000	0,64	66,90%	1,09	743	45046	0,82	72,20%	1,76	1244	41561	0,65	85,50%	1,55	1484
Q4	47000	0,64	66,90%	1,09	743	45046	0,82	72,20%	1,76	1244	45000*	N/A	N/A	N/A	1600*
Year 5 - 2024	213000					193901									
Q1	53250	0,66	76,60%	0,98	664	48475,25	0,73	73,80%	1,63	1039	N/A	N/A		N/A	N/A
Q2	53250	0,66	76,60%	0,98	664	48475,25	0,73	73,80%	1,63	1039	N/A	N/A		N/A	N/A
Q3	53250	0,66	76,60%	0,98	664	48475,25	0,73	73,80%	1,63	1039	N/A	N/A		N/A	N/A
Q4	53250	0,66	76,60%	0,98	664	48475,25	0,73	73,80%	1,63	1039	N/A	N/A		N/A	N/A
Year 6 - 2025	216000					218616									
Q1	54000	0,67	73,50%	0,58	583	54654	0,78	69,70%	1,04	941	N/A	N/A		N/A	N/A
Q2	54000	0,67	73,50%	0,58	583	54654	0,78	69,70%	1,04	941	N/A	N/A		N/A	N/A
Q3	54000	0,67	73,50%	0,58	583	54654	0,78	69,70%	1,04	941	N/A	N/A		N/A	N/A
Q4	54000	0,67	73,50%	0,58	583	54654	0,78	69,70%	1,04	941	N/A	N/A		N/A	N/A

This remarkable phenomenon causes PM producers to hardly receive any net income, no matter how high the gold price is at any given moment. The average global AISC for gold miners stands at US$1304/oz for Q3, 2023, down very slightly from US$1315/oz for Q2, 2023. Here is an indication of the AISC of the largest producers for Q2, 2023:



It shows Victoria Gold at the higher end of AISC, but it will be clear that besides a few outliers like Lundin, Dundee and Orla the average AISC has risen to significantly higher levels these last two years.

All in all, after raising the cut-off to 0.50g/t as contemplated earlier, I feel safe to use 2Moz Au @ 0.94g/t Au in a series of small open pits.

Before I proceed further with my assumptions, it is a good thing to get an impression of peer projects, so I selected a few heap leach projects (and one conventional mining project, Lemhi although oxidized), of which of course the inevitable Eagle Gold is the only one in production (using 2019 FS figures here to get an idea of project metrics, but costs are completely outdated of course). The Lemhi project was added in order to provide context regarding a conventional open pit project, which is usually less economic compared to heap leach. I already added my assumptions for Aurmac, and I will elaborate further on these figures below the following table:

Economic Studies					
Study	**2023 PEA**	**2023 PEA**	**2022 PFS**	**2019 FS**	**Hypoth. 2023 PEA**
Project	**Lemhi**	**Wildcat/Mountain View**	**Delamar**	**Eagle Gold Mine**	**Aurmac**
Company	**Freeman Ventures**	**Integra Resources**	**Integra Resources**	**Victoria Gold**	**Banyan Gold**
Jurisdiction	Idaho	Nevada	Quebec	Yukon	Yukon
Minetype	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit
Processing	Milling/CIL	HL	HL/Milling	HL	HL
Strip ratio	3,9	1,21	2,21	0,97	2
Throughput tpd	6800	30000	35000	37000	17000
Mine Life (LOM) y	11,2	13	16	13	12
Head grade Au g/t	0,88	0,48	0,62	0,66	0,85
Recovery Au	96,70%	73,70%	71,00%	77%	75%
Production Au oz averag	75900	80000	110000	185077	120000
Total production Au oz	850080	1034000	1760000	2406000	1440000
Capex US$ M	190	115,1	282	289	204
Capex/tpd US$	27941	3837	8057	7811	12000
Mining costs mined US$/	2,51	1,82	1,89	N/A	2,2
Mining costs processed U	11,43	4,02	6,08	3,63	8
Processing cost US$/t	9,03	3,59	3,74	3,64	4
Opex US$/t	21,53	8,19	12,92	9,32	15
Cash cost US$/oz Au	809	882	923	577	990
AISC US$/oz Au	957	973	955	660	1100
Gold price $/oz (spot)	1750	1700	1700	1500	1800
Discount	5%	5%	5%	5%	8%
NPV after tax US$ M	212,4	309,6	412	709	330,5
IRR after tax	22,80%	36,90%	27,00%	45,00%	34,80%

Notwithstanding the fact that Aurmac is located very closely to the Eagle Mine, with costs for infrastructure, power etc limited to a minimum, I assumed a higher capex/tpd metric compared to Delamar due to rising inflation risk. .Wildcat has staged development so their extremely low capex metric isn't fully representative.

I discussed some production data from Eagle Gold earlier on, but it will be clear one ramping up heap leach operations can be difficult, with the Yukon adding additional challenges because of climate, interfering in the first two years with stacking of ore on the leach pads.

As always, a peer comparison based on discounted cash flow analysis (DCF) is of course the most useful if the projects selected are as close as possible on parameters, but as no project is exactly the same, a sub-optimal comparison is the inevitable result directing my assumptions. Although inherently flawed, DCF provides at least some meaningful guidance, way beyond simple metrics like EV/oz or critically flawed metrics like "gross metal values compared to market cap". Of course keep in mind that Banyan Gold just established an Inferred resource at Aurmac, and although the deposit seems fairly continuous and it is perfectly possible to engineer a PEA based on just Inferred resources, all numbers based on Inferred resources are highly speculative as these resources aren't economic per NI43-101 definitions.

According to Aurmac met test results, oxidized holes generated extremely good 90% recoveries. As this is bottle roll leach testing and not exactly heap leaching, but still believed to be above average, I assume an overall recovery of 75% since the Eagle Gold Mine had issues reporting recoveries above 70% for the first two years, but is frequently reporting values above 83% this year, indicating the planned LOM average recovery of 76% seems achievable. I'm also assuming a higher head grade for Aurmac, which usually supports higher recoveries as well.

With some dilution/ore loss/pit outlines etc etc taking into account, I expect 2Moz Au to be mined before recoveries. A minimal life of mine of 12 years generates 167koz Au per annum, at an average grade of 0.85g/t Au this would result in a 17,000 tpd throughput. At 75% recovery, Aurmac could produce 120koz Au per annum, meaning a LOM production of 1.44Moz Au.

The capex and opex assumptions will be based on averages while taking into account scale and location, but the current rampant inflation makes any assumption pretty difficult, so I allow for a substantial margin for error. For capex, I looked at the Delamar PFS of Integra Resources and the Eagle Gold Mine FS of Victoria Gold, and added substantially to both (roughly the same) capex/tpd ratios, about 50% more. This includes the fact that AurMac has a lot better infrastructure than Victoria Gold started out with, saving roughly US$60-90M. This results in a capex of US$204M.

For mining cost, it is tempting to simply use the (for heap leach very) high US$1500/oz AISC of Victoria Gold, but at the same time they are still not at nameplate capacity, and process a lower average grade (in my view Banyan could frontload production with grades well over 1.1g/t Au during the first 4-5 years), so the AISC per ounce comes in higher. I do believe adding a substantial percentage to recent Integra figures for mining and processing costs should do the trick, resulting in an Aurmac AISC of US$1100/oz.

Aurmac 2Moz Au	Gold U$/oz	1800	AISC LOM $/oz	1100,00			
Hypothetical PEA							
year	Production	all in cc	CF	corp.tax	after tax	disc 8%	NPV 8%
0	0	0	-204000000		-204000000	1,00	-204000000
1	80000	1300,00	40000000	0,0%	40000000	1,08	37037037
2	100000	1100,00	70000000	0,0%	70000000	1,17	60013717
3	140000	1000,00	112000000	0,0%	112000000	1,26	88909211
4	150000	900,00	135000000	21,0%	106650000	1,36	78390934
5	140000	900,00	126000000	26,5%	92610000	1,47	63028810
6	140000	1000,00	112000000	26,5%	82320000	1,59	51875564
7	130000	1100,00	91000000	26,5%	66885000	1,71	39026755
8	120000	1100,00	84000000	26,5%	61740000	1,85	33356201
9	120000	1100,00	84000000	26,5%	61740000	2,00	30885371
10	120000	1200,00	72000000	26,5%	52920000	2,16	24512199
11	100000	1300,00	50000000	26,5%	36750000	2,33	15761445
12	100000	1400,00	40000000	26,5%	29400000	2,52	11675145
Total	1440000		812000000		609015000		330472389

For a while we have seen healthy NPV discounts of 8%, but now with these high costs lots of developers are struggling to present decent NPV figures this way, and grasp back to the old 5% discount. My base case discount will be 8% to be safe:

At a gold price of US$1800/oz, the after-tax NPV8 is a solid US$330.5M and the IRR is healthy at 34.8%. With a discount of 5% the after-tax NPV5 generates US$422.2M. If we would use an AISC of US1300/oz, the after-tax NPV8 goes down to US$186.7M and an IRR of 24.5%. Still above the general IRR threshold of 20%, but when capex surpasses NPV this is usually not considered a positive for a project. At US$1900/oz gold, the NPV8 increases to US$404.7M, and the NPV5 to US$509.5M.

So the upside isn't as impressive as it was in the summer of 2022, as opex and capex increased further. The large size of the Aurmac resource became less relevant as a result as well at the moment, but since the high inflation can't go on forever and is projected to come down next year, I do expect more ounces to be incorporated into the mine plan. For now, I believe management is going the right direction by contemplating a possible scenario for a smaller but lean and mean project, high grading it for efficiency, with the potential Tier I upside waiting when costs improve.

