



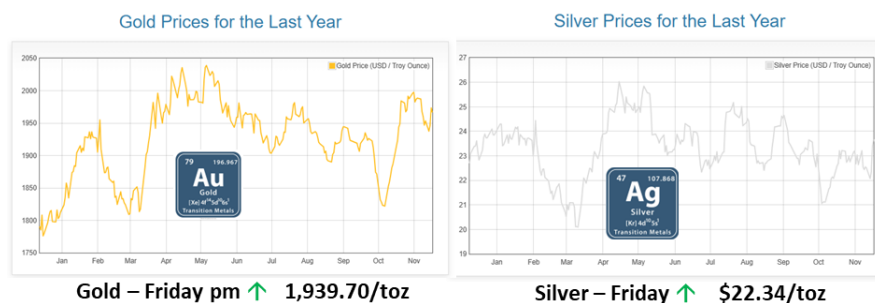
## Weekly Precious Metals News Articles: November 17, 2023

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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 set for weekly gain on Fed pause bets](#)
  - “Data that came out this week cemented the fact that the Fed is likely done with rate hikes, helping gold. Gold’s move will depend on incoming data and market response to the data.”
- [U.S. bullion coins sales in 2023 mixed in latest report](#)
  - YTD American Eagle 1-ounce .999 fine silver bullion coins are 33% higher than all of 2022.
  - The 2023 sales, at 21,215,000 coins, are 5,215,000 coins more than the 16M sold in calendar year 2022.
- [Gold, Silver, Platinum Forecasts - Gold Pulls Back As Dollar Moves Higher](#)
  - Gold is trying to settle below the support at \$1940.
  - Silver is moving lower amid a broad pullback in precious metals markets.
  - Platinum tested new lows while palladium settled below the key \$1000 level.

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

- [Global Semiconductor Manufacturing Industry Set for Q4 2023 Recovery](#)
  - The global semiconductor manufacturing industry is on track for recovery in the fourth quarter of 2023, setting the stage for continued growth in 2024, SEMI announced today in its Q3 2023 publication of the Semiconductor Manufacturing Monitor Report, prepared in partnership with TechInsights.
  - Electronic sales are predicted to register a robust +22% QoQ increase in Q4 2023, adding to +7% growth posted in Q3 2023. IC sales are expected to rise +4% sequentially after improving +7% in Q3 2023 as end demand improves and inventories normalize.

