
## Weekly Precious Metals News Articles: March 15, 2024

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**Below is a cross section of relevant news article to the world of Precious & Critical Metals:** This markets, supply & demand shifts, investment, mining, recycle and industrial applications.

A printable PDF version with more embedded graphics is attached. Enjoy-

## Gold


**Gold – Friday pm ↓ 2,157.50/toz**


**Silver – Friday pm ↑ $25.28/toz**

- **Gold's record run stalls ahead of US inflation print**
  - Gold prices were steady on Tuesday, as traders refrained from taking new positions after bullion's record run ahead of U.S. consumer prices data that could offer clues on the Federal Reserve's monetary policy trajectory.
  - The dollar held broadly steady on Tuesday, while the yen firmed near a one-month high on mounting expectations that the Bank of Japan could exit negative interest rates as early as next week.
- **Goodbye, Gold Price Rally – Here's What's Next | FXEmpire**
  - The top in gold and in the mining stocks is very likely in.
  - I started to write this analysis before the Tuesday's opening bell, and I was about to write how the breakout above the retracement was not confirmed and that I expected it to be invalidated, but we already saw this invalidation in the first minutes of today's session.
- **Gold Snaps Record Price Run, Sinks $30 on CPI Inflation as Pundits Split on 'Bubble'**
  - The gold price fell almost $30 inside 90 minutes Tuesday lunchtime in London, trading back down to what was a new all-time high last Thursday, after US inflation data came in slightly stronger than analysts expected.
- **Rick Rule: Gold Stock Bull Market Building; Now Watching Silver, PGMs, Nickel**
  - Veteran resource investor and speculator Rick Rule of @RuleInvestmentMedia shares his latest thoughts on the mining sector, honing in on gold stocks, as well as the opportunity he sees in the silver, platinum, palladium and nickel markets. "The intelligent application of capital in a bad market is always square one

for building a bull market. I feel over a five year timeframe very attracted not to the gold-mining sector, which I think is a disaster ... but to some of the high-quality companies," he said.

- **Why There May Be More Upside For Gold**
  - What's driving the recent run higher for the price of gold?
  - Why gold could hit new highs in the second quarter.
  - Geopolitics and gold: The impact on prices.

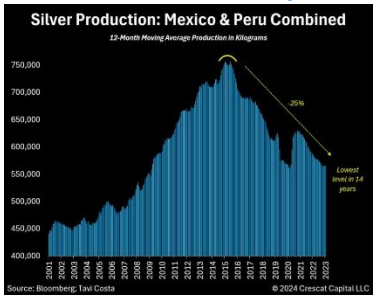
## Semiconductor Related Articles (impacting Precious Metals electronics):

- **TSMC revenue rides AI wave as iPhone sales slow**
  - TSMCs revenue rose +9.4% in the first two months of this year, riding a wave of global artificial intelligence (AI) development that is helping offset potential fallout from slowing iPhone sale. The chipmaker to Nvidia Corp, is riding a wave of activity that accelerated after OpenAI rolled out ChatGPT.
- **We'll Need Many More Fabs to Meet $1 Trillion by 2030 Goal**
  - We've heard a lot in the last year about how the semiconductor industry could become a $1 trillion market by 2030 in the U.S. with its current growth trajectory. But it's not as simple as that, as we don't have the fab capacity—even with the 109 fabs planned to come into operation by 2026, SEMI president and CEO Ajit Manocha said in his opening keynote at the SEMI Industry Strategy Symposium (ISS 2024) in Vienna, Austria last week.
- **US Chip Supply 'Too Concentrated' Globally, Raimondo Says**
  - The US wants to help the Philippines double its semiconductor facilities, to lessen the geographic concentration of the global chip supply chain, Commerce Secretary Gina Raimondo said in a business forum in Manila on Tuesday.
  - "US companies have realized that our chip supply chain is way too concentrated in just a few countries in the world," Raimondo said. "Forget about geopolitics, just at that level of concentration, you know the old adage don't put all your eggs in one basket. Why do we allow ourselves to be buying so many of our chips from one or two countries? That's why we need to diversify."
- **Broadcom profit soars as AI chip sales push revenue forecasts beyond US$10 billion**
  - According to reports by MarketWatch and Reuters, Broadcom's revenue in the first quarter of the fiscal year 2024 (1QFY24, ending February 4) saw a year-on-year increase of 34%. However, revenue from its mainstay semiconductor solutions grew by only 4% to US$7.4 billion. This indicates a weak demand from telecom markets and corporate clients. Nonetheless, the booming AI market has helped mitigate the impact on semiconductor sales performance.
- **Will the Intel Foundry Model Succeed?**
  - While Intel has discussed the foundry business for some time, the get-together laid out some additional plans for Intel's foundry effort. Intel has a full array of IP and EDA vendors; Siemens, Synopsis, Cadence, Ansys, Keysight, and Lorentz Solutions. There is also a collaborative effort with ARM to provide leading-edge services for ARM SoC designs. This effort appears to be focused on startups developing tech with ARM technology. RISC-V technology has also been mentioned in the design mix.
  - This is significantly different from the first Intel Foundry effort where X-86 and ARM were the core technologies used for design. Intel laid out its technology roadmap, which includes the partnerships with Tower Semiconductor and UMC thus adding some foundry experience to their effort.
- **TSMC announces massive recruitment drive to bolster expansion projects**
  - After implementing a hiring freeze in 2023, TSMC has unveiled plans to restart recruitment, aiming to hire 6,000 engineers and technicians in 2024 to address the escalating talent needs for expansion projects at home and abroad.