Let's see where Banyan Gold ends up this time against several of its peers,

if aforementioned guesstimates were to be realized. Several heap leach and conventional open pit gold operations in the Americas were selected, one better suitable than the other, as always with peer comparisons:

Gold explorers/developers								
Ticker	Company	PPS	O/S	MC	Cash	Debt	EV	Jurisdiction
		C$	M	M C$	M C$	M C$	M C$	
BYN.V	Banyan Gold	0,275	284,87	78,34	10	0	68	Yukon, Can
LGD.TO	Liberty Gold	0,250	342,6	85,65	13	0	73	Utah/Idaho, US
ITR.V	Integra Resou	0,970	68,78	66,72	18	0	49	Idaho, US
WVM.V	West Vault Re	0,880	57,92	50,97	4	0	47	Nevada, US
PGLD.V	P2 Gold	0,085	106,87	9,08	1,7	0	7	Nevada, US
SB.V	Stratabound	0,020	219,7	4,39	0,3	0	4	California, US
FMAN.V	Freeman Gol	0,120	131,75	15,81	2,9	0	13	Idaho, US
NHK.TO	Nighthawk G	0,360	149,87	53,95	12	0	42	NWT, Can
VGCX.TO	Victoria Gold	6,360	66,53	423,13	28	260	655	Yukon, Can
MOZ.TO	Marathon Gol	0,800	469,16	375,33	130	408	653	Newfoundland, Can
PPTA.TO	Perpetua Res	4,390	63,27	277,76	14	0	264	Idaho, US
ME.TO	Moneta Gold	0,88	122,02	107,38	24	0	83	Ontario, Can

Most importantly I tried to find peers with fairly recent economic studies:

Gold explorers/developers										
Ticker	Company	Flagship proj	Type	Stage	Resources	Grade	Resources	Grade	EV/oz	EV/oz
					Au Moz	Au g/t	AuEq Moz	AuEq/g/t	Au	AuEq
BYN.V	Banyan Gold	Aurmac	Open pit/HL	2023 NI43-1(	6,2	0,6	6,2	0,6	11,0	11,0
LGD.TO	Liberty Gold	Goldstrike/Bl	Open Pit/HL	2018 PEA (G	4,3	0,53	4,3	0,53	16,9	16,9
ITR.V	Integra Resources	DeLamar/Wil	Open Pit/HL	2022 PFS/20	5,2	0,39	7	0,47	9,4	7,0
WVM.V	West Vault Resources	Hasbrouck	Open Pit/HL	2023 PFS	0,9	0,6	0,9	0,6	52,2	52,2
PGLD.V	P2 Gold	Gabbs	Open Pit/HL/	2023 PEA	1,6	0,5	2,4	0,78	4,6	3,1
SB.V	Stratabound	Fremont	Open Pit/HL/	2023 PEA	3,1	2,1	3,1	2,1	1,3	1,3
FMAN.V	Freeman Gold	Lemhi	Open Pit	2023 PEA	1,2	1,01	1,2	1,01	10,8	10,8
NHK.TO	Nighthawk Gold	Colomac	Open Pit/UG	2023 PEA	5,1	1,98	5,1	1,98	8,2	8,2
VGCX.TO	Victoria Gold	Eagle	Open Pit/HL	Production	5,4	0,59	5,4	0,59	121,3	121,3
MOZ.TO	Marathon Gold	Valentine	Open Pit	Constructio	5,1	1,84	5,1	1,84	128,1	128,1
PPTA.TO	Perpetua Resources	Stibnite	Open Pit	2020 FS	6	1,42	6,4	1,51	44,0	41,2
ME.TO	Moneta Gold	Tower	Open Pit/UG	2022 PEA	12,8	1,02	12,8	1,02	6,5	6,5

The EV/oz metric for Banyan has come down from $21/oz last year to $11/oz, by a lower share price and an increased resource, and is trading at the same level as peers with significant resources and a PEA like Integra and Nighthawk. This is probably caused by Banyan having the advantage of the adjacent Eagle Mine, which could provide lots of synergies, and advantages considering for example permitting. So their EV of $11/oz is cheap, but in line with peers.

When looking at the economic studies below, it is very likely that most studies need significant updates in the cost department, resulting in lower NPVs and IRRs.

Gold explorers/developers											
Ticker	Company	Capex	Tpd	Capex/Tpd	Production	AISC	NPV5	NPV5	IRR	NAV	P/NAV
					ounces pa		US$ M @	C$ M @	%	C$ M	
		US$M				US$/oz	US$1800/o:	US$1800/oz			
BYN.V	Banyan Gold	204	17000	12000	120000	1100	422	563	34,8	576	0,15
LGD.TO	Liberty Gold	113	22500	5031	95000	793	330	440	58,0	458	0,15
ITR.V	Integra: Delamar	282	35000	8057	136000	814	515	686	32,0	690	0,06
	Integra: Wildcat/MV	115	30000	3833	80000	973	371	495	42,9	495	
WVM.V	West Vault Resources	66	15892	4153	71000	877	206	275	51,0	523	0,10
PGLD.V	P2 Gold	278	17000	16335	139000	1126	259	346	15,5	346	0,03
SB.V	Stratabound	203	6000	33833	118000	1082	240	320	21,4	323	0,01
FMAN.V	Freeman Gold	190	6800	27941	80100	957	231	308	24,2	320	0,05
NHK.TO	Nighthawk Gold	490	17000	28824	290000	828	1200	1600	46,0	1730	0,03
VGCX.TO	Victoria Gold	487	55000	8855	200000	1466	812	1083	N/A	1084	0,39
MOZ.TO	Marathon Gold	381	11000	34636	195000	1046	587	783	26,0	783	0,48
PPTA.TO	Perpetua Resources	1658	20000	82900	297000	636	1770	2360	27,7	2363	0,12
ME.TO	Moneta Gold	517	19200	26927	261000	1073	1611	2148	43,9	2160	0,05

Again, Banyan appears to be valued higher than many peers based on the P/NAV metric, predominantly caused by my high-grading and downsizing, but I am convinced when these peers would update their economics to today's standards, the differences wouldn't be as significant anymore.

Keep in mind Aurmac has many options depending on costs and metal prices, something other projects maybe don't even have. Besides this, there is substantial exploration upside (management believes there is 8Moz+ Au potential for next year, I do believe they are already closing in on 7Moz Au, even more likely after announcing all 2023 drill results), low risk jurisdiction and nearby Victoria Gold who just paved the way for them regarding permitting and infrastructure. According to management, a PEA is planned by H2, 2025, and this also seems to be a strategic move, probably aiming at lower opex and capex by then, and growing the resource in the meantime. CEO Christie had this to comment on this: ***"Yes, a H2, 2025 PEA timeline provides us with more options, as circumstances are in flux. With the 5th largest undeveloped resource in North America, in a jurisdiction where you permit and operate mines, with our exceptional infrastructure, Banyan is well positioned as we move into 2024."***

CONCLUSION

As gold is trading at US$2,000/oz at the moment, lots of gold developers including Banyan Gold have been trending down, due to increased opex and capex, rendering many projects less economic. As inflation seems to be suffering from high interest rates which are paused at the moment, costs might be coming down soon again, although there is a remarkable relation between the gold price and opex/capex. As I view the current situation with even smaller average margins for producers than usual unsustainable, and interest rates likely being cut somewhere in 2024, the upcoming tax loss season could be a very interesting time to look at gold developers like Banyan Gold. Their Aurmac project is flexible, and could provide anything from a lean and high grade 2Moz Au project to a large, low grade 7-8Moz Au Tier I mastodont. Stay tuned!

I hope you will find this article interesting and useful, and will have further interest in my upcoming articles on mining. To never miss a thing, please subscribe to my free newsletter at www.criticalinvestor.eu, in order to get an email notice of my new articles soon after they are published.

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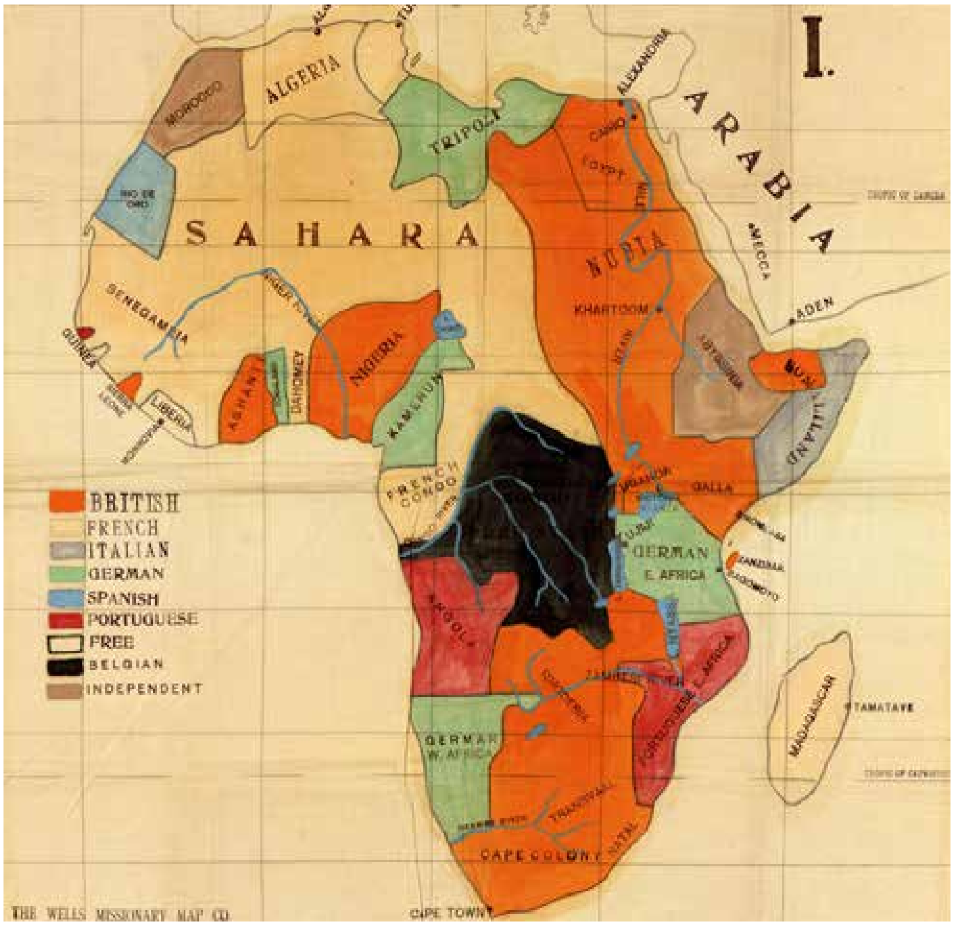
WESTERN FAILURE IN AFRICA: HAS IT PUSHED AFRICAN NATIONS INTO THE ARMS OF BRICS?

