



## Weekly Precious Metals News Articles: May 20, 2022

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### Below is a cross section of relevant news article to the world of Precious Metals:

Markets, Supply & Demand, Investment, and Industrial Applications.

**Printable PDF version attached.** Enjoy-

### Gold

- [Gold rallies over 1.5% as dollar, yields slide](#)
  - Gold rose over 1.5% on Thursday as a slide in the dollar and Treasury yields burnished bullion's safe-haven appeal after weak U.S. jobs numbers compounded economic concerns.
- [Guide to the Gold ETF Investing](#)
  - As rates are rising this year in the United States, the U.S. dollar has been gaining strength. This is a negative for gold as the metal is priced in the U.S. dollar. Hence, the metal shares an inverse relation with the greenback.
  - Gold has the potential to hit \$2,500 an ounce and average \$2,000 an ounce in 2022 from the current level of \$1813, according to the updated outlook from MKS PAMP, as quoted on kitco.com.
- [Daily Gold News: Friday, May 20 – Gold Price Broke Above Short-Term Trading Range](#)
  - The gold futures contract gained 1.39% on Thursday, May 19, as it broke above its short-term trading range after bouncing from the \$1,800 price level again. On Monday the market reached new local low of \$1,785.00, but it closed above the \$1,800 level. Gold retraced almost all of the February-March rally on strengthening U.S. dollar, Fed's monetary policy tightening fears. So it went back to the \$1,800 level where it's been fluctuating for months in 2021.
- [Mapped: The 10 Largest Gold Mines in the World, by Production](#)
  - Top 10 producers

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

- [Wafer Shortage Improvement In Sight For 300mm, But Not 200mm](#)
  - Suppliers are investing new 300mm capacity, but it's probably not enough. And despite burgeoning 200mm demand, only Okmetic and new players in China are adding capacity.
- [China supply woes hit PC Production: Acer](#)
  - PC vendor Acer yesterday said that lockdowns in China to control COVID-19 upended key component supply and disrupted PC production, although chip shortages have been improving.
  - “Semiconductor shortage was the biggest problem in the first half of last year,” Chen said. “Now, we are beset by a supply chain issue caused by China's lockdowns.”
- [China's Suffer Heavy Setback in Semiconductor Output](#)

- China has suffered a major setback as its semiconductor output shrank 12.1% to 25.9 billion units in April, its lowest since December 2020. Disrupted supply chains amid logistics issues have paralyzed some of the country's largest manufacturers.
- "China's monthly output of semiconductor chips shrank to its lowest level since 2020, as strict lockdowns in Shanghai and other cities disrupted production in downstream industries from cars to robotics," quoting data released by the National Bureau of Statistics.
- According to the Shanghai Automobile Dealers Association, not a single vehicle was sold for the whole month of April while normally about 4,000 vehicles are sold daily in the city.
- In April last year, local chip output surged 29.4% y/y to 28.6 billion units.
- **US, EU to boost coordination on semiconductor supply**
  - The industry has suffered from a shortage of components for chipmaking, blamed on a boom in global demand for electronic products and pandemic-snarled supply chains.
  - "We hope to agree on high levels of subsidies — that they will not be more than what is necessary and proportionate and appropriate," European Commissioner for Competition Margrethe Vestager told reporters on Sunday.
- **Samsung set to raise chip prices by up to 20 percent**
  - The war in Ukraine, China's lockdown measures, rising interest rates and inflation have thrown a wrench into business plans made years in advance.
- **A semiconductor CEO explains how Shanghai's 7-week lockdown is crippling his supply chain and fueling inflation**
  - A lot of our product is not available because it is not being manufactured or is not readily shipped from Shanghai," says Ganesh Moorthy, CEO of Microchip Technology, a firm that makes a range of semiconductor chips used in cars, industrial machines, and computers. Microchip has a complex, global supply chain, but many of Microchip's key suppliers are in the Shanghai area, Moorthy says. "It's all happening at a time when the industry is fully stretched and has no buffer to deal with these things," he notes.