- **Global Shipments of PC Workstations Shrank Nearly 9% in 2023, but Recovery Expected as Several Market Drivers Coalesce in 2024**
    - The global desktop and mobile workstation market reported a slight recovery as it exited 2023, with unit shipments growing 6.1% year over year in the 4Q'23. According to the IDC Worldwide Quarterly Workstation Tracker, the 1.85M units shipped in 4Q'23 reversed five consecutive quarters of declining annual shipment growth.

## Silver

- **Silver Market Looking Bullish As Investors Watch**
    - The silver market continues to gather attention with its bullish trend around $25.00, primarily driven by significant North American trading sessions' earnings. Investors are closely following this upward momentum, noting its sustained growth despite volatility in other commodity markets.
- **LIFT metallization as an alternative to screen-printing for silicon heterojunction solar cells**
    - We include a complete study of comparison between screen printing and LIFT processes.
    - LIFT is a good technique for high viscosity silver paste in the metallization method.
    - The quality of the laser process is shown by good behavior in SHJ cells.
    - This laser scribing process is promising alternative for PV technology.
- **Comprehensive antifungal investigation of green synthesized silver nanoformulation against four agriculturally significant fungi and its cytotoxic applications**
    - The present study reports the green synthesis of silver nanoparticles (AgNPs) in powder form using the leaf extract of Azadirachta indica. The synthesis of AgNPs was confirmed by UV–vis spectroscopy, FTIR, XRD, FESEM, and EDX. The synthesized AgNPs were in a powdered state and dispersed completely in 5% polyethylene glycol (PEG) and demonstrated prolonged shelf life and enhanced bioavailability over a year without any aggregation. The resulting silver nanoformulation demonstrated complete inhibition against Sclerotinia sclerotiorum and Colletotrichum falcatum and 68% to 80% inhibition against Colletotrichum gloeosporioides and Rhizoctonia solani respectively, at 2000 ppm.
- **Silver production from Mexico and Peru, the world's two largest producers, is at its lowest in 14 years.**
    - The combined output is now down 25% from its 2016 peak levels.
    - As gold breaks out to record levels, igniting a new bull market for precious metals, a major supply and demand mismatch is poised to drive silver prices significantly higher.




- **Silver is still range-bound despite bullish fundamentals**
    - Silver has been trapped in a range within a range since 2020.
    - Bullish fundamentals suggest more upside for Silver but charts are ambiguous.
    - A decisive break above $26.00 would provide confirmation of a bullish turn.

## Precious Metals Mining:

- **Sibanye Stillwater swings to full-year loss after impairments; weighs capital raise**
  - The company swung to a full-year net loss of $2.03B from a profit of $1.16B in 2022, as it booked an impairment of $2.58B - mostly related to its Montana palladium project - due to the sharp declines in prices of platinum metals and nickel as well as persistent cost inflation, a charge that was flagged last month.
- **Subdued PGM prices could dent investor sentiment in Southern Palladium**
  - Depressed platinum group metals (PGM) prices could affect sentiment in Southern Palladium's flagship Bengwenyama project, the company said yesterday.
  - The Bengwenyama project is an advanced exploration stage project focused on PGM mineralisation run by Southern Palladium in the Bushveld Complex of South Africa.
- **Some gold miners not yet cashing in on record metal price**
  - Central bank buying in China and emerging markets was one of the reasons the dollar gold price had notched up record after record this year but the VanEck Gold Miners ETF unchanged from its level at the start of 2023. The S&P/TSX Gold Index was slightly down during the same period, the newswire said.
  - "In the last 15 months, gold and gold equities have just disconnected," Equinox Gold Corp. Chairman Ross Beaty told Kitco News, describing the situation as "bordering on ridiculous". The performance of the biggest players hasn't helped, said Bloomberg News.
- **Do Not Give Up on Newmont**
  - The company indicated disappointing 2024 production guidance with an expected 6.93 Moz of gold.
  - Newmont plans to sell non-tier 1 assets after acquiring Newcrest Mining for approximately $15 billion to reduce its $8.87 billion in debt.
  - Finally, Newmont took a $1.20 billion non-cash impairment charge related to its Penasquito mine in Mexico.
- **Project finance clinched for 520 MW South African wind, solar projects – Anglo**
  - Johannesburg- and London-listed diversified mining and marketing company Anglo American has announced that jointly owned renewable energy venture with EDF Renewables, Envusa Energy, has completed the project financing for its first three wind and solar projects in South Africa.