By Ryan Blanchette

On February 2nd, 2023, I posted this message on Twitter – *"The branching East vs. West minerals race will be centralized in Africa, a continent critical to each side's future goals."* This was in response to an article documenting Russian troop activity in the Central African Republic, assisting the nation's military against rebel fighters to secure gold-rich geologic zones vital to the country's economy. I also added that this is only the beginning – the minerals race is only in its infancy and has the potential to expand across the continent in the coming years and into the 2030s. However, the roots of this race were planted years ago by Eastern powers (Russia and China) who felt the need to expand their economic footprint into the vastly underdeveloped, war-torn countries housing valuable metals and resources – and by the negligence of Western powers (mainly the US and Europe) who saw their foundation of colonization slip away beginning with the British and Dutch Empires over 100 years ago and continues today with the recent expulsion of French and UN forces from Mali and neighboring Sahel countries. The East has not let the power vacuum go to waste and is eager to take control on the continent in the wake of Western exits. Have Western failures led Africa into the hands of the East and the BRICS (Brazil, Russia, India, China, South Africa) nations? If so, what is the result?

From the gold havens of Ghana, Burkina Faso, Mali, and Cameroon in the West; to the uranium, cobalt, and copper deposits of the Congo and the Central African Republic; and the large platinum stores of South Africa – Africa has always been a continent with vast resource wealth and potential. Unfortunately for its inhabitants, its history has been rife with foreign occupation and internal conflict, both of which still apply to this day. Unsurprisingly, the underlying resources have been a main target of those occupations and conflicts.



A 1906 map of Colonial Africa. Source: The Wells Missionary Map Company

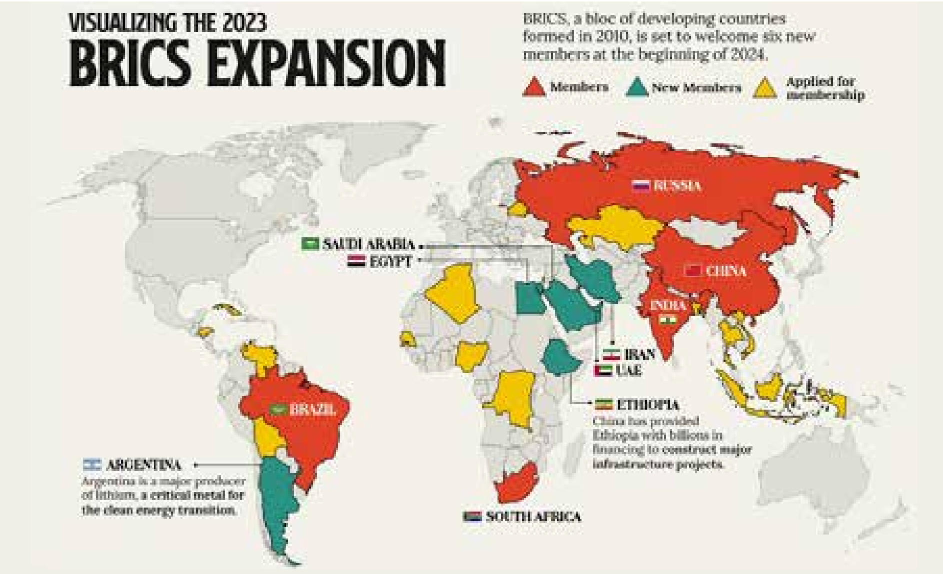
The powers of the East – namely China and Russia – have slowly and steadily been increasing their presence on the continent, dating back to the 1970's when the Chinese built a rail system from copper mines in Central Africa to the Eastern coast of Tanzania. Chinese authorities, even military officials, are also active in the gold zones of West Africa and have been for decades. As previously mentioned, Russian troops and mercenaries of the Wagner Group have been deployed to protect central African gold mines and deal with armed rebel groups in exchange for payments in gold from the mines themselves.

For the East and BRICS, the timing is perfect. Not only is Western influence over Africa wobbling – leaving a hole to be filled – but Africa just so happens to be especially rich in minerals the West desperately needs to fulfill its self-imposed green energy goals, specifically by 2050. Many reports indicate there is not nearly enough above-ground resources to be able to fill the quotas and mandates, and the metal will have to be pulled from the earth. There's only one problem for the West – the same environmental concerns necessitating green energy are the same concerns keeping them from putting a shovel in the ground in their own backyards. As such, they have turned their heads to Africa; however, the East has beaten them to the punch. While the West fought drawn-out conflicts in the Middle East and kept the petrodollar safe from harm, the East stacked their own assets in Africa and filled their pockets with gold bars. They began making inroads with African nations, providing monetary backing and industry support in order to extract rare earths and precious metals. Over 10,000 Chinese companies and firms currently operate in Africa, many of whom are in the mining sectors. Russia alone does $17B alone in yearly trade volume with the continent. China's Belt and Road Initiative (BRI) looks to provide over $1T in infrastructure funding to developing nations worldwide, with connecting BRI locations in Nairobi, Kenya and into the Gulf of Aden through Red Sea. Although there is still a Western existence in Africa (most notably South Africa, the 'S' in BRICS), the footprint has dwindled along with the last vestiges of colonialism. US Deputy Commerce Secretary Don Graves admitted to the oversight, saying:

"We took our eye off the ball so to speak, and US investors and companies are having to play catch-up."

Military and protection failures have also created power vacuums in the region. Most recently, France and UN peacekeepers have been unceremoniously kicked out of Mali and the adjoining Sahel countries like Niger and Chad. Russia quickly offered its private military company (PMC) services to those countries, including the establishment of a Russian naval base in Sudan where a civil war is still ongoing. Russia hopes to show the African nations that where the West failed, the East can succeed in keeping their resources safe – while simultaneously collecting a portion of those resources for monetary and industrial benefit.

BRICS, no doubt headed by Russia and China, offers Africa a multitude of ways to expand and grow on a global scale in a way that has not before been available. What started as a loose inter-governmental cooperative has turned into a potential global powerhouse of diverse nations, with the goal of being less reliant on Western nations for geopolitical and economic support. With more than 40 countries currently applying for BRICS membership, which would total 45% of the world's population and 1/4th of global GDP, they have found strength in numbers with enough clout to have a voice on the world economic stage. The dollar's use as a weapon in sanctions against Russia in the wake of the Ukraine War has more than likely increased the number of applications, as countries around the world (especially those in Africa) have seen the consequences of Western heavy-handed economic retributions and are looking for a relatively safe and secure group to trade with.



2023 BRICS expansion. Source: Visual Capitalist

However, the West and the G7 nations are not going down without a fight. They know the enormous potential which lays under the African soil and are looking to keep the balance from swaying to heavily in the other direction. Recent Western envoys have been sent to several African countries with the goal of maintaining influence, with US Treasury Secretary Janet Yellen even commenting that Africa will be vital to the future global economy. They have also announced over $100M in support of a new railway that will link vital copper and battery mines together from Angola to Tanzania for shipment of critical minerals to the EU and Western nations abroad. Named the Lobito Corridor Project, it looks to rival China's existing railway systems in Africa and keep at least some portion of minerals from flowing to the East. As it stands, the East holds many resource cards the West does not have, and the last thing the West wants is to have go through the East in order to obtain those resources – more than they already do. The late 2020s and early 2030s have a chance to be extremely tense for Africa, and if a minerals race does indeed heat up, we could see economic fights over the continent between the major powers play out, to include regional proxy wars and the establishment of puppet governments – all with a focus on those critical minerals.

On the obverse, the coming decades would be a perfect opportunity for Africa to use its abundance of resources to finally make a legitimate consolidation of nations who use foreign investment as simply one of many tools on the road to prosperity, rather than a crutch to which they are reliant on and exploited by. It remains to be seen if BRICS can see this through to reality, instead of again being at the mercy of major powers…this time to the East rather than the West.

5 REASONS MONEY WILL COST MORE

By Rick Mills

For more than three decades, the price of money has been falling. Since March of 2022, when the US Federal Reserve orchestrated a series of consecutive interest rate increases, it has been going up.

It's hard for the average person to conceptualize the price of money. The idea appears abstract. In fact it is simply the rate of interest. The prevailing interest rate reflects the supply and demand for money. When people save more, interest rates go down because less money is demanded. When they save less, borrow and spend more, the demand for money across the economy increases, and interest rates rise.

Central banks largely determine the price of money by controlling interest rates. But it's a careful balance. The rate needs to be close to the "natural rate of interest", which is the price of money that balances saving and investment while keeping inflation stable — in the US and Canada the inflation target is typically 2%.

Set the interest rate below the natural rate, and money becomes too cheap. There is too much investment in the economy, not enough savings, and the economy overheats, leading to inflation.