## **Silver**

- **Chinese PV Industry Brief: China's cumulative PV capacity tops 322 GW**
  - China's National Energy Administration (NEA) has revealed that newly installed PV capacity for April in the country amounts to 3.66 GW – representing a 23% increase compared to April 2021. It also revealed that year to date in 2022, new PV systems installed in China total 16.88 GW. Overall, the country's cumulative PV capacity reached 322.57 GW at the end of April.
- **Chart Of The Day: Will Silver Manage To Break \$22 Resistance?**
  - Silver has already created a few bullish technical signals to suggest the low might be in, but a convincing break above key resistance in the shaded region around \$22.00-ish is now needed.
- **Silver Price Forecast – Silver Markets Pull Back From the Crucial \$22 Level**
  - Silver markets have fallen rather significantly during the trading session on Friday as the \$22 level continues to cause quite a bit of resistance.
- **Novel zeolites-silver catalyst boosts formaldehyde oxidation at low temperatures**
  - Detached acidic-ZSM-5-activated formaldehyde could generate gaseous intermediates of methyl formate, which was more easily oxidized by subsequent components (Ag). The Ag component would inevitably adsorb unreacted formaldehyde molecules and thereby led to lower methyl formate oxidation activity when the two components were packed too close.
  - The methyl formate oxidation on Ag components obtained high activity by suppressing the formation of dioxymethylene (DOM), which was hard to be further oxidized. Compared to that of monofunctional supported silver catalyst, the formaldehyde conversion was increased by 50 times (100% vs 2%) at 70°C.

## **Precious Metals Mining:**

- **[Sibanye-Stillwater hoists first tons from R3.9bn Marikana K4 project](#)**
  - Marikana K4 project will produce about 250,000 Toz 4E PGMs a year at a steady state for an estimated 50 years of mine life, accessing both Merensky and UG2 reefs which are rich in platinum and palladium.
  - Lonmin shut the project owing to financial distress. Sibanye-Stillwater bought Lonmin in 2019 but kept K4 in mothballs whilst it extracted cost savings from Lonmin's producing assets. The improvement in PGM prices underpinned the re-opening of K4.
- **[SA platinum production to fall below pre-Covid-19 levels in 2022 as risk of strikes looms](#)**
  - Processing outages in 2019 and 2020 at the facilities of Amplats resulted in a build-up of inventory totaling about a million ounces. Most of these ounces had been cleared by the end of 2021.
  - Wilson was commenting in the WPIC first quarter report on supply and demand in the sector as well as the outlook for the remainder of 2022. He added that combined with a massive drop in recycled material it was likely that supply would be constrained supply for the coming months while demand continues to grow. The WPIC forecast a reduction in its previously forecast surplus to 627,000 ounces. This compares to a platinum surplus in 2021 of 1,13 million oz.
- **[Anglo is determined to be the tip of the spear that transforms the mining sector](#)**
  - By using more precise technologies, less energy and less water, and by making 'zero harm' a working reality rather than a corporate cliché.

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

- **[Recycling more precious metals from nuclear and electronic waste using the Picasso pigment, Prussian blue](#)**
  - A big problem with the disposal of nuclear and electronic wastes is that the process wastes precious metals such as gold and platinum-group metals, which are key metals in computer chips. Researchers from Nagoya University in collaboration with those from the Tokyo Institute of Technology have discovered that a solution to this pressing environmental and technological problem may lie in a pigment named Prussian blue. Using their technique, gold could be extracted from electronic waste, such as smart phones, in amounts 10 to 80 times greater than can be obtained from natural ores.
- **[Why renewable energy infrastructure needs to be built for a circular economy](#)**
  - We need to talk about renewables: Part 1
  - The renewable energy sector promises to tap into limitless sources of energy while tackling pollution and climate change. However, the materials needed to capture and store this energy are finite. As the industry scales at pace, renewable infrastructure designed within a 'take-make-waste' linear system could contribute to greenhouse gas emissions and biodiversity loss. To prevent this solution becoming a problem, renewable energy infrastructure needs to be built for a circular economy.
  - While these critics are not without their own agendas, it is certainly true that as the wind industry grows this problem is set to extend – it is estimated there will be 43 million tonnes of wind turbine blade waste by 2050, and the blades landfilled in Wyoming will not be the only example of waste from the renewable energy sector entering the environment. Lithium-ion battery waste is predicted to reach 2 million tonnes annually by 2030 and the International Renewable Energy Agency (IRENA) estimates that there will be up to 78 million tonnes of solar panel waste by 2050.
- **[Recycling Critical Metals In E-Waste: Make It The Law, Experts Warn EU, Citing Raw Material Security Issues](#)**
  - The project says the following equipment categories contain CRMs in concentrations high enough to facilitate recycling:
    - Printed circuit boards from IT equipment, hard disc drives and optical disc drives
    - Batteries from WEEE and end of life vehicles