## E-Waste & Precious Metals Recycle Related:

- **DOE's $4M e-scrap recycling prize seeks recovery and reuse innovations**
  - The U.S. DoE recently launched the **Electronics Scrap Recycling Advancement Prize**, which will award a total of up to $4 million over three phases for innovations that "substantially increase" the recovery and reuse of

valuable materials from e-scrap. The competition aims to fund innovations that can reduce the costs and environmental impact of recovering critical materials from e-scrap.
    - For the first phase, the DOE will choose up to 10 winning projects to each receive a $50,000 cash award, as well as $30,000 in national laboratory analysis support. For-profit and nonprofit entities can apply, as well as non-federal government entities such as states, counties, municipalities, etc., and individuals.
- **Michael Hill launches gold recycling program in Canada**
    - You can now recycle your old gold jewelry at Michael Hill jewelry stores.
- **Federal program seeks to 'defragment' e-scrap sector**
    - "We see this prize as being an effective tool to bridge some of the different players that exist along the value chain, from collection to sorting, to concentration, to preprocessing, to actual separation and extraction," Mehta told E-Scrap News.
    - Validating and benchmarking the output material, and ultimately getting it back into new electronics to replace virgin material, are further areas of interest, Mehta added.
- **Boliden kept recycled material use steady**
    - Boliden handled 330,000 tons of recycled inputs in 2023, up from 322,000 tons in 2022. Overall, the recycling inputs were about 12% of the overall material Boliden used in 2023, the same as in 2022.
- **Iberdrola and FCC Enter Agreement to Advance Photovoltaic Panel Recycling**
    - FCC Ámbito has also set up a new industrial photovoltaic panel treatment plant in Cadrete (Zaragoza) which will serve as a cornerstone asset for both companies. Within this collaborative framework, they will oversee the monitoring and potential implementation of emerging treatment technologies to enhance the industrial recovery capabilities of photovoltaic panels in the short to medium term.
- **Solar panel manufacturer announces ambitious plans for panel recycling: 'A very important step'**
    - Solar panel recycling company SOLARCYCLE has announced ambitious plans to build a new facility to ensure crucial materials can be reused.
    - According to Electrek, Cedartown, Georgia, will be home to the factory, which will come at a cost of $344 million. It's just another example of recycling plants for sustainable technologies being built in a southern United States state.
    - SOLARCYCLE, which has also signed a deal with QCells to provide the recovered material for use in new panels, will manufacture new solar glass from old panels at the site, making it one of the first companies in the U.S. to do so.

## Platinum


**Platinum - Friday pm ↑ $946/toz**


**Palladium - Friday pm ↑ $1,104/toz**

- **Why platinum prices continue to lose luster despite a supply shortage**
    - The global platinum market saw a record deficit in 2023: WPIC
    - Platinum prices fell last year and are trading lower this year, threatening the profitability for miners of the metal despite a persistent supply shortage.

- Against that backdrop, the fall in prices for the industrial and precious metal seems to defy logic. The metal has underperformed an overall rise in the commodities sector, even as the global platinum market marked a record deficit in 2023, poised to extend that deficit into 2024.

- **WPIC:** Hydrogen in South Korea
  - By 2050, Korea aims to import around 82% of its $H_2$ requirement from overseas. Korean businesses are already investing in countries conducive to green $H_2$ production and establishing strategic trading relationships. The government of S. Korea intends to collaborate with Australia, Canada, and Chile.
- **Pt-based catalysts for direct propane dehydrogenation: Mechanisms revelation, advanced design, and challenges**
  - The Pt-based catalysts for propane dehydrogenation are reviewed comprehensively.
  - The utilization of metal promoters, as well as supports, are summarized systematically.
  - The underlying reaction mechanisms are also elaborately elucidated.
  - Current challenges and prospects for the future development of Pt-based catalysts are discussed.