- [Worldwide Semiconductor Market Outlook Upgraded to GROWTH from TROUGH: Semiconductor Market to Grow 20.2% in 2024 to \\$633 Billion](#)
  - International Data Corporation (IDC) has upgraded its Semiconductor Market Outlook by calling a bottom and return to growth that accelerates next year. IDC raised its September 2023 revenue outlook from \$518.8 billion to \$526.5 billion in a new forecast. Revenue expectations for 2024 were also raised from \$625.9 billion to \$632.8 billion as IDC believes the U.S. market will remain resilient from a demand standpoint and China will begin recovering by the second half of 2024 (2H24).
- [Rising semiconductor sales spur demand for tin in September quarter](#)
  - World semiconductor sales, a proxy for tin usage in soldering, have notched up month-on-month growth for six consecutive months from March 2023.
  - Semiconductor Industry Association president and CEO John Neuffer said: “Global semiconductor sales ticked up on a month-to-month basis for the sixth consecutive month in August, demonstrating a slow-and-steady increase in market demand during the middle of the year.”
- [Banned US chipmaking equipment still ending up in China, says report](#)
  - Analysts have questioned the efficacy of the export controls in light of recent advancements at Semiconductor Manufacturing International Corp (SMIC) and Huawei, the report concedes.
  - The existence of a SMIC 7 nm processor in Huawei's Mate 60 surprised some earlier this year as the Chinese chipmaker was previously known for making 14 nm chips at best.
- [Japan prepares US\\$13 bn to support own chip sector](#)
  - As part of a broader blueprint to revive the economy, Tokyo is trying to entice investment into the production of cutting-edge semiconductors critical to future technologies, from artificial intelligence (AI) to self-driving cars. That includes billions of dollars to support TSMC, the industry leader in advanced chip production, and for Rapidus Corp, a local startup that aims to compete in high-end chip production.
- [TSMC's sales jump 35% last month to a new monthly high](#)
  - In Q3'23, 3nm 6% of sales, the 5nm 37%, and the 7nm 16%, advanced technologies 59% of total revenue.
  - *Matt: The margin, and the higher precious metals content too, in the smallest nodes.*
- [TSMC to build 1.4nm fab in Taiwan despite aborted Longtan plan: Chair](#)
  - TSMC began mass production of chips made using the 3nm process in Tainan at the end of 2022, becoming the 1<sup>st</sup> contract chipmaker to roll out chips using such an advanced technology in the world.
  - TSMC has also scheduled commercial production of the 2nm process in Hsinchu for 2025, and it is developing an even more cutting-edge 1.4nm process. *Matt: 1.4nm (or 14 angstroms) is an insane semiconductor line pitch and transistor density.*
  - TSMC is building two advanced wafer plants in Arizona, is working on one wafer fab in Japan and considering the possibility of building another there, and recently announced it would set up a joint venture to erect another wafer fab in Germany.
- [China's largest chipmaker SMIC posts a 80% drop in third-quarter profit](#)
  - China's largest chipmaker SMIC on Thursday posted a 80% profit drop as semiconductor woes persist.
  - SMIC is China's biggest foundry, manufacturing semiconductor chips that other firms design.
  - “In the China market, the high product inventory problem that started in the third quarter of last year has been mitigated and the inventory has decreased to a relatively healthy level,” said SMIC on Friday.
- [Intel's Interest in Glass Core Substrates](#)
  - Intel recently announced that it would use glass core substrates for advanced packaging in the second half of this decade. The company reports it has been researching and evaluating the reliability of glass core substrates as a replacement for organic substrates for more than a decade.

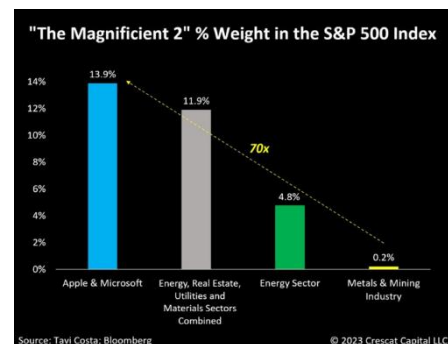
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- *Matt: This could reduce overall PCB demand in favor of new glass substrate technology.*

## Silver

- [Global silver production set to fall in 2023 due to lower Mexican, Peruvian output](#)
  - Global mined silver production is expected to fall 2% year-on-year to 820Moz in 2023, driven by lower output from operations in Mexico and Peru, according to The Silver Institute.
  - “Production from Mexico is expected to fall by 16Moz due to the impact of the suspension of operations at Peñasquito (owned by US firm Newmont) in Q2 and Q3 in response to the labor strike,” the institute underscored.
- [Global Silver Industrial Demand Forecast to Achieve New High in 2023](#)
  - Silver Market Expected to Register Another Sizeable Structural Deficit
  - Silver Industrial demand is expected to grow 8% to a record 632 0Moz this year. Key drivers behind this performance include investment in PV, power grid, 5G networks, growth in consumer electronics, and rising vehicle output.
- [Silver catalysts spark a revolution in affordable fuel cells](#)
  - Researchers at SLAC National Accelerator Lab, Stanford, and Toyota are revolutionizing H<sub>2</sub> fuel cells by substituting costly platinum group metals with more economical silver.
  - The team's innovative approach involves replacing some costly PGMs with a more economical alternative: silver. However, the real breakthrough lies in simplifying the chemical process of applying the catalyst to the cell's electrodes. The conventional method of mixing the catalyst into a liquid and spreading it onto the mesh electrode proved inconsistent in real-world applications
  - Vacuum power: Precision in catalyst deposition. To overcome the reproducibility challenges, the researchers employed a vacuum chamber for controlled (PVD or ALD) depositions of the new catalyst onto electrodes. The collaborative effort proved that substituting silver for some of the PGMs in previous catalysts could achieve an equally effective fuel cell at a significantly lower cost.