- Neodymium iron boron magnets from hard disc drives, and electrical engines of e-bikes, scooters and end-of-life vehicles (ELVs)
  - Fluorescent powders from cathode ray tubes and fluorescent lamps
- Recovery technologies and processes are well established for some CRMs, such as palladium from printed circuit boards or cobalt from lithium-ion batteries.
- **[Regulators: Tough markets justify paying recyclers more](#)**
  - The California Department of Resources Recycling and Recovery (CalRecycle) will raise the per-pound payments it provides to e-scrap companies that recycle electronics covered by the state program.
  - Citing the rising costs of doing business, high inflation, trade impacts from the war in Ukraine and other reasons, CalRecycle decided to raise the CRT recycling rate from 66 cents to 85 cents per pound and the non-CRT rate from 87 cents to \$1.03 per pound. The changes go into effect July 1.
- **[Novelis unveils plans for \\$2.5B aluminum recycling plant](#)**
  - The largest U.S. recycler of used beverage cans (UBCs), on May 11 announced it will build an aluminum recycling and rolling facility in Bay Minette, Alabma. The facility, which will utilize renewable energy, will have an initial production capacity of 600,000 metric tons of finished aluminum goods per year.
  - According to Novelis, the \$2.5 billion plant will be the first fully integrated aluminum mill built in the U.S. in four decades.

## **Platinum**

- **[WPIC: Platinum Quarterly Q1 2022](#)**
  - Total platinum demand fell 10% (-168 koz) quarter-on-quarter in Q1'22, with strong automotive demand offset by an expected decline in industrial demand from record levels in 2021, as well as continued weakness in jewelry and negative platinum investment.
  - The strength in automotive demand is notable considering production capacity constraints due to the ongoing semiconductor shortages and the negative effects of Russia's invasion of Ukraine, and reflects increased loadings and ongoing substitution for palladium in gasoline vehicles. Jewelry demand remains weak, with strength in all regions partly offset by ongoing COVID lockdowns and competition from gold jewelry in China. Meanwhile, industrial demand was down versus Q1'21 as expected due to fewer capacity additions, especially in glass, although overall it remains at historically strong levels.
- **[Johnson Matthey publishes latest PGM Market Report, 2022](#)**
  - Platinum demand growth will be driven by rising consumption in catalysts for heavy duty trucks, and increased use of platinum in gasoline autocatalysts. South African platinum supplies will contract by 9%, with plant maintenance at the country's two largest PGM refiners, and mining activity hit by operational challenges. Industrial demand will remain robust, although it will retreat from the record levels seen in 2021 when Chinese glass companies purchased unusually large quantities of platinum.
  - JM's report shows that the palladium and rhodium markets could move back into deficit in 2022, with lower South African supplies and downside risks to Russian shipments. Demand growth will be constrained by weak vehicle output, and cost-saving programmes by auto and industrial consumers.
- **[The Platinum Standard 2022](#)**
  - This year's "The Platinum Standard" covers the following topics:
    - BASF and Heraeus' new PGM recycling joint venture.
    - Zimplats' PGM operations in Zimbabwe.
    - How global events and supply chains could hold back automotive electrification.
    - The PGM markets roundup and outlook for 2022
- **[Platinum jewellery continuing to drive 25% of platinum demand](#)**

- Several reports published during Platinum Week indicate that in 2021, platinum jewellery consumed anywhere between 1.6-million ounces to two-million ounces of platinum, which makes it still the second highest demand source after automotive, coming in at around 25% of total platinum demand.
- [Weak demand for platinum evened out by PGM supply pressure - Johnson Matthey](#)
  - JM wrote that platinum demand growth will be driven by rising consumption in catalysts for heavy-duty trucks and increased use of platinum (in place of palladium) in gasoline autocatalysts.
  - "South African platinum supplies will contract by 9%, with plant maintenance at the country's two largest PGM refiners and mining activity hit by operational challenges. Industrial demand will remain robust, although it will retreat from the record levels seen in 2021 when Chinese glass companies purchased unusually large quantities of platinum," wrote the report's authors.
  - "Johnson Matthey's report shows that the palladium and rhodium markets could move back into deficit in 2022, with lower South African supplies and downside risks to Russian shipments. Demand growth will be constrained by weak vehicle output, and cost-saving programmes by auto and industrial consumers."