## Fuel Cells/$H_2$ Economy Related Articles:

- **'Renewable power prices must be $30/MWh or less for green $H_2$ projects to compete': Fortescue**
  - Renewable power for green hydrogen and ammonia production will have to cost less than US$30/MWh for projects to compete on a global market, Fortescue CEO Mark Hutchinson reportedly told the Australia Financial Review's Business Summit today — implying that the company's Gibson Island project is in danger of being shelved.
- **Hydrogen Car News: China Charges Ahead with Hydrogen-Powered Vehicles**
  - In a strategic collaboration, EKPO Fuel Cell Technologies—a venture co-founded by ElringKlinger and Plastic Omnium—and the illustrious China FAW Group, have solidified their partnership through a recent development and supply contract. The agreement marks the arrival of the 'NM12-Single' stack module platform, poised to equip the next-generation fuel cell vehicle from FAW's upscale brand, Hongqi.
- **Italy to launch €1.1bn fund for green manufacturing — including hydrogen electrolyser factories**
  - Italy is to launch a new €1.1bn ($1.2bn) subsidy programme to support green manufacturing in the country, that could see manufacturers of electrolysis equipment in line for grants of hundreds of millions of euros.
- **Thyssenkrupp Nucera expands into solid-oxide hydrogen electrolysers**
  - Thyssenkrupp Nucera has now entered into a strategic partnership with the Fraunhofer Institute for Ceramic Technologies and Systems (IKTS) to develop SOECs.
  - The electrolyser manufacturer will license the research institute's chromium-based alloy stacks, which Fraunhofer IKTS has designed for higher efficiency/slower degradation than conventional SOEC stacks.
- **Air Liquide and Vopak looking into ammonia and hydrogen infrastructure in Singapore**
  - Industrial gas supplier Air Liquide and infrastructure provider Vopak have joined forces to look into the development and operation of infrastructure for ammonia import, cracking, and $H_2$ distribution.
- **Hyzon launches its 200 kW fuel cell - H2Today - Hydrogen Today**
  - Hyzon Motors chose to present its new fuel cell at the Kangan Institute's Centre of Automotive Excellence in Melbourne, one of the country's largest centres for testing and training. To achieve a power output of 200 kW, two separate fuel cells are usually required. However, the company has chosen to develop a single stack that is 30% lighter, 30% smaller and 25% cheaper than two combined 110 kW stacks. The product is being developed at the Bolingbrook plant in Illinois, USA.
  - The 200 kW stack has been integrated into a cabover truck. This concept will be deployed starting this year in Australia and New Zealand as well as in Europe and the USA. In the USA, an agreement has been signed with New Way Trucks for refuse collection vehicles.

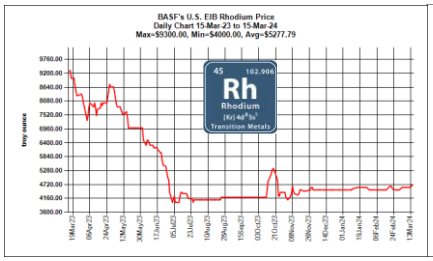
- **Fuel cell electric buses up 75% in transit fleets last year**
  - More than 6,100 new full-size zero-emission transit buses were on the road, delivered, on order or funded in the U.S. in 2023, a 12% increase over the previous year, according to a Feb. 28 report from Calstart, a national clean transportation advocacy group.
  - The adoption rate of battery-electric buses slowed compared with 2022, Calstart said, while the number of fuel cell electric buses grew more than 75% as interest in that technology increased.
- **US DOE backs 52 electrolyser and fuel cell manufacturing projects with $750m**
  - The US Department of Energy is awarding $750m to 52 clean hydrogen projects across 24 states to advance electrolysis and fuel cell technologies and improve manufacturing.
  - Funded by the Bipartisan Infrastructure Law, electrolyser manufacturing is set to receive over 40% of the package, with $316m dedicated to eight projects.
  - Nel's planned 4GW alkaline and PEM factory in Plymouth, Michigan, is set to receive one of the biggest individual slice of funding with $50m earmarked. They also received $25m from the State of Michigan.
  - Håkon Volldal, President and CEO of Nel, said the support was "cruicial" for realising its factory.
  - thyssenkrupp nucera USA and its partner De Nora received $50m for its ScalumGW plant in Texas.
  - Other electrolyser OEMs to receive funding are Verdagy ($39.6m), Plug Power ($45.7m) Electric Hydrogen Co. ($46.3m), Cummins ($17.9m), OxEon Energy ($36.3m) and NexTech Materials ($30m).
- **Ammonia-to-hydrogen project launches in Birmingham**
  - Described as the world's largest and most efficient ammonia-to-hydrogen conversion project, the Ammogen consortium gathered at Tyseley Energy Park (TEP) on Tuesday 12 March to mark the initiative's launch. The partners say it will drastically improve the efficiency, reliability, and economics of ammonia cracking, and will deliver 200kg per day of transport-grade hydrogen.
- **Ammonia levels four times higher in Europe's farming regions, study finds**
  - Researchers collected measurements from 69 locations across mainland Europe and Britain. They found ammonia is, on average, four times greater in farming regions compared with other areas. Agriculture also added to the ammonia found in the suburbs of many cities.