## Precious Metals Mining:

- [The Magnificent 2% Weight in the S&P 500 Index](#)
  - It's mind boggling that Apple and Microsoft's weight alone in the S&P 500 are 70x larger than the entire metals and mining industry. That's a reflection of how distressed miners have become.
  - Let us not forget: During inflationary regimes one must strive to find companies with purchasing power to navigate these types of environments. Resource companies, despite facing increased operating costs, have inherent pricing power in their businesses as underlying commodity prices tend to perform exceptionally well during such periods.
- [Sibanye CEO asks shareholders to hang in for 'ah-ha' moment](#)
  - However, the financial strain of projects would eventually ease and result in an “ah-ha” moment when revenue from battery minerals outstripped PGMs.
  - “Where we are in the market currently, especially with PGMs, and as capital expenditure on the Keliber lithium concentrate project ramps up, we will go slowly into a net debt position,” said Charl Keyter, CFO of Sibanye-Stillwater of 2024's outlook.



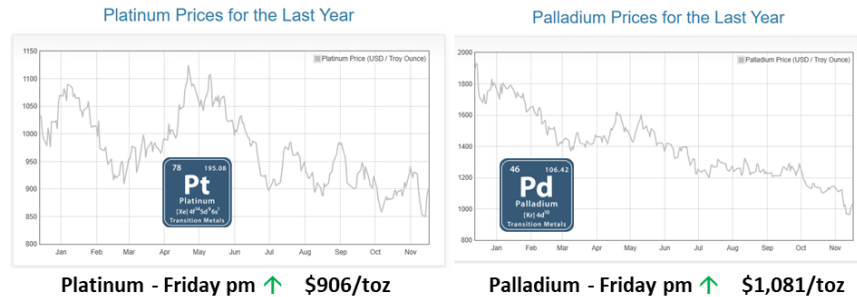
- [Worker dies at platinum and palladium mine in \(Sibaye-Stillwater\) Montana, triggering temporary halt to mining](#)
  - A contract worker has died in a machinery accident at an underground precious metal mine in south-central Montana and work has temporarily stopped while the death is investigated, mine officials said.
  - The worker was preparing an area for future mining early Monday at the Stillwater Mine. He was bolting up wire panels to prevent falling rock when the accident happened, said Heather McDowell, a vice president at mine owner Sibanye-Stillwater.
- [SA Govt to deploy soldiers to curb illegal mining](#)
  - Illegal mining has been a mounting issue of concern for the South African government. Mineral Resources and Energy Minister Gwede Mantashe told lawmakers last year that illegal mining cost the economy R49bn in 2019 and caused mining companies to spend collectively about R2bn annually on extra security.