### **Fuel Cells/Hydrogen Economy Related Articles:**

- [SPECIAL REPORT | Why shipping pure hydrogen around the world might already be dead in the water](#)
  - Physics and cost mean that ammonia is a far more economic option for long-distance seaborne transportation, writes Leigh Collins
- [5 Signs the Green Hydrogen Economy is Just Getting Started](#)
  - Here are five key developments that have been sailing under the media radar: Electrofuels, Green Steel, Power generation and energy infrastructure, The green hydrogen-green ammonia connection, New electrolyzer technology
- [LONGi Hydrogen scores the biggest green hydrogen project in the world](#)
  - The total investment into this China energy deal will be as high as \$442,021,500 for the construction of a new 300 MW photovoltaic power plant as well as an (Alkaline) electrolytic water hydrogen production plant for the generation of 618 million kWh of renewable electricity and 20,000 tons of renewable H<sub>2</sub> per year.
- [Cummins partners with Freightliner on hydrogen fuel-cell truck](#)
  - This partnership will result in a Freightliner Cascadia upfitting with a fourth-generation Cummins hydrogen fuel-cell powertrain. Once the equipment has been adequately tested and verified, the first units are expected to be available for shipping to customers as soon as 2024.
  - Cummins is also working with Air Products on the development of the zero-emission technology for its H<sub>2</sub> transportation fleet. Following the testing and development stages, the fleet is seeking to convert 2,000 trucks to be powered by H<sub>2</sub>. Those companies announced last year that they are also seeking to enhance the H<sub>2</sub> fueling infrastructure.
- [After Toyota's Mirai, the Japanese auto giant zeroes in on hydrogen buses and heavy-duty trucks](#)
  - In 2014, Toyota launched the Mirai, a hydrogen fuel cell sedan.
  - Alongside the Mirai, Toyota has had executed on development of larger H<sub>2</sub> fuel cell vehicles.
  - While the Japanese firm looks to push ahead with plans for vehicles that use H<sub>2</sub>, other influential voices in the automotive sector are not so sure.

## Palladium

- [Platinum Group Metals Market to Tighten on Global Supply-Chain Disruptions](#)
  - Palladium production excluding Russia is also expected to fall to 4 million ounces this year from 4.1 million ounces in 2021. Russia makes up close to 40% of global palladium supply, creating greater uncertainty as to the metal's output compared with other PGMs.
- [Palladium ETF Strengthens on Predictions of a Global Deficit](#)
  - Palladium exchange traded fund shined on Monday as the precious metal is expected to slip back to a deficit this year.
  - The abrdn Standard Physical Palladium Shares ETF increased 4.9% on Monday while the palladium spot price was up 4.9% to \$2,041.6 per ounce.
- [Palladium to swing back into deficit, platinum surplus to fall -Metals Focus](#)
  - Improving demand and lower supply will help palladium and rhodium swing back into deficit this year and reduce platinum's surplus, consultants Metals Focus said on Monday.

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

- **Ruthenium:** [Researchers design process to extract ammonia and fertilizer from industrial wastewater](#)
  - Ruthenium-copper catalyze a more environmentally friendly way to produce essential chemical.
- **Iridium and Platinum:** [Plug Power Bags Largest Electrolyzer Installation Order in the World](#)
  - Hydrogen fuel cell systems developer Plug Power Inc. recently revealed that it had bagged an order to supply a one 1GW electrolyzer to European hydrogen company H<sub>2</sub> Energy Europe.
  - The impending installation of the electrolyzer, which will be used for a green hydrogen production complex in Denmark, will make this the largest electrolyzer capacity installation globally.
- **Iridium and Platinum:** [Shell could quadruple H<sub>2</sub> portfolio in months as CEO claims 'we're making most progress'](#)
  - Van Beurden says supermajor 'very close' to major investment decisions in European H<sub>2</sub> sector.
  - The Shell chief said the company was making "very good progress" with Dutch authorities over plans for a 200MW green hydrogen electrolyser in Rotterdam, noting that the group had recently switched on a 20MW system in China to supply fuel cell vehicles at the Winter Olympics.
- **Iridium:** [A new method can convert solar energy into useful hydrogen](#)
  - The new study indicates that using a photocatalyst under simulated sunlight, when loaded with an appropriate metal catalyst (in this case iridium), promotes the decomposition of water into widely usable hydrogen.