## Palladium

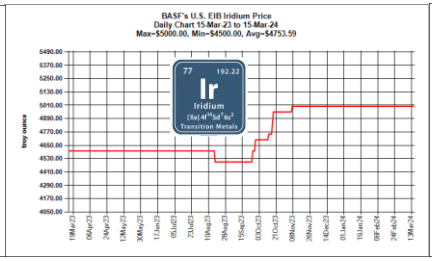
- **Euro 7 deal passes major hurdle, strengthening Europe's position as world leader in emission standards**
  - "Today's Euro 7 vote has put the focus where it matters most – on future-oriented challenges such as vehicle brake emissions for cars and vans and electric vehicle battery requirements," stated Sigrid de Vries, Director General of the European Automobile Manufacturers' Association (ACEA).
  - "But make no mistake: Euro 7 still tightens exhaust emissions and test procedures. In particular, truck and bus manufacturers will face significantly more stringent rules, as they already face an uphill climb to meet rapidly approaching 2030 decarbonisation targets in the absence of vital enabling conditions."
- **Euro 7: The new emission standard for light- and heavy-duty vehicles in the European Union**
  - This policy update summarizes the key elements of the Euro 7 regulation and highlights the changes compared to the current emission standards.
- **Emissions:** **Latest research from California Air Resources Board shows that airborne PM from tyres from ALL vehicles is now greater than the PM from the tailpipe**
  - This trend is predicted (by authorities in the US and Europe) to see tyres well exceed tailpipe as the dominant source of PM. This trend is explained by rapidly cleaning tailpipes and increasing vehicle weights.
  - We still must electrify (in various forms) to reduce $CO_2$, but it could make PM pollution worse.

## PGM Minor Metals (Rhodium, Iridium, Ruthenium, Osmium)

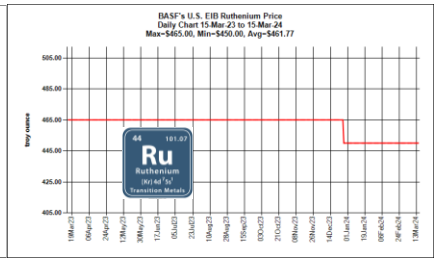
Rhodium Prices for the Last Year




Iridium Prices for the Last Year




Ruthenium Prices for the Last Year



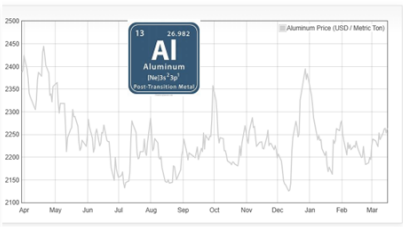

**EIB US Friday: Rhodium ↑ $4,700/toz** | **Iridium EIB Friday → $5,000/toz** | **EIB US Friday Ask: Ruthenium → $450/toz**

- **Rhodium Substitution in Chinese Fibreglass Industry Impacts PGM Producers**
  - Chinese manufacturers of fibreglass have shifted the metals mix in their product, causing implications for platinum group metals (PGM) producers and South Africa's economy. Rhodium, the most expensive precious metal, has suffered from substitution in the Chinese fibreglass industry. This has significant implications for the global economy as China is the largest producer of fibreglass.
- **Hydrogenation of $CO_2$ to $CH_3OH$ catalyzed by a ruthenium-triphos complex: Theoretical free energy profile and microkinetic modeling**
  - Accurate free energy profile able to explain the reaction kinetics.
  - Two key intermediates in the catalytic cycle.
  - Release of coordinated methanol and formic acid from Ru is a critical step.
  - Reduction of formic acid is the rate-determining step.
  - Formic acid released to the medium works as a proton transfer catalyst.
- **Cinchona-alkaloid-derived NN ligands for ruthenium catalyzed asymmetric hydrogenation of ketones**
  - The asymmetric hydrogenation of ketones was catalyzed by ruthenium and cinchona-alkaloid-derived NN ligands bearing N–H moieties, producing the corresponding alcohols with up to 98.8% ee.
- **Degradation mechanisms and stabilization strategies of ruthenium-based catalysts for OER in the proton exchange membrane water electrolyzer**
  - In this review, starting from summarizing the fundamental understanding of deactivation mechanisms, a picture of the stability issue of Ru-based catalysts is proposed, which is followed by a detailed discussion on the recently developed strategies and progress made on enhancing durability. Finally, insights on the prospects for the future development of stable and practical Ru-based OER catalysts are provided.