The alternative is equally bad when the interest rate exceeds the natural rate of interest. This may result in too much savings, not enough investment, and a rise in unemployment.

For over 30 years, borrowing costs in the US have been falling. Adjusting for inflation, the natural rate of interest for 10-year government bonds went from a little more than 5% in 1980 to under 2% over the past decade. (Bloomberg, Nov. 5, 2023)

The fall in the price of money had profound consequences for the economy. Record-low borrowing costs meant households took on bigger mortgages, setting the stage for the sub-prime mortgage debacle of 2007 and the 2008-09 financial crisis.

There is ample evidence to suggest this trend in changing. Recently the yield on the 10-year Treasury note hit 5%, the highest in 15 years.

While the Fed announced at its Nov. 1 meeting that it will hold interest rates steady at 5.5%, the central bank has raised rates 11 times since March of 2022 in an effort to control decades-high inflation.

Fed Chair Jerome Powell said the situation "remains something of a riddle", with policymakers struggling to determine whether financial conditions are already tight enough to control inflation, currently at 3.7%, or whether the surprisingly-hot US economy needs further restraint.

Following are five reasons the cost of money will remain high, in the US, for the foreseeable future.

STRONG GROWTH

To forecast where the future natural rate of interest might go in, Bloomberg built a model of the biggest factors driving the supply of saving and demand for investment. The data set, which analyzed 12 advanced economies over 50 years, found one of the most important reasons for the drop in the natural rate was weaker growth.

In the 1960s and '70s, more workers plus productivity gains pushed average annual GDP to nearly 4%. "Strong growth created a power incentive to invest — lifting the price of money," states Bloomberg.

"By the 2000s those drivers were running out of steam. After the global financial crisis of 2007-08, average annual GDP growth slumped to around 2%. A more sluggish economy meant the attractiveness of investing for the future was weaker — dragging the price of money lower."

Canada is an example of a slow-growing economy whose central bank is probably done raising interest rates. Indeed, the attractiveness of investing in the Canadian economy is currently weak. On Oct. 31 the Globe and Mail reported the economy has stalled as higher interest rates weigh on growth. GDP is on track to fall by 0.1% in the third quarter, after a 0.2% drop in the second quarter. Two consecutive quarters of declining GDP put Canada in a "technical recession."

The Bank of Canada's tightening cycle appears to be working; annual inflation has fallen to 3.8% from a peak of 8.1% last summer. The central bank projects a return to 2% inflation by mid-2025.

"This is yet one more crystal clear sign that the Bank of Canada should be done hiking," Benjamin Reitzes, a Bank of Montreal strategist, wrote in a client note, via The Globe.

The situation is much different in the United States, where annualized growth of 4.9% in the third quarter was the quickest expansion since the final quarter of 2021.

Why the discrepancy? A recent column suggests "interest rates are biting more in Canada, because of higher household debt loads and mortgages that roll over more quickly. Meanwhile, the U.S. government is running proportionally much larger deficits and pumping more money into the economy. And U.S. productivity is soaring even as it slumps in Canada, adding to American outperformance."

What does that mean for the price of money? The column by Mark Rendell and Jason Kirby says the strength of the US economy increases the odds of another Fed rate hike. This fits with the above maxim, that strong growth creates a powerful incentive to invest. The column notes that US businesses are investing in buildings and equipment, building up inventories and bringing on new workers, while Canadian companies are pulling back and bracing for a period of slow growth.

The relative weakness of the Canadian economy suggests that the Bank of Canada will move first to lower interest rates, said Avery Shenfeld, chief economist at Canadian Imperial Bank of Commerce. Another way of saying this, is that the cost of money in the United States will remain higher for longer.

CHANGING DEMOGRAPHICS

In 2019, Millennials surpassed Baby Boomers as the nation's largest adult generation, according to the U.S. Census Bureau, via Pew Research.

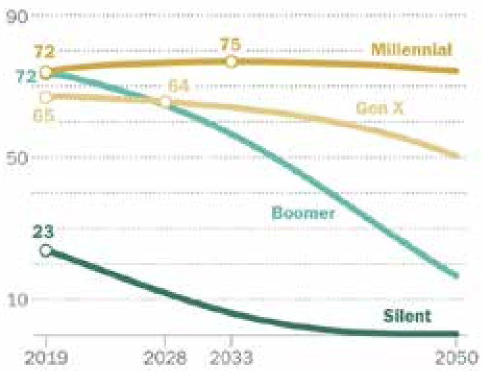
Millennials numbered 72.1 million that year, compared to Boomers who were only 71.6 million. The Generation X cohort, which totaled 65.2 million in 2019, are expected to overtake the Baby Boomers in 2028.

LOWER SAVINGS

The reason this is important for the economy is that as a generation, Baby Boomers are prolific savers. From the 1980s on, as the Boomers started saving for their retirement, the country's supply of savings went up, which put downward pressure on the natural rate of interest.

Projected population by generation

In millions



Note: Millennials refer to the population ages 23 to 38 as of 2019.
Source: Pew Research Center tabulations of U.S. Census Bureau population estimates released April 2020 and population projections released December 2017.
PEW RESEARCH CENTER

Now that the generation that helped push borrowing costs down is exiting the workforce, the savings supply is falling. That's because the generations that followed them — Gen X and the Millennials — have not managed to sock away money for retirement to the same extent.

Most Gen Xers, born between 1965 and 1980, are failing to meet retirement savings targets, with the typical Gen X household squireling away just $40,000, according to the National Institute on Retirement Security.

The cards also seem to be stacked against Millennials when it comes to saving for retirement, between inflation now being at its highest rate in nearly 40 years, the cost of owning a home becoming increasingly expensive, and student loan debt.

In a 2021 Millennials Readiness for Retirement study, via CNBC, Millennials had a lower net wealth-to-income ratio between the ages of 28 and 38 compared to that of previous generations.

The current period of economic uncertainty is piling more pressure on working-age adults to find money in their budgets for savings.

According to recent data from the U.S. Bureau of Economic Analysis, the personal savings rate— how much people save as a percentage of their disposable income — in August was 3.9%, well below the 10-year average of 8.9%. Cash built up from stimulus funds doled out during the covid-19 pandemic are now mostly gone, and soaring inflation in the wake of the pandemic has made it harder to make ends meet.

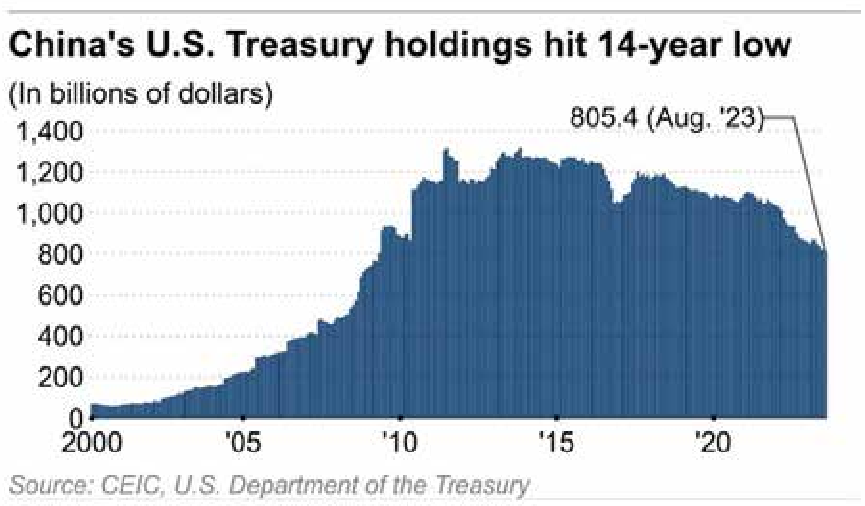
CHINA

For decades, China's thirst for practically every commodity under the sun meant a fast-growing economy. In 2010 the country was let into the World Trade Organization, ushering in the era of globalization. Many American jobs were outsourced to China and the US trade deficit with China grew, as Chinese imports outstripped US exports. Complaints of intellectual property theft and one-sided lack of access to the Chinese market by American firms culminated in the US-China trade war started by then-President Donald Trump.

With Biden now in charge, most of the tariffs on Chinese and American goods remain. Moreover, relations have deteriorated not only on trade matters, but geopolitics, with near-constant tensions in the South China Sea between the US and Chinese navies. Taiwan is a related irritant, with the United States claiming the island as an ally, and Beijing wanting to reunite what it considers a renegade province with the Motherland.

It was recently reported that last fall, China passed a milestone. According to The Wall Street Journal, For the first time since its economic opening more than four decades ago, it traded more with developing countries than the U.S., Europe and Japan combined. It was one of the clearest signs yet that China and the West are going in different directions as tensions increase over trade, technology, security and other thorny issues.

How does all of this affect the price of money? One of the main consequences is a slowing of the flow of Chinese savings across the Pacific into US Treasuries.



This week, Nikkei Asia reported that the country's stockpile of US government debt hit the lowest level in 14 years at the end of August — $805.4 billion, down 40% from a decade earlier.