## Clean Energy General News

- [IEA: Critical Minerals for the Energy Transition: Rare Earth Elements](#)
  - 46-page Technical Paper on REE's: Supply and Demand
  - REE's are actually fairly abundant, but processing is very difficult. China >90% REE processing today.
  - Rare earth metallurgy, including separation, metal making, casting and magnet making, are technologically challenging. This poses limits to the entry of new suppliers.
  - The average hybrid or EV uses between 2 kg and 5 kg of permanent magnets, depending on its design. The permanent magnets in the motors cost \$300+ per vehicle, or up 50% cost of the entire motor.
- [Copper stocks are building again, weighing on prices](#)
  - After a brutal two weeks that saw the copper price at an 8-month low, the bellwether metal bounced on Friday, but a new report says headwinds will only get stronger over the rest of the year.
- [Woburn startup aims to break China's grip on rare metals](#)

- Balladon's company plans to extract valuable minerals from the rubble left over by most mines, known in the industry as "tailings." The team is developing methods to capture everything from iron to aluminum to silica. But for starters, Phoenix is focused on the rare earths, exotic metals with names like neodymium and dysprosium.
- REEs are found all over the world, but in extremely low concentrations that make it very hard to refine the stuff. Existing methods use massive amounts of energy and require highly toxic chemicals such as hydrochloric acid. One metric ton of REE's metal generates about 2,000 tons of waste matter. But the government of China has been willing to tolerate this massive pollution problem. That's one reason China now dominates in the production of REEs with about 80% of the global market.
- **[June 2022 start for Vital Metals to produce mixed rare earth carbonates with feed from its own mines](#)**
  - Vital Metals Limited is a rare earths ore producer from their Nechalacho Rare Earths Mine in the Northwest Territories (NWT), Canada. The focus to date has been on the high-grade, light rare earths, found in the bastnaesite mineralization there.
  - Vital has off-take agreements with REEtec in Norway and with Ucore Rare Metals in the USA. In some good recent news, offtake buyer, REEtec, signed a supply agreement with large OEM automotive supplier, Schaeffler, thereby potentially securing Vital's revenue from the sale of its product to REEtec.
  - Vital is currently constructing a Saskatoon, Saskatchewan, based cracking and leaching facility, with first feed to the facility expected in June 2022. Vital aims to produce a minimum of 5,000 tons annually of contained REO by 2025 at the Nechalacho Mine.
- **[Can hydrogen generation technology bridge the energy gap?](#)**
  - Grid-independent hydrogen generation can have an immediate impact for energy operators. As more large extraction and production companies start reporting on their emissions – and as more companies within the hydrocarbon industry set out ambitious emissions reduction targets – priorities have shifted. Reducing emissions associated with the extraction of hydrocarbons is now high on the industry's agenda.