## Clean Energy Market News

Copper Prices for the Last Year


Aluminum Prices for the Last Year




Neodymium Prices for the Last Year


**Copper ↑↑ $ 8,902/mt** | **Aluminum ↑ $ 2,222/mt** | **Neodymium: ↓ $61,508/mt**

Zinc Prices for the Last Year


Zinc: ↑ $2,516/mt

Tin Prices for the Last Year

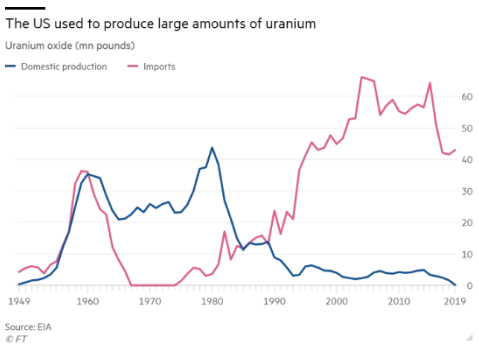

Tin: ↑ $ $28,258/mt

Uranium Prices for the Last Year

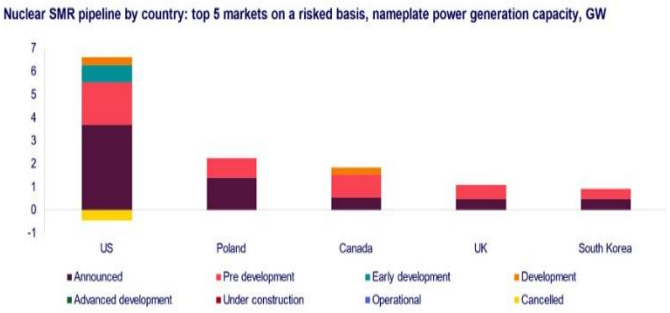

Uranium: ↓ $200,620/mt

- [IEA Reveals Global CO2 Emissions Reach Record High in 2023, But Growth Slows]
  - A recent analysis from the International Energy Agency (IEA) indicates that the growth in global carbon emissions hit record high in 2023 but it moderated compared to the previous year. This is primarily due to the ongoing expansion of renewable energy sources such as solar, wind, and nuclear power.
- [China makes clean energy the cornerstone of its long-term growth as trade falters]
  - The political messaging around energy transition at the "Two Sessions" gathering held in Beijing last week overshadowed other conventional issues such as national security, economic stimulus, social welfare, provincial real estate crisis and sectoral reforms.
- [Tin supply trapped in resource nationalism squeeze]
  - It's no coincidence that nickel and tin are the two strongest performers in the London Metal Exchange (LME) base metals pack so far this year.
  - Supply in both markets is dominated by Indonesia, where production and exports are being affected by delays in approving annual work permits. This is a relatively new phenomenon for nickel. Indonesian production has exploded over the last few years to the point the country now accounts for 50+% of global supply.
- [The Obscene Energy Demands of A.I.]
  - “There’s a fundamental mismatch between this technology and environmental sustainability,” de Vries said. Recently, the world’s most prominent A.I. cheerleader, Sam Altman, the C.E.O. of OpenAI, voiced similar concerns, albeit with a different spin. “I think we still don’t appreciate the energy needs of this technology,” Altman said at a public appearance in Davos. He didn’t see how these needs could be met, he went on, “without a breakthrough.” He added, “We need fusion or we need, like, radically cheaper solar plus storage, or something, at massive scale—like, a scale that no one is really planning for.”
- [Copper Fees Plunge Close to Zero in Test For China’s Smelters]
  - Treatment charges sink to single digits as market tightens
  - Chinese producers will meet in Beijing to discuss response
  - A steep decline in treatment and refining charges has accelerated in March, with copper concentrate trading -90% lower in the spot market than six months ago. That means squeezed margins or losses for smelters, and points to a sharp tightening of the market after a series of unexpected mine disruptions.
  - Cargoes of copper concentrate from BHP Group Ltd.’s giant Escondida mine in Chile changed hands recently at terms as low as $12 a metric ton and 1.2 cents a pound to Chinese smelters, and at $3 and 0.3 cents to at least one trader, according to people familiar with the deals. BHP declined to comment.
- [US uranium miners resurrected by nuclear revival and Ukraine war]