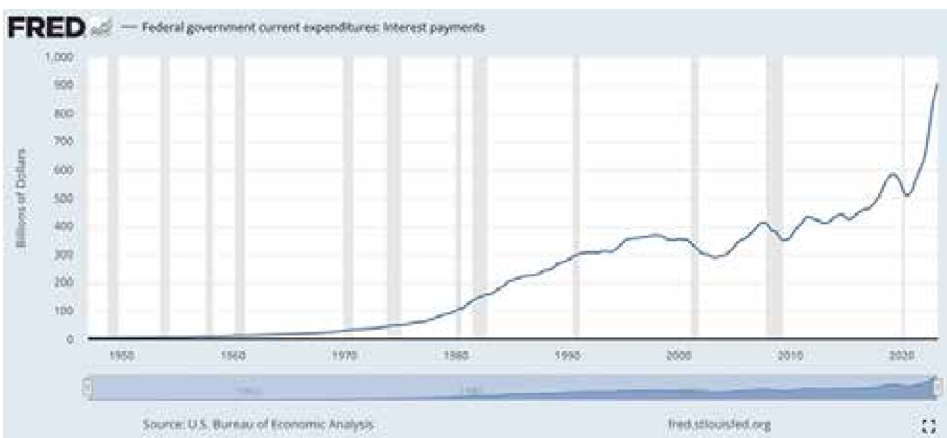
The publication reminds us that China once actively bought the securities with its ample foreign exchange reserves, becoming the second-biggest foreign investor in US Treasuries after Japan.

Given the size of China's holdings, if Beijing continues to sell Treasuries it could roil US bond prices, pushing up interest rates, or in today's article's parlance, hike the price of money.

HIGH GOVERNMENT BORROWING

Because the cost of servicing the debt has been so low, the government could continue to spend on big-ticket items like education, health, infrastructure and the military.

Source: FRED



Source: FRED

Rock-bottom interest rates over the past several decades, not counting the last two years when rates have been rising, meant that the US federal debt has more than tripled, from 33% of GDP at the turn of the century to 119% today.

This severely limits how much the Fed can raise interest rates, due to the amount of interest that the federal government is forced to pay on its debt.

During 2021, before interest rates began rising, the federal government paid $392 billion in interest on $21.7 trillion of average debt outstanding, @ an average interest rate of 1.8%. We calculated if the Fed raised the federal funds rate (FFR) to 4.6%, interest costs would hit $1.028 trillion — more than 2021's entire military budget of $801 billion!

Interest on the debt to track to exceed military expenditures

We've already blown past that. The FFR is 5.5%, compared to 3.5% a year ago.

Each interest rate rise means the federal government must spend more on interest. That increase is reflected in the annual budget deficit, which keeps getting added to the national debt, now sitting at a shocking $33.6 trillion. Indeed, rising debt is creating upward pressure on long-term borrowing costs. How much higher could the natural rate of interest go?

Bloomberg's model shows about a 1% rise by 2050, meaning 10-year Treasury yields could settle at between 4.5 and 5%.

However, if the government doesn't get its financial house in order, fiscal deficits will continue to widen. Unfortunately, the risks are skewed towards higher borrowing costs, states Bloomberg, noting for example that achieving net-carbon emissions will cost an estimated $30 trillion.

The publication says the combined impact of high government borrowing, more spending to fight climate change, and faster growth will all drive the natural rate higher. A natural rate of 4% translates to a nominal 10-year bond yield of about 6%.

CONCLUSION

The shift from a falling natural rate of interest to a rising natural rate has major consequences for the US economy. One example is the price of housing. Low interest rates since the 1980s made US house prices soar, and put many new homeowners into the market. Now that mortgage rates are higher, this trend could stop. So far the results are mixed. US News reported in October that while home prices are falling in many parts of the country, in other regions they are climbing.

The Canadian Real Estate Association reported that Canada's housing market continued to cool last month, with the number of homes sold falling for three months in a row and benchmark prices slipping.

Higher interest rates, of course, have a similar dampening effect on equity markets. Bloomberg notes that since the early 1980s, the S&P 500 has powered higher in part due to low rates, but with borrowing costs on the rise, the impetus for increasing equity valuations will be taken away. So far it hasn't happened. Despite market turbulence, the S&P 500 has gained 14.6% over the past year, the Dow Jones is up 3.8%, and the Nasdaq Composite roared 27.9% higher.

Unsurprisingly, given what has been written about Canada, the S&P/TSX Composite Index has barely stayed in the green over the past year, moving up by only 1%.

Bloomberg concludes the biggest loser from higher rates will be the US Treasury Department, which will have to pay a lot more interest on the debt, while the biggest winners will be savers and bondholders:

Even if debt rose no further relative to the size of the economy, higher borrowing costs are set to add 2% of GDP to debt payments annually by 2030. If that had been the case last year, the Treasury would have paid out an extra $550 billion to bondholders, which is more than 10 times the amount of security assistance the US has funneled to Ukraine so far.

WHEN WILL YOU LOSE CONFIDENCE?

By TheMorganReport.com

Before moving into silver, we must look at the big picture and that is what really comprises the financial and monetary systems? Simply, it is trust, or I prefer confidence. The most trusted asset in the world is the United States debt market, better known as US Treasuries. The idea being that the debt issued on the backs of U.S. taxpayers can be trusted as the most secure asset. But let us be real! It is mathematically IMPOSSILE to pay the debt back. At some point the interest alone will not be able to be paid back.

At current conditions everyone in the United States needs to pay $100,000 to pay off the debt owed to the Federal Reserve Bank, which loaned the currency to the U.S. government. So what happens? Interest rates move higher to keep the suckers in the game and everyone that can moves their new funds to the short end of the yield curve to stay "safe".

The Bond markets, U.S. and other countries, and corporations are feeling the pressure, and many know there days of being solvent are ending. This will cause a great contraction in the physical economy. This is already easily recognized by seeing how many retail chains are going into bankruptcy.

Not everyone can escape what lies ahead, in fact very few will. The shift will start subtly and gain momentum. Witness gold being bought by Central Banks at a record-breaking pace last year and continuing this year. If any part of the system knows what is really going on it is the Central Banks. Think about it.

A silver bull market will only happen when trust and confidence return to the metal. The number of false starts by gold and silver in recent years has compromised that confidence in recent years – a sentiment that is arguably derived from the underlying fear of market manipulation by financial institutions.

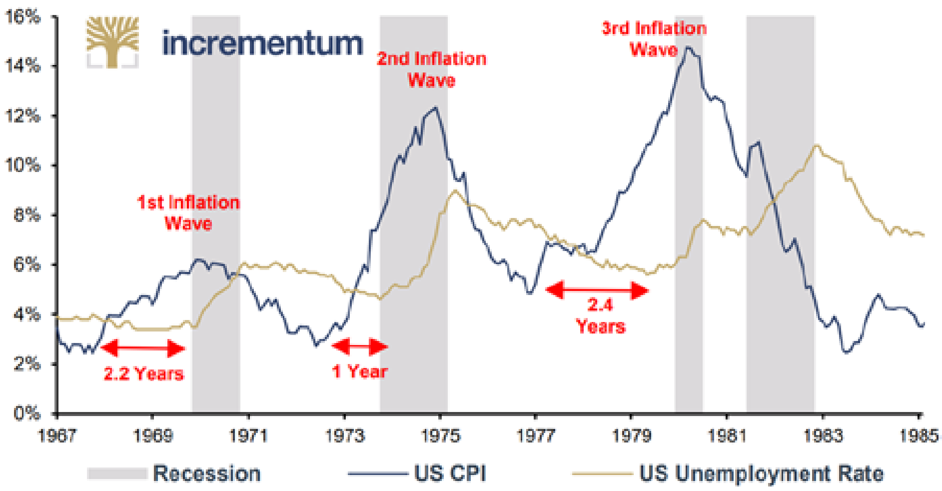
Whilst this is a bummer in the short term for precious metals investors, it does beg the question: What market conditions will it take for trust to be restored in silver? Moreover, when is it likely that these market conditions will be arrived upon?

Essentially, there are two key factors to bear in mind. The first relates to the monetary demand side of silver and the second relates to the industrial demand side, both are contingent on the silver supply.

By drawing on the excellent research of our friends at Incrementum AG, this article will walk through both factors, to restore some much-needed optimism in the ranks of those that know confidence in the debt markets is waning rapidly.

It is a known fact that the relationship between silver and gold is one of high correlation. Since the connection to the gold standard was severed in 1971, this correlation has ranged between 0.6-0.8, barring the anomaly of 1986-87.

US CPI, yoy, and US Unemployment Rate, 01/1967-12/1985



Source: Crescat Capital LLC, Reuters Eikon, Incrementum AG

In short, this correlation boils down to silver's role as a monetary metal. Today, 54% of silver demand is industrial, there is still some 25% of total silver demand from investment. Throughout history, the monetary aspect of was higher, however the 1873 Coinage Act marked the beginning of the end for silver as legal tender.

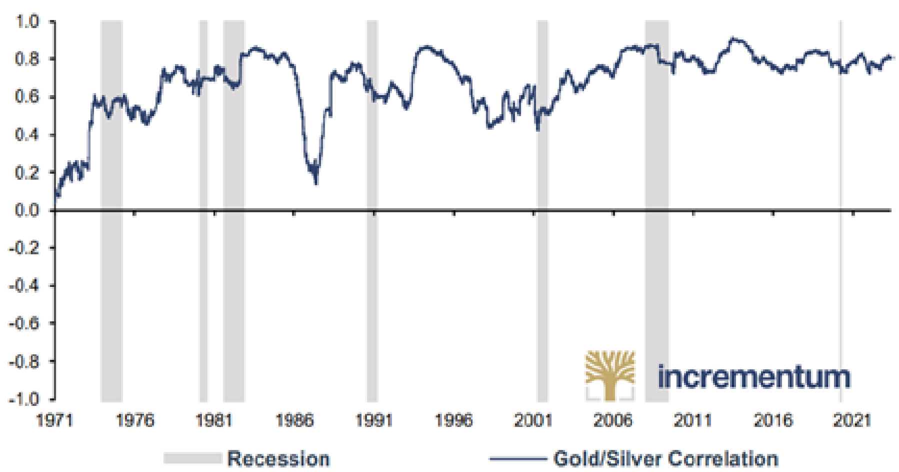
Despite this, the monetary element of silver remains. This is shown by silver's propensity to outperform gold in 5 of the last 6 of its bull markets since 1967-68 – a phenomenon that is born out of the gold silver ratio becoming overly stretched, to the point where silver's undervaluation relative to gold creates the incentive for investment.