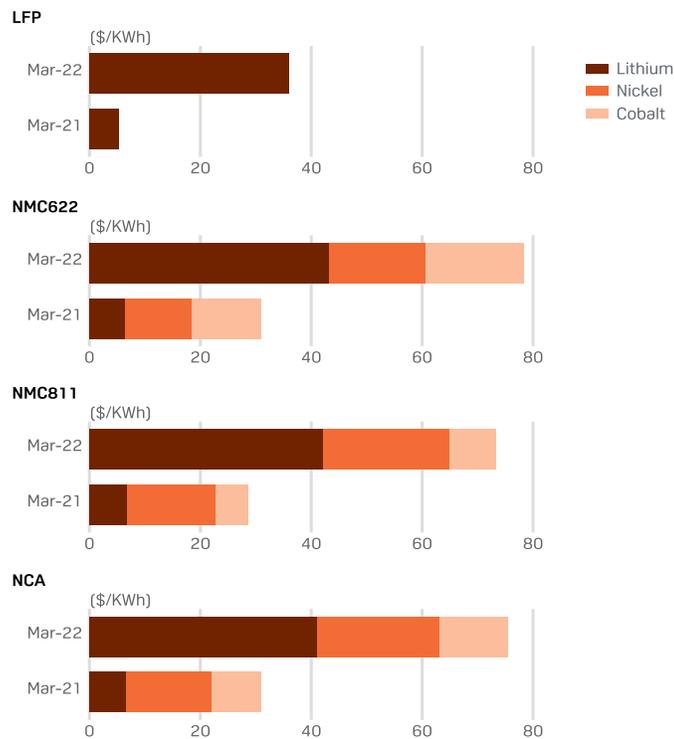
## **BEV / LiB Mineral & Battery Market News**

- **[Indonesia's Jokowi meets Tesla's Musk after nickel talks](#)**
  - Indonesia has the world's biggest nickel reserves, and Jokowi is keen to develop a nickel-based EV industry at home - from making nickel metal, to producing battery components and assembling EVs. In the past, he has also urged Musk to consider a rocket launch site in Indonesia.
  - A consortium led by South Korea's LG, the global No. 2 maker of EV batteries, announced plans last month to invest \$9 billion in Indonesia as part of a deal that would include everything from nickel refining to producing battery cells in Indonesia.
  - LG's rival, China-based CATL, a Tesla supplier, announced a \$9-billion Indonesia investment in April.
- **[Column: Nickel demand boomed in 2021; this year it will be supply](#)**
  - Global nickel usage surged by an extraordinary 16.2% last year on the back of booming demand from both the dominant stainless steel and fast-growing battery end-use sectors.
  - The result was a supply shortfall of 168,000 mt, the largest production deficit in at least a decade, according to the International Nickel Study Group's latest statistical snapshot on the market.
  - The group expects usage to grow another 8.6% this year, exceeding 3.0 Mt for the first time ever.
  - However, even that fast rate of expansion won't match what the INSG expects to happen on the supply side. It is forecasting a massive 18.2%
- **[Tin: The 'forgotten' element in the battery metal space](#)**
  - Tin demand is expected to ramp up due to global electrification. About 50% of consumed tin is used in solder, with very few available substitutes and a low sensitivity to tin price, according to TinOne. The

International Tin Association forecasts tin demand to increasing from 2% to 3-4% over the next decade due to 5G roll-out and energy transition.

- [Bigger batteries in EVs could lead to colossal boost in particulate emissions—from tires, study suggests](#)
  - The study comes from Emissions Analytics, a U.K.-based independent emissions testing firm. It first began sounding the alarm in 2020, publishing a study showing that tire-wear particulate emissions were 1,000 times worse than tailpipe emissions.
- [Analysis: Lithium Industry Needs \\$42 Billion to Meet 2030 Demand](#)
  - In 2030, Benchmark forecasts lithium demand will reach 2.4 Mt LCE. This is almost 1.8 Mt more than the 600,000 tonnes of lithium Benchmark forecasts will be produced in 2022.
  - Benchmark estimates that the lithium industry needs \$7 billion of investment each year from now until 2028 to meet the 2030 lithium demand
- [Nornickel first to receive Russian authorities' permission to retain listing abroad, valid for one year](#)
  - #Nornickel is the first Russian company to receive government approval to retain listing on foreign #stockexchanges.
  - Nornickel welcomes the decision of the Government Commission on Control of Foreign Investments as it gives us time to explore available opportunities and consider steps to support our long-term #investment appeal
- [Is LFP still the cheaper battery chemistry after record lithium price surge?](#)
  - Steep rises in battery raw materials prices since the start of 2021 are causing speculation over either demand destruction or delay and have led to the belief that automotive companies could move to the cheapest option for their electric vehicles.

**BATTERY PACK COSTS: NCM vs LFP**



Data as of April 1, 2022  
 Sources: S&P Global Market Intelligence; S&P Global Commodity Insights; Argonne National Laboratory; International Energy Agency; Shanghai Metals Market

Regards –