## **E-Waste & Precious Metals Recycle Related:**

- [So thieves nabbed your catalytic converter. Here is where it ended up. – NY Times Subscription](#)
  - The pollution control devices contain valuable metals, making them a hot commodity for recycling. Some beneficiaries of the thefts look the other way.
  - *Matt: This is a must-read deep dive piece by the NY Times. Some 80+ folks in the PGM Recycle industry were interviewed. It discusses how DG Auto's, the recently indicted and convicted members of the national auto catalyst theft ring who received \$650M in PGM AutoCat outturns over a multi-year period were working with Dowa and materials were processed by Nippon PGM (a 3-way JV with Dowa, Tanaka, and Toyota-Tsusho). All I will say is this topic is far from closed. Reports of the US Dept. of Justices involvement in this case continue.*
- [Johnson Matthey demonstrates new recycling technology for fuel-cell and electrolyzer materials](#)
  - JM announced the successful lab scale demonstration of its new HyRefine technology for recycling H<sub>2</sub> fuel cell and electrolyser materials. While there are established routes to recycle the PGMs, often the ionomer isn't recovered. We believe this is the first ever demonstration of circularity for the PGMs and valuable ionomer together. JM researchers have proven at lab scale that both the PGMs and the ionomer can be recovered and recycled into new catalyst coated membranes – the performance-defining components at the heart of hydrogen fuel cells and electrolyzers. Separate experiments have confirmed that the recycled PGM catalysts match the performance of fresh material.
- [Revolutionizing the e-waste sector through smart recycling](#)
  - FPD Recycling, an Irish cleantech company established in 2019, has developed global proprietary urban mining technology that tackles the disposal of FPDs, and allows us to move away from the current 'take-make-waste' model to a sustainable circular economy, where materials are reused and remanufactured.
  - FPD Recycling has done this by developing robotic and AI-powered automation solutions for the international e-waste recycling sector that are enabling the best possible material recovery rates while making it safer and better for both people and the environment.
- [Nine gold and silver smelting chimneys demolished by BMC in Kalbadevi to combat air pollution](#)
  - This action comes in wake of the steps being taken by the civic body to curb a pollution in the city. Civic officials said the gold and silver smelting processes involves the use of furnaces to melt the metals releasing gasses through the chimney. However, the release of these untreated gasses poses a significant threat to human's health thereby worsening the air pollution hazards." Said a civic official.
- [EPA to label PV panels, lithium-ions as universal waste](#)
  - In response to electric power industry requests, the EPA is looking to classify solar panels as universal waste. The agency is also working to create a category of universal waste specifically for LiB's
  - The Resource Conservation and Recovery Act allows the EPA to regulate management of hazardous waste. Within those regulations, the EPA also developed the classification of "universal waste," which allows for an

alternative set of regulations for certain hazardous wastes. The alternative regulations reduce the regulatory burden by allowing for longer storage of the materials and reduced recordkeeping.

## Platinum



- [Platinum \(PL\) ended correction and turning higher](#)
  - Platinum technical analysis
- **WPIC:** [H<sub>2</sub> fuel cells offer a viable zero-emissions solution for shipping, providing the necessary power & range](#)
  - The International Maritime Organization (IMO), the United Nations' division that governs global shipping, adopted enhanced targets to tackle harmful emissions from shipping. The 2023 IMO Greenhouse Gas Strategy aims to reach net zero by 2050, with a series of ambitious milestones identified to help achieve this goal. These include reducing the total annual GHG emissions from international shipping, when compared to 2008, by at least 20% in 2030 and at least 70% in 2040.
  - Around 90% of everything we consume is moved by sea and maritime transport is responsible for around three per cent of global CO<sub>2</sub> emissions.

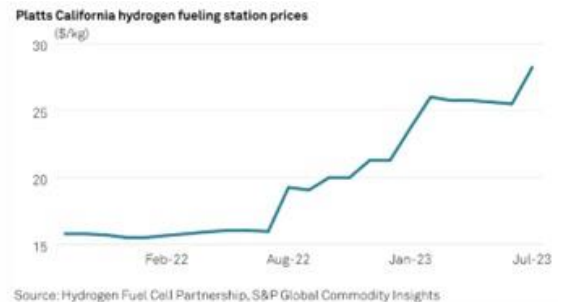
## Fuel Cells/H<sub>2</sub> Economy Related Articles:

- [US to limit hydrogen blending in natural gas pipelines due to leak risk](#)
  - Hydrogen blending in existing pipelines used for natural gas transmission could be limited due to the tendency H<sub>2</sub> has to increase the risk of leakage from those pipelines, according to research results released by the Argonne National Laboratory.
  - Of that estimate from the Argonne National Laboratory, one substantial factor was in its discovery that at the 30% level of H<sub>2</sub> in natural gas, leakage from transmission lines can double.
- [Toyota trials hydrogen-powered \(ICE\) vehicle on public roads in Australia](#)
  - Toyota said Saturday it is conducting trials of a vehicle powered by a H<sub>2</sub> engine in Australia, making it the Japanese automaker's first such test of the environmentally friendly car on public roads toward its commercial use. In the trial from late October through January, a specially modified van from Toyota's HiAce series is being used by local construction and security firms to confirm the vehicle's operability and durability on roads in the suburbs of Melbourne.
  - *Matt: Reported that H<sub>2</sub> Combustion has NO<sub>x</sub> emissions, and I assume an aftertreatment system for same. Can someone close to Toyota confirm. Good to know for Rh demand.*
- [Ammonia fuel offers great benefits but demands careful action](#)
  - In theory, burning ammonia (NH<sub>3</sub>) should yield only harmless nitrogen gas (N<sub>2</sub>) and water as products. But in practice, Michael E. Mueller, associate chair and professor of mechanical and aerospace engineering, stated that ammonia combustion can release harmful NO<sub>x</sub> and N<sub>2</sub>O pollutants.
  - Most N<sub>2</sub>O emissions from ammonia combustion are the result of disruptions to the combustion process. "N<sub>2</sub>O is essentially an intermediate species in the combustion process," Mueller said. "If the combustion process is allowed to finish, then there will be essentially no N<sub>2</sub>O emissions."





- Plug Power has been widely viewed as a win for investors as it has seen explosive growth in its hydrogen fuel cell business, even providing the units for zero-emission vehicles used by giants such as Walmart and Amazon. That said, the company posted \$199 million in sales for Q3 2023, which was notably weaker than expected. It explained the discrepancy by saying that it suffered “unprecedented hydrogen supply challenges” within the North American market.
- Not long afterward, it made a Securities and Exchange Commission (SEC) filing, in which it described that in terms of its predicted capital spending and its current cash position, it was experiencing “substantial doubt about the Company’s ability to continue as a going concern.”
- **Matt’s Research Into the California H<sub>2</sub> Price Climb in 2022/23**
  - *Matt: It ends up the lack of Low Carbon Fuel Standard (LCFS) Credits for these Gray H<sub>2</sub> Streams is what is driving up the price. Essentially a Carbon Tax on dirty sources without these LCFS Credits.*
  - **What are LCFS Credits?** The LCFS aims to reduce emissions in the transportation sector by limiting the carbon intensity (CI) of fuels used. The LCFS program is administered by the Calif. Air Resources Board, which sets targets for the CI of fuels used in the state. Fuels like petroleum are high CI fuels, whereas compressed natural gas, biogas, hydrogen, and electricity used for EVs are low CI fuels.
  - In the LCFS market, low CI fuel producers can register to produce LCFS credits for the amount of fuel dispensed. High CI fuel producers or distributors then purchase those credits to offset the amount of high CI fuel dispensed in their portfolio. The price paid for LCFS credits varies with supply and demand, the amount of low CI fuels generating credits vs. the amount of high CI fuels consuming those credits.
  - **Iwatani Corporation of America Hydrogen Price Increase**
    - In late 2022, Iwatani previously announced an expected retail price increase starting in January 2023 to address the market realities from increasing H<sub>2</sub> costs and very low environmental credit value.
    - Despite this, we chose to maintain H<sub>2</sub> prices at \$24.99/kg for the last 9 months to support FCEV drivers. Unfortunately, key economic drivers, such as the value of environmental credits, have been slow to recover and the current pricing is no longer sustainable. As a result, retail H<sub>2</sub> prices at Iwatani stations will be \$29.99/kg effective October 9, 2023.
    - We continue to work diligently to provide hydrogen that is more reliable, lower carbon, and lower cost. We appreciate your understanding and patience as we build a robust H<sub>2</sub> fueling network together. Sincerely, Your Iwatani H<sub>2</sub> Team