When we look at the reasons why gold experienced these bull markets, inflation is always amongst the top culprits. This is particularly true for the gold bull market in the 1970s, where a rapid increase in the money supply saw 3 successive waves of inflation wreak havoc on the purchasing power of our hard-earned dollars.

Today, in a similar fashion to the 1970s period, inflation stands ready to rear its ugly head once again in the form of a second wave. With its return, gold is poised to rise, and with it, will be silver.

As for why this will happen, the belated consequences of government spending from covid-19, combined with the present consequences of the defense spending Ukraine and Israel, are yet to properly incubate within the system. Unfortunately, this "lagging effect" is notoriously underestimated by our incompetent central bankers.

Gold/Silver Correlation, 01/1971-05/2023



Source: SD Bullion. Reuters Eikon. Incrementum AG

For example, between March and November of 2020, the measure of broad-based money supply, M2, increased abruptly by 24%. Shockingly, the money supply surge in 2020 exceeded any in the one-and-a-half centuries for which we have data.

Moreover, whilst the true scale of the defense spending is yet to be determined in the Middle East, the U.S has already committed about $44 billion in direct security assistance for the war in Ukraine. It is policies such as this that have resulted in the US Government's $34 trillion debt burden, which of course, is becomingly increasingly costly to service thanks to the interest rates that continue to edge higher.

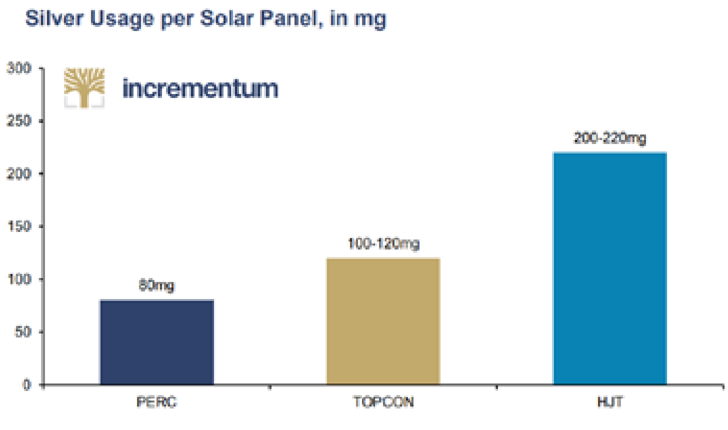
Frankly, this game can only be played for so long. At some point, the Fed will be forced to make the tough decision to cut interest rates, which will be pressured into doing so by businesses and banks who can't bear any further increases in the cost of borrowing.

At this point, the curtain will be drawn open, and inflation will return. Consequently, the absence of confidence in fiat currencies that arises will create a void that first gold, then silver, will stand ready to fill, thanks to both metals' historical precedent as trusted stores of value.

People fail to realize that the world is dependent on hydrocarbon-based energy sources for around 80% of total energy supply. Right or wrong, outlawing investments in the production of oil and gas, as has been done by the likes of the capital rich Net Zero Banking Alliance, means that alternative energy sources must be sought.

Trust in silver, in the industrial sense, will be restored when this realization sets in. This is because of silver's considerable usage in solar panels – a demand category that accounted for 13% of total silver demand in 2021, and that grew 28% year on year in 2022, according to the World Silver Survey 2023.

Interestingly, this category of silver demand is poised to grow further soon. This is because higher silver-loaded HJT and TOPCON solar panels are set to displace the lower silver-loaded PERC solar cells by 2025, taking a 50% share of the market.



Source: Silver Institute, Incrementum AG

Consequently, the improved efficiency of these solar panels will go a long way in facilitating mass adoption of solar panels, especially with the rollout of the U.S Inflation Reduction Act, which includes a bill to increase the Federal Income Tax Credit for solar projects to 30% until 2032.

Of course, there will be multiple forms of energy sources that benefit. Nuclear, hydrogen, and even oil and gas will benefit as governments scramble for cheap sources of energy, in their attempts to reverse the consequence of their "falling asleep at the wheel" moment, regarding their hasty clamp down on hydrocarbons.

Clearly, silver industrial demand is certain to benefit as this move into solar PV takes place. In doing so, a floor will be created to lessen the extent of the silver price downside, which will help bolster the restoration of trust in silver. Importantly, we may have to wait until a recession has passed before this effect materializes in full.

By virtue of the previous demand drivers, the continued exhaustion of an already depleted silver supply will be the final piece in the puzzle, so as to restore trust in silver.

According to the Silver Institute's World Silver Survey 2023, which was released in April 2023, the silver market saw what may well have been the largest deficit on record. As part of their comments on this decline, the Silver Institute writes:

> **"To put this into perspective, it is equivalent to more than half of annual mine production, and also more than half of the inventories held in London vaults offering custodian services, as reported by the LBMA".**

Therefore, if either of the above demand drivers come close to fruition, this supply looks vulnerable to exploitation. This is especially prescient, as the consensus amongst industry experts is an upward revision in silver demand, and a stagnation of silver supply.

Evidently, the conditions for trust to be restored in silver involve multiple variables. However, as the options start to narrow for the Fed, and as the realization of an energy crisis starts to hit home, the restoration of confidence in silver could be just around the corner.

It boils down to a trust in silver or a trust in Government. In all cases throughout all of recorded history the choice is clear, silver wins 100 percent of the time. Yet, most people will learn this FACT after the collapse of the current system. "Those who do not learn history are doomed to repeat it."

See: Four Horsemen Film

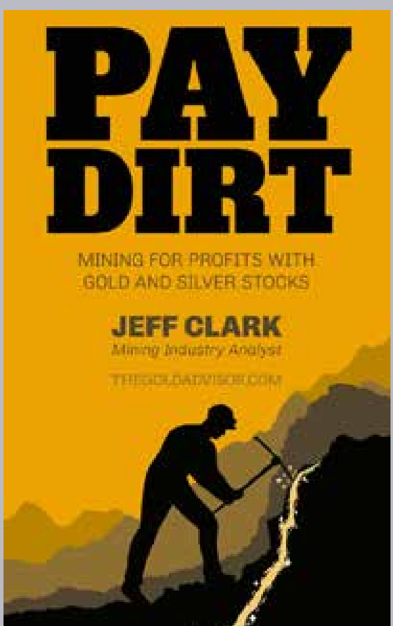
I FEAR THAT GOLD WILL TRIPLE

By Doug Hornig

Courtesy of Jeff Clark The Gold Advisor

In a recent video conversation with Mike Maloney of Goldsilver.com, Rick Rule had something very provocative to say. If you don't know him, he's worth listening to. Rick is a legend in the natural resource sector. Entrepreneur, investor, banker, you name it. He knows as much about gold and silver as anyone. Physical metals admittedly make up a core part of his personal portfolio and, although he's only an acquaintance, I'm sure he has some carefully chosen mining stocks in there as well.

Note from Jeff Clark of TheGoldAdvisor.com:
Those of you who read PAYDIRT may recognize the author's name of this article: Doug was the editor of the book, as you saw in the acknowledgements. He's a good friend, a prolific writer, and a long-time goldbug who is skeptical of the government's ability to fight its way out of the financial mess they themselves created. He had some good thoughts on what one of our favorite resource speculators meant by hoping the gold price doesn't go "too" high, so I invited him to share them with us. I hope you find the article useful...



Yet this is what Rick said in the interview: "I fear—not *hope*, but *FEAR*—that gold's price will triple. Or more."

What?

Why would someone fear a meteoric rise in the gold price that would make him much, much wealthier?

It's simple. Rick understands the role of gold, as many readers here probably already do. It's not something that you try to buy low in order to sell high later. It's an insurance policy; a store of durable purchasing power that will always be accepted everywhere as money; a hedge against a potential financial crisis you hope will never come.

That's what Rick meant. If gold were to triple in price, then we would be in the midst of a financial crisis with dreadful consequences. It would decimate the economy, deeply devalue the U.S. dollar, and leave people's paper assets in shreds.

His implication is, of course, that a crisis is probably headed our way. When? No one can say. Those of us with long experience in the investment business have learned that *inevitable* does not necessarily mean *imminent*. John Maynard Keynes's famous dictum—"Markets can stay irrational longer than you can stay solvent"—is an enduring truth. And Rick coyly adds, "I've correctly called 17 of the past three recessions."

Whatever the timeline, crisis conditions are building. It's like it was back in 2006, when I saw a chart showing the schedule on which ARMs were going to reset higher. There were a lot, with the bulk of them in the subprime market. No one could have looked at that chart and not seen trouble coming. Yet most of the financial world ignored the portents. And the rest is history.

Today, similarly, we need only consult the data. As the Federal Reserve desperately tries to devise a monetary policy that will deliver us the desired "soft landing," the US government proceeds merrily on with utter fiscal irresponsibility, spending more freely than ever.

In the fiscal year ending Sept. 30, the federal government ran a $2 trillion deficit, which we may have to call "only." Because the Treasury Department announced it will borrow $776 billion more in the current quarter (October-December, 2023) and $816 billion in the first quarter of 2024. That's $1.59 trillion *in just six months* if you're scoring at home, folks.

This is not sustainable. Last fiscal year, the government collected around $4 trillion in taxes. On just five *mandatory* expenditures in the budget (Social Security, Medicare, Medicaid, Unemployment, and Net Interest on the Debt), it spent—you guessed it—about $4 trillion.

That means *every single dollar* spent on EVERYTHING ELSE IN THE BUDGET must be borrowed. Defense, the space program, infrastructure, medical research, national parks, whatever. There's no money for any of it.