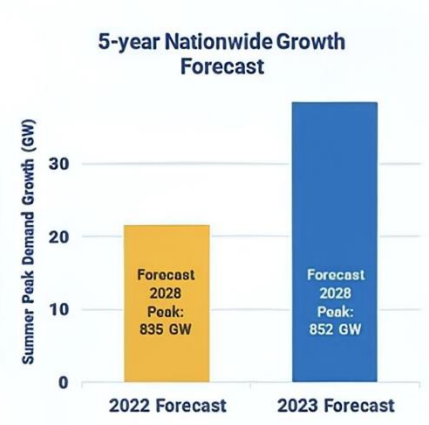
- Surging prices for ore and concerns over Russian imports lead to mothballed mines being restarted.
- Over a 40-year career, Scott Melbye watched the US uranium industry fall from its position as the world's leading producer of the radioactive ore that powers nuclear reactors to an also-ran with negligible production.
- The president of the Uranium Producers of America is leading an industry charge to revive mothballed mines and invest in new production to capitalise on soaring prices and policies aimed at reducing the US's dependence on Russian imports.




- **Global nuclear SMR project pipeline expands to 22 GW, increasing more than 65% since 2021**
  - The small nuclear reactor (SMR) project pipeline reached 22 GW in the first quarter of 2024, an expansion of 65% since 2021, according to a recent report by Wood Mackenzie. The current total project pipeline would require an investment of close to US$176 billion. *Matt: Perspective: Conventional nuclear today has 412 active reactors running at 377 GW. 22 GW of new SMR's represents a +5.8% global growth.*
  - *Matt: Most SMR systems use higher purity (21%+ vs 8%) of Uranium than conventional nuclear plants do forcing a growth in refinement.*




- **Forget 'Oppenheimer' — nuclear power is having its moment in Washington**
  - The bipartisan support for nuclear power in today's divided Washington has been well-documented, especially given its potential importance as a carbon-free energy source that can aid the fight against climate change. But that hasn't necessarily translated to concrete policy progress for an industry that has hit hurdle after hurdle. But now, the policy stasis could finally be changing, as Congress injects billions of dollars and modernizes regulations that advocates have long said are needed to move the industry into the future.
- **The U.S. electric grid is not prepared for significant load growth**
  - Allen Brooks writes in Energy Musings newsletter, the magnitude of the power demands of AI, data centers, and crypto mining is just emerging, & utilities forced to re-examine prior demand forecasts.
  - As forecasts are increased, utilities are also reassessing their capital spending needs. A report from Grid Strategies LLC late last year was titled, "The Era of Flat Power Demand is Over." It was an examination of how these new technologies are changing the growth trajectory of electricity demand.
  - The report highlights three points; (1) "Over the past year, grid planners nearly doubled the 5-year load growth forecast"; (2) "The main drivers are investment in new manufacturing, industrial, and data center facilities." "The U.S. electric grid is not prepared for significant load growth."




- **French reactor using full core of recycled uranium fuel**
  - Unit 2 of the Cruas-Meysse nuclear power plant in south-eastern France was recently restarted with its first full core of recycled uranium fuel. The move marks a major milestone in France's efforts to revive its domestic uranium reprocessing industry.
- **Gasoline Demand Has a Long-Term Structural Problem in the US: Plunging Per-Capita Consumption**

- Gasoline consumption in the US, in terms of product supplied to gas stations, rose by 1.5% in 2023, to 376 million gallons per day.
- This was -3.9% from 2019 and back where it had been 20 years ago, in 2003, with two big troughs in between.
- Gasoline consumption is determined by miles driven, which eked out a record in 2023, the growing efficiency of gasoline-powered vehicles, including hybrids, and the large-scale transition to EVs (the #2 bestselling model in the US in 2023 was an EV).

- **Aluminum shortage threatens US clean energy plans**
  - The Magnitude 7 (aluminum) plant closure reveals one of the major challenges facing the industry: electricity costs. Smelting, which takes refined bauxite ore and converts it into the lightweight metal that's usable in commercial products, requires near-constant electricity at high volumes. It's estimated that as much as 40%of the cost of aluminum is electricity itself.
  - The Missouri plant was the state's single largest consumer of energy. Company executives told employees in a January letter reported by local station Heartland News that "abnormally cold weather" and unforeseen "business circumstances" were behind the decision to close in January, but local officials said that high energy costs no doubt contributed to the plant's difficulty.