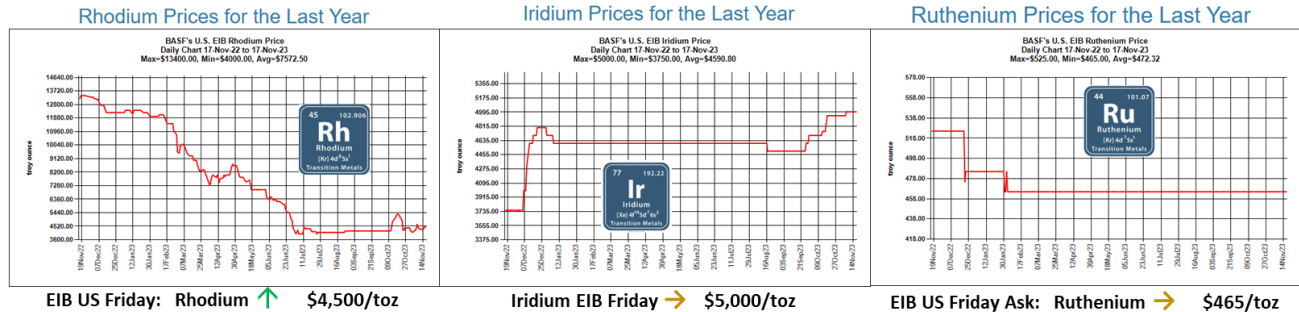


## Palladium

- **Palladium Below \$1,000 - What does the future hold?**
  - What caused the initial decline from May of 2021 was the inability to produce autos caused by the semiconductor shortage. After that it began to become apparent that a robust recovery was not going to be on its way due to a weakening global economic environment. This coupled with the increased supply of palladium from spent auto catalyst recovery and an increase of adoption of electric vehicles combined to put a preponderance of negative pressure on this market.
- **Palladium: How low can it go? | Beresford Clarke | SFA (Oxford)**
  - On Thursday this week, the price of palladium passed through \$1,000/oz for the first time since September 2018. Substitution for platinum in autocatalysts and a less-than-rosy outlook for 2024 autocatalyst demand has contributed to palladium’s ongoing 18-month bear market.

- The palladium price has been in decline since March 2022 after reaching a record intraday high of \$3,420/oz following the invasion of Ukraine and worries that Russian supply would be cut. Sanctions and official embargos on Russian palladium never materialised, and the geopolitical risk premium subsided. As of Friday, the palladium price is trading below \$1,000/oz on the spot market, meanwhile platinum is also testing year-to-date lows at \$850/oz. The PGM basket price has fallen further as a result, and more of the PGM producers' production will feel the pressure on margins and profitability. Against a global recessionary backdrop, near-term support may be technical rather than fundamental, as the price is now oversold.
- [Palladium's slide accelerates on prospects for surplus next year](#)
  - Palladium prices have tumbled to five-year lows below \$1,000 an ounce this week, hastening a retreat triggered by expectations of surpluses due to the rapid spread of electric vehicles and automakers choosing cheaper platinum for their autocatalysts.
- [Palladium falls to a 5-year low – WSJ Subscription](#)
  - Gold prices also slip, erasing some of the past week's strong gains, as the dollar strengthens
  - *Matt: Palladium was this low back in September 2018.*