It gets worse. In its 2023 fiscal year, the government spent $659 billion on interest payments, nearly double the $352 billion in fiscal 2021. That's 2.5% of GDP. With the rise in interest rates that makes borrowing more costly, interest on the debt is ballooning. It is now the fourth-largest expense, behind only Social Security, Medicare, and defense. Moreover, in addition to new deficits, there is also old debt that must be refinanced at higher rates: $7.6 trillion in Treasury debt matures over the next fiscal year.

Remember that this is money that disappears into thin air. It adds *nothing* to overall economic growth or anyone's well-being.

And it gets worse still. The money supply in the US has been skyrocketing. In calendar year 2020, MZM (the broadest measure of liquid money) increased by $5 trillion, to $22 trillion. (We don't know what it is today, because the Fed quit reporting MZM.) This is massive monetary inflation, which inevitably leads to the kind of price inflation that's been so painful of late—and is far from over.

How long this fiscal nonsense can continue is anyone's guess. There's no historical precedent at this scale. We do know, however, what out-of-control deficit spending and money creation has always done: it devalues the issuing nation's currency.

The soundness of any currency depends on faith. Once citizens lose faith in the currency, they will spend it as fast as they can, chasing price inflation in goods and services. That's what's happening in Argentina today, with its 140% annual inflation rate.

It can't happen here, some say. Well, so far, the US has been spared a similar fate, because the dollar has been the world's reserve currency since 1944. Faith in the strength of the dollar, and global dependence, remains strong. But that faith can, and likely will, be destroyed if the government cannot get its house in order.

These issues have set the stage for the next financial crisis. As noted, we can't say when it will arrive, nor how bad it will be. But if we're hit with the worst, that's when people will flee paper for the safety of gold—and the tripling in price that Rick Rule fears will happen.

Naturally, any substantial increase in the gold price will bring appreciation in the share value of those who mine the metal. So all of this is not to say that those owning such shares should not take outsized profits when market action drives valuations to the moon.

They should.

That, after all, is what this site is for.

Doug Hornig has written 12 books and was nominated for an Edgar Award for his novel Foul Shot. He was the editor of PAYDIRT, transforming the book into both a lively and pragmatic text. He and Jeff Clark worked together at Doug Casey's firm in the mid-2000s. You can see the full TheGoldAdvisor.com portfolio for free by creating login credentials here.

XI'S DRIVING THEM CRAZY: CAN THE WEST PUT THE BRAKES ON CHINA'S EV BATTERY MONOPOLY?

By Ted Butler

As the so-called rush to renewables gathers momentum, battery metals such as lithium and nickel, will undoubtedly benefit from increased demand. However, with an uncertain backdrop of geopolitical volatility looming, establishing how battery metal usage will look in the future is becoming an increasingly difficult task.

Naturally, in the wake of Goldman Sachs' recent foray into the geopolitical advisory business, this article will aim to navigate geopolitical factors, such as resource nationalism and the U.S-China trade war, as we look to gain clarity on what the West's new "battery metal mix" might look going forward.

In doing so, the aforementioned geopolitical factors will be considered as potential catalysts for thrifting and substitution amongst battery metals. Moreover, the article will draw exclusively from the automotive industry, whose constituents are fast becoming the top industrial consumers of battery metals.

GETTING TO GRIPS WITH THE GEOPOLITICS

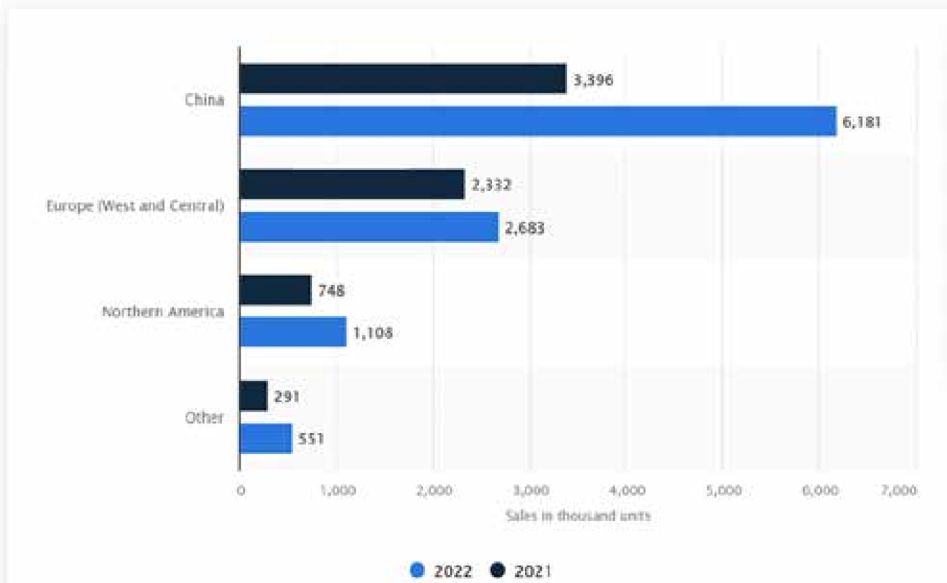
Whether it be the EU, where 20 EU member states offer incentives for purchasing electric vehicles, or the US, whose 2022 Inflation Reduction Act pledges a $7500 tax credit at the point of sales for new EVs and $4000 for used EVs, the incentives driving the West's transition to EVs are abundant.

Unfortunately for Western leaders, whilst worldwide EV sales have more than tripled in the space of 2 years - rising from 3 million units in 2020 to 10 million units in 2022 – there is a high probability that their incentive rollout was relatively belated, as western countries are not the ones deriving the lion's share of the benefits.

Instead, it is President Xi clinking champagne glasses in celebration. His long-term approach, which amounts to a collective $60 billion invested in China's EV market, has resulted in China's 59% share of global EV sales as of 2022 – more than double the 25% share of Europe and nearly 6 times the 10% share commandeered by North America.

Plug-in electric vehicle sales worldwide in 2021 and 2022

(in 1,000s)



Staggeringly, China's EV market dominance doesn't end there: 50% of China's EV sales were domestic in 2022, acting as a foundation for the national economy, whilst its total EV sales accounted for 1/3 of global EV exports, showing that foreign countries exercise a substantial dependence on China for EVs.

Moreover, China is also home to the world's largest lithium mining company, Ganfeng lithium, who recently became the largest shareholder in Lithium Nevada LLC. This has allowed it to tap into what is potentially the U.S' most lucrative lithium mine – the rumoured 20-40 million tonne lithium Thacker Pass on the Nevada-Oregon border.

To literally rub salt in the wounds, Ganfeng Lithium stand to benefit if the U.S Government goes ahead with its $1bn loan for the project, however that is not the biggest cause for concern.

Instead, the real thorn in the West's side is the fact that China produces some 75% of all the world's EV batteries - the component that accounts for 40% of the total cost of the EV itself.

For example, the world's top producer of EV batteries is Chinese company CATL with a 34% share. The firm primarily supplies lithium-ion EV batteries to the likes of Peugeot, Hyundai, Honda, BMW, Toyota, Volkswagen, Volvo and, most notably, Tesla.

In August 2023, CATL launched a new lithium iron phosphate (LFP) battery that it claims can add 248 miles of range in 10 minutes of charging. Interestingly, Musk has already signalled his intention to use this battery cathode in Tesla's Model 3 and Model Y, as part of a "Masterplan" document released earlier this year.

As for the U.S EV battery manufacturing, Tesla is quickly ramping up its in-house production of 4680-type cylindrical battery cells. However, it will take a while to displace China's collective 56% of the EV battery market, especially as 'Western' (Japanese) EV battery manufacturer, Panasonic, lost 3rd place to Chinese firm, BYD in 2022.

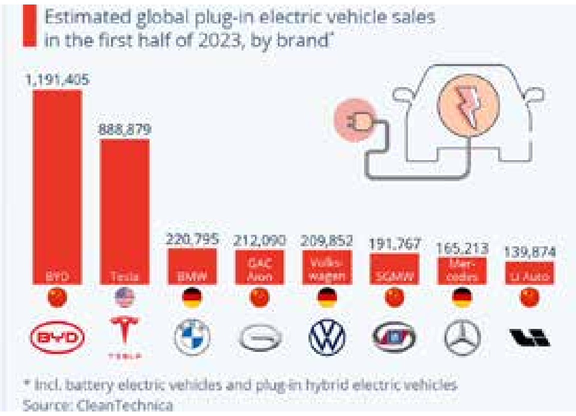
Vehicle Type	Tesla Equivalent	Cathode	Pack Size (kWh)	Vehicle Sales	Global Fleet	Global Fleet (TWh)
Compact	[TBD]	LFP	53	42M	686M	36
Midsized	Model 3/Y	LFP	75	24M	380M	28
Commercial/ Passenger Vans	[TBD]	High Nickel	100	10M	163M	16
Large Sedans, SUVs & Trucks	Model S/X, Cybertruck	High Nickel	100	9M	149M	15
Bus	[TBD]	LFP	300	1M	5M	2
Short Range Heavy Truck	Semi Light	LFP	500	1M	6.7M	3
Long Range Heavy Truck	Semi Heavy	High Nickel	800	2M	13.3M	11
Total	-	-	-	89M	1,403M	112

Table 7: Vehicle Fleet Breakdown

After doubling its volume year-over-year, BYD is well on track to take make 2nd place China's too. In 2020, BYD launched and designed its own lithium battery known as the "blade battery" through subsidiary FinDreams Battery. According to BYD, this was the first battery to have safely passed the industry standard nail penetration test.

Moreover, in addition to being the 3rd largest EV battery manufacturer, BYD are also China's largest EV manufacturer by EV units sold with 1.19 million EV sales in H1 2023. Simultaneously, this makes BYD Elon Musk's arch nemesis, especially after their 300,000 EV sales lead over Tesla at the halfway point in 2023.