## BEV / LiB Mineral & Battery Market News

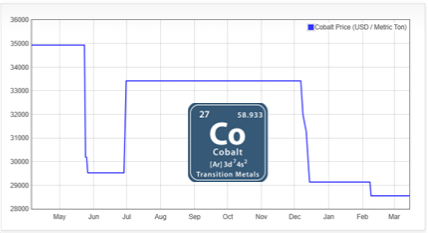
Lithium Prices for the Last Year


***Friday: Lithium ↑ $16,194/mt***

Nickel Prices for the Last Year

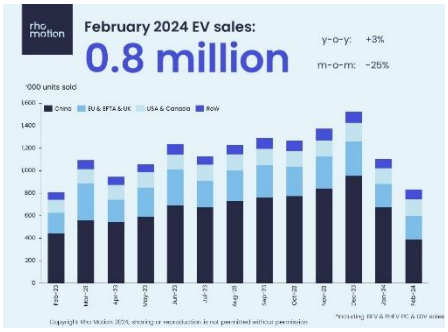

***Friday: Nickel ↓ $17,692/mt***

Cobalt Prices for the Last Year




***Friday: Cobalt → $28,550/mt***

- **Rho Motion**
  - Global EV sales reached 0.8 million units sold in February 2024, growing by 3% YoY and falling by 25% MoM.
  - The European EV market has grown +21% YoY in the opening two months of 2024, USA/Canada +33%, and China sales +34%.




- **Decarbonizing road transportation: When will we get there?**
  - There are signs that EVs are encountering challenges in attracting buyers beyond early adopters in the US. Despite price reductions, Tesla has indicated that its sales growth for 2024 may see a notable decline, while other automakers such as GM and Ford have cautioned about slowing EV sales and are scaling back investments in EV production capacity, particularly in the US.
- **Nickel price collapse: Green premium won't save Australian nickel says Metals Acquisition boss Mick McMullin**
  - The boss of acquisitive copper producer Metals Acquisition says the nickel market has "fundamentally shifted" and it is unlikely the world's largest buyer, China, will pay a "green premium" for the commodity.
  - Even if nickel miners could fetch a green premium, it may not be enough to make nickel mined outside Indonesia attractive, said Mick McMullen, who is scouring the globe for mines to add to his portfolio.
- **Indonesia Says Its Nickel Supply Will Keep Global Prices Low**
  - Battery metal to stay below $18,000 a tonne, key official says.

- Sharp drop in process has hit producers across the world.
- **Declining Demand for EVs Is Weighing on the Nickel Market**
  - Indonesia's contribution to the global nickel supply has surged, leading to oversupply and driving down prices, with projections indicating continued market dominance.
  - Declining interest in EVs, evidenced by slowing sales in major markets like China and the US, has further exacerbated the drop in nickel prices.
  - Despite current challenges, experts believe the fundamental shifts driving EV adoption remain intact, suggesting a potential recovery and growth for the EV industry and nickel demand in the future.
- **Nickel May See Deficit on Indonesia Hurdles, Macquarie Warns**
  - Slow mine permit approvals could curb ore supplies, bank says.
  - Metal rebounded on LME last month after collapsing 45% in 2023
- **Germany plans to enable underground storage of carbon dioxide at offshore sites**
  - Habeck's proposed "carbon management strategy," which still needs to be turned into detailed legislation, foresees enabling the transport of carbon dioxide and its storage under the sea in Germany's exclusive economic zone, except in marine conservation areas. It doesn't foresee allowing storage sites on land, but Habeck said that could be considered later if German state governments approve.
- **West scrambles for 'insurance policy' as China raids Earth's raw materials**
  - US and Europe struggle to break Beijing's stranglehold over critical minerals
- **China's lithium market set for long-term uptrend, says Ganfeng Lithium**
  - Lithium demand from producers of power batteries, energy storage and others will keep growing amid "an irreversible trend" of global energy transition, Ganfeng Lithium Chairman Li Liangbin told Reuters on Friday.
- **Cobalt slump is an opportunity for the auto sector**
  - Lower input prices should drive down the cost of batteries, supporting margins
  - Like other battery metals, it is suffering from supply growth, 17% in 2023. Meanwhile, demand has been hit by the slowdown in the growth of electric vehicles, as well as the rising penetration of lithium-iron-phosphate (LFP) batteries, which do not use cobalt and have taken off in China.
- **BYD's new lower-cost EV platform will crush gas-powered car sales**
  - BYD is leading an offensive against ICE vehicles. A new report claims BYD's new EV platform will slash costs even further as the automaker kicks off a "liberation battle" against gas-powered cars.
- **Lyten now (pre) producing Lithium-sulfur batteries at greater than 90% yield**
  - Lyten's lithium-sulfur battery contains no nickel, cobalt, manganese, or graphite in the cathode and anode, enabling an entirely locally sourced and manufactured battery. Lyten expects to achieve 98%+ yields at scale and will begin delivering commercial lithium-sulfur cells for non-EV customers in aerospace and government applications in 2024 from its San Jose pilot production facility.

## Regards – Matt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