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



- [Sibanye-Stillwater says \(new Heraeus Ru\) hydrogen catalyst will save iridium market](#)
  - The technology – a ruthenium-based catalyst for Proton Exchange Membrane (PEM) water electrolysis – was developed by Heraeus, a German company that refines PGM concentrate as well as recycling PGMs. Heraeus and Sibanye-Stillwater first teamed in August last year to co-fund over three years technology that, if successful, would be mutually commercialised.
  - Hydrogen-powered fuel cells use a chemical process in which energy is created by splitting water into hydrogen and oxygen. To split the hydrogen atom, however, requires an electrolyser and energy itself. For green hydrogen to happen, this energy has to be renewable power.
- [A counter-consensus argument for PGM prices is beginning to emerge](#)
  - There is, though, a counter-argument emerging suggesting that the sell-off in metals has been too steep.
  - RMB Morgan Stanley analysts say that while there are sound reasons PGM prices have deteriorated as they have, three factors inform a counter-consensus outlook.
    - First, demand for battery electric vehicles (BEVs) may be slowing.
    - Secondly, recycling of PGMs is slowing as a result of lower new vehicle sales amid tightening economic conditions.
    - Thirdly, the adoption of minor PGMs iridium and ruthenium in hydrogen technology could see these scarce metals provide the kind of uplift the market saw with rhodium.
- [New approach to water electrolysis for green hydrogen](#)
  - In the field of water electrolysis catalysis research, the primary catalysts under scrutiny are iridium, ruthenium (Ru), and osmium (Os). Iridium, despite its high stability, exhibits low activity and comes at a



steep price. Conversely, ruthenium displays commendable activity and is a more cost-effective option compared to iridium, although it lacks the same level of stability.

## Clean Energy General News



- [Glencore to Lead \\$9 Billion Deal to Buy Teck's Coal Division](#)
  - Nippon Steel, Posco would take minority stakes in business
  - Glencore had earlier tried to acquire all of Canadian miner
- [Glencore Built Its Empire on Coal. Now It's Preparing to Say Goodbye – Bloomberg](#)
  - Commodity giant plans split after buying Teck coal business
  - New, combined spinoff company will be listed in New York
  - Glencore Plc made its name, and minted a generation of billionaires, in large part by mining and trading coal. Its former chief and biggest shareholder Ivan Glasenberg once said the world was “horny as hell” for the fuel.
  - Now it's getting ready to get out.
  - The commodity giant has come under growing pressure to stop producing the dirtiest fuel, even as profits from its mines hit eye-watering levels over the past two years. This week, the company laid out its solution: buying a suite of steelmaking coal mines from Canada's Teck Resources Ltd., to create an even bigger coal company that Glencore will eventually hand over to its own shareholders.
- [The false promise of green jobs](#)
  - Modern industrial policy reflects conflicting aims
  - Politicians across the rich world agree that industrial policy—wheezes which aim to alter the structure of the economy by boosting particular sectors—deserves to make a comeback. Just about all agree that it should focus on climate change. But is there actually any logic to combining the two? Industrial policy seeks prosperity in the form of economic growth and jobs; climate policy seeks lower emissions and the prevention of global warming. Marrying two aims often means neither is done well. As politicians pour trillions of dollars into green industrial policy, they will increasingly have to choose between the two objectives.
- [Vital Metals shifts focus to Tardiff deposit with new Chinese investment](#)

- Australian-owned Vital Metals commenced REE operations at Nechalacho in 2021. Until recently, Vital Metals had plans to build a processing facility in Saskatoon. Processed assets would then be sold to Norwegian firm REEtec before being further processed and moved to other parts of Europe for various uses. However, in late September, after spending millions of dollars on the construction of the Saskatoon plant, the company made a stunning revelation. “In summary we’ve demonstrated that the Saskatoon facility doesn’t make economic sense for us to operate, so we’ve decided to terminate that facility”. “We’ve placed the holding company, Vital Metals Canada Ltd. into bankruptcy and we’ve terminated our offtake agreement with REEtec.” Weeks later, in late October, Vital Metals unveiled what it called a “cornerstone investment” from a Singaporean subsidiary of Chinese REE company Shenghe Resource Holdings. The investment “will allow the company to establish a new leadership team, and to progress development of the large-scale Tardiff deposit,” stated the news release announcing the deal.
- *Matt: How is giving China more control over Canadian REEs going to help global REE markets?*