With Warren Buffet having reduced his position in BYD in 2022 to a 14% share of the company, there is a chance that BYD's run is over. However, the more poignant question to ponder is: how was China able to fashion such an unassailable lead over its contemporaries in the first place, particularly with regard to EV batteries manufacturing?



Frankly, the U.S is mostly to blame for China's monopoly. Starting around the turn of the century, administration after administration failed to prioritize U.S manufacturing, all whilst remaining naïve to the growing threat of Chinese manufacturing dominance – a beast that the U.S themselves were complicit in feeding.

Clearly, this 'falling asleep at the wheel' moment has come back to bite the U.S: China's EV market leadership continues to pay serious dividends to President Xi and is further solidifying the BRICS' vision for a so-called multipolar world.

Having said that, lamenting about the U.S' once great manufacturing will not help us determine how the West may respond going forward. Therefore, the following section will consider two strategies the West could adopt to combat China's battery metal dominance.

SANCTIONS OR SOLUTIONS?

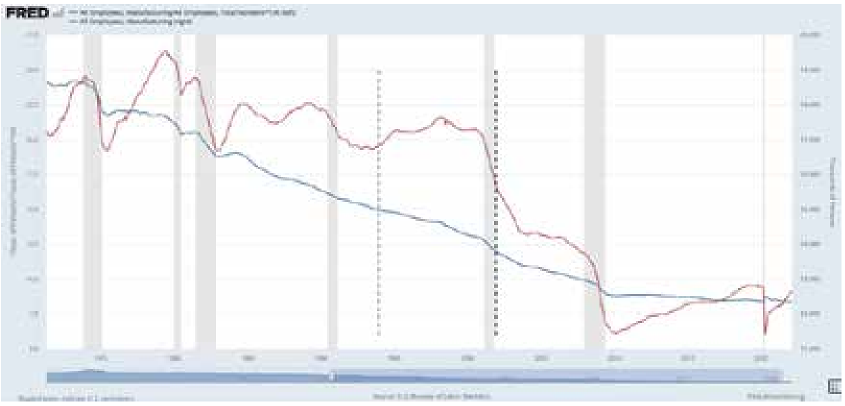
Firstly, the West could take the risk of remaining dependent on China for EV battery production. This would mean putting faith in the sanction power of other U.S economic levers such as semiconductor design, where the U.S commands an 85% share of the market.

However, the downside to this strategy is that China has monopolies of its own, namely, a 92% share of rare earths manufacturing. Here, the risk is that China's retaliation is proportionately more damaging to the West – similar to early 2022 when Biden shot himself in the foot in with Russian sanction-induced dedollarisation.

With this in mind, the West's second option may be to find a substitution for EVs that allows them to exploit a chink in China's armour. For example, by taking a leaf out of Xi's long-term planning book, the West could champion a disruptive innovation such as hydrogen powered vehicles as a means of getting ahead of China.

Fortunately, there is an abundance of innovation in Europe in this area: The newly unveiled BMW iX5 Hydrogen is being heralded as "the missing piece in the jigsaw when it comes to emission-free mobility" and boasts a refuelling time of 3-4 minutes - much quicker than most battery technologies.

This progress is being recognised by those in the European Commission too, who recently stated:"10 years ago,



when I joined the commission in energy department, hydrogen was a niche. It was always there but it wasn't top of the agenda. I think that has changed and it (hydrogen) has a good momentum."

This glimmer of hope could become a viable strategy if the benefits of hydrogen are more broadly acknowledged. However, the most likely outcome is that West will continue chasing China's shadows on EVs, as politicians refuse to back down on their commitments to a green utopia.

Consequently, the U.S automotive industry, which is made up of legacy car makers, will be forced to cannibalize their own internal combustion engine revenues as they transition to EVs. This paves the way for agile Chinese EV companies to capitalise on the U.S market, similar to how BYD are doing in Mexico already.

Across the Atlantic, the chances of the EU toppling China's battery monopoly are unlikely too. European Commission president, Ursula Von Der Lyon, has resorted to launching an anti-subsidy investigation into EVs coming from China, demanding "that the EU must defend itself against (China's) unfair practices".

The only consolation for Von Der Lyon is if China are found to have been engaging in corrupt practices. Failing that, her approach is counterintuitive at best, as Volkswagen has just announced plans to spend 1 billion euros reorganizing some of its production to Hefei, China, so as to respond to a falling market share.

One can only assume that Von der Lyon has calculated some kind of net benefit for the EU. Perhaps Macron would benefit from sanctions on Chinese EVs, as EU consumers would have no choice but to buy French made EVs. Either way, it will do little to disrupt the U.S' and EU's dependence on Chinese EV battery production.

Therefore, as we look to the future of the battery metal mix, China's dominance looks as though it will remain resounding, at least until the West can muster some kind of ground-breaking innovation, or until it's sanctions can cripple the BRICS into oblivion - both of which are a long shot at best.

CONCENTRATES, CONSTRUCTION, AND COCOA: BIOLEACHING FACILITY IN ECUADOR SET TO IMPROVES LOCAL PAYDAYS

By Lynnel Reinson Communications

BacTech Environmental (CSE:BAC) is a Canadian technology company formed in 2011. BacTech Mining Corporation moved from Australia in 1997 and later branched into BacTech Environmental and REBgold. The company is eyeing potential projects in Mexico, Ecuador, and Peru, focusing on implementing sustainable bioleaching extraction processes for precious metals. BacTech's proprietary bioleaching process eliminates the toxic tailings generated with traditional ore processing; these typical tailings need to be managed and contained before reprocessing to transform them into non-harmful materials during mine remediation. BacTech's bioleaching process represents an opportunity for companies to entirely neutralize the hazardous products of ore extraction, such as arsenic and various sulphides, while leaving behind only the zinc, gold, silver, copper, nickel, and cobalt from the ore.

Ross Orr with Sr. Jose Sanchez, Mayor of Ponce Enriquez

Because managing waste is one of the greatest, and often costly, environmental challenges mining companies must manage, BacTech's process addresses waste by preventing it, with their eco-friendly, commercially viable, proven, modular, and scalable process that simultaneously frees the valuable target metals while stabilizing and transforming what would have been toxic waste in need of management into harmless material. In speaking with BacTech's CEO, Ross Orr, it was clear that he is hopeful for, and convinced that, the company's future in bioleaching is capable of bringing about numerous positive changes such as work for community, non-toxic processes that benefit the environment, and processing to produce higher concentrations of precious metals for small mines, paying up to 40% more than current prices and bringing their process to the mining industry as a whole.

Ecuadorian miners are currently being affected by "sweeping price reduction imposed by Chinese buyers due to recent import levies on arsenic/gold concentrates entering China." (BacTech). The company's CEO, Ross Orr, believes building their new plant will not only help Ecuadorian gold miners' compensation climb back to and beyond pre-levy prices but will also handle the high levels of arsenic in the ore sustainably with very little environmental impact. Their plant, once operational in Ecuador, will make available to small miners both a new way of processing and selling their concentrates that far exceeds the current processes generating gold concentrate with high levels of arsenic.

BacTech's planned facility will be a 50 tonne per day bioleach processing plant capable of producing approximately 30,900 ounces of gold per year. Once their Phase 1 is operational, they will expand the operation to 200 tonnes per day to exceed 100,000 ounces per year. Importantly, the company enjoys strong support from the community in Ecuador; with the approval of all permits, the financial backing from the "Sustainable Bond Framework" and other sustainability focused investitures will allow construction to proceed.

In working with the local community, BacTech communicates with local farmers who grow cocoa in the area of the proposed facility, working together to implement a shared land management

Future tailings site

program for the land the company has purchased. According to BacTech's website, "The agreement will see on-site cocoa farming continue across 80% of the thousands of untouched trees with proceeds from all cocoa sales being retained by the former employees of the purchased land." (BacTech) This agreement brings new prosperity to

the Tenguel – Ponce Enriquez region of Ecuador as a whole while also focusing on the lives of those in the immediate area of the project, for minimal disruption alongside new opportunity.

The BacTech leadership team has been working toward permitting their project in Ecuador, which has just been granted by the Ministry. “Obtaining this final important permit is a critical step in the development of the Tenguel project. We can now roll up our sleeves and get to work raising the capital to make this project happen.”, says CEO Orr.

More broadly, with sustainability a key aspect of BacTech’s business, the company is poised to leverage their bioleaching technology as they do their part to make mining more sustainable. While sustainability is commonly thought of as ‘environment’ alone, business has often-invisible practical realities in operating sustainably. BacTech makes their financing more visible with the recent launch of their new “Sustainable Bond Framework” (BacTech) that will allow investors to participate in their efforts, by issuing “green and social bond offerings” to finance BacTech’s bioleaching plant project. Mr. Orr describes how the “Sustainable Bond Framework” is a step toward paving the way for sustainable long-term benefits to the environment and communities, saying it:

Will help kick start our near-term bioleach facility financing opportunities, while showcasing the sustainable benefits and socioeconomic contributions that BacTech can make at the community level – from water conservation and helping prevent acid mine drainage, to creating local opportunities for work, training, development, and the start of a new ‘green metal’ industry.” (BacTech).

Given the global movement toward alternative energy sourcing and storage, demand for metals is only increasing and BacTech is looking to be a part of providing those metals in a manner that protects the environment, benefits local communities, and decreases extraction costs with their bioleaching technology that prevents toxic tailings and acid generation in metal extraction processes. BacTech’s proprietary technology sets them up to be an all-around win for communities, stakeholders, shareholders, the environment and they are keen to enter the “new ‘green metal’ industry” (BacTech) as soon as they complete construction in Tenguel, Ecuador.