## BEV / LiB Mineral & Battery Market News

Lithium Prices for the Last Year



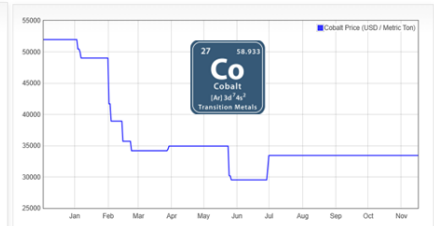
Friday: Lithium ↓ \$19,765/mt

Nickel Prices for the Last Year



Friday: Nickel ↓ \$16,772/mt

Cobalt Prices for the Last Year



Friday: Cobalt → \$33,420/mt

- **[Prime minister, B.C. premier announce \\$1B battery plant to be built in Maple Ridge](#)**
  - A lithium-ion battery cell production plant costing more than \$1 billion will be built in Maple Ridge, B.C., Prime Minister Justin Trudeau and Premier David Eby jointly announced on Tuesday.
  - The B.C. government will contribute up to \$80 million, while the federal government plans to contribute up to \$204.5 million to the project. E-One Moli and private sources will supply the rest of the funding.
- **[The cost of coverage](#)**
  - Recycling companies say property insurance has become significantly more expensive and difficult to find as providers shy away from fire risk and other complications.
  - Kristin Poffenberger, Sr. VP at Eureka Recycling, a mission-based hauler and MRF operator in Minnesota, said, “There’s a gap in what carriers have the capacity to cover and what industry needs are, and that’s also increased premium rates for everybody.”
  - Eureka’s insurance broker has been seeing 30% to 40% rate increases on properties that have not had a claimed insurance loss in the last five years. Eureka has also been seeing rate increases on insurance for its fleet of trucks. “It’s been a wild ride,” she said.
  - “Premiums are high and there’s only a few carriers to choose from,” said Shannon Dwire, president of Millennium Recycling. “Those who have had fires tend to lose their coverage,” she said.
- **[Biden-Harris Administration Announces \\$3.5 Billion to Strengthen Domestic Battery Manufacturing](#)**
  - In this funding opportunity, DOE is prioritizing next-generation technologies and battery chemistries, in addition to lithium-based technologies. Other new focus areas include precursor production and manufacturing for specialized, non-light duty markets. DOE is also calling for projects that will increase separation of battery-grade critical materials, expand production facilities for cathode and anode materials production, and expand battery component manufacturing facilities (i.e., projects that will attract further investment into topic areas solicited in the program’s first phase).
  - Concept papers, which are required, are due January 9, 2024. Full applications are due March 19, 2024.

- [Battery recycler nabs millions to scale up tech](#)
  - “The plasma-based direct recycling technology will enable the sustainability of the EV battery supply chain and, as Honda strives to achieve 100% use of sustainable materials by 2050, we envision that this technology has a great potential,” Ozawa said in the press release. “Honda will continue to search for, collaborate with and invest in various venture companies with a promising future.”
- [Price falls position lithium market for longer term bounce back](#)
  - Lithium prices are susceptible to high levels of volatility. Recent overcapacity in the energy storage sector — the second-biggest consumer of lithium — has eroded margins and weighed on prices.
- [EViF memo: Volvo tops the EV optimism chart](#)
  - Gloomiest to Optimistic OEMs
  - GM and Ford both are singing from a difficult demand and delayed ramp-up song sheet.
  - EV pure play start-up Lucid is also down in the dump and looking at potentially pivoting its business model.
  - Mercedes is also falling out-of-sorts about BEVs, mainly on the grounds of "brutal" competition.
  - Elon Musk was pretty gloomy, particularly about macro conditions, but also, of course, about Cybertruck.
  - Polestar is generally pretty upbeat but needs more cash and has inventory concerns.
  - BMW is growing its BEV sales but analysts are worried about margins.
  - Renault is excited about the Ampere spin-out but it is unproven.
  - Volkswagen has a scantier European BEV order book but argues that doesn't tell the whole story.
  - Rivian and Fisker are also happy enough — the former promising better economics on cost reductions, the latter seeing itself winning on price.
  - Volvo is feeling chipper, on the back of a rebound in margins and a clear-eyed BEV+hybrids strategy.

**Regards – Matt**

44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver
76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold

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