



Weekly Precious Metals News Articles: May 27, 2022

Distribution: If you no longer wish to be on this mailing list, send me a note. If others want to be added to distribution, again let me know.

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

- [Can Gold Nanomaterials Successful Boost Cancer Treatment?](#)
 - The efficient treatment of cancer using gold-based nanoparticles of various shapes and sizes has been reviewed and presented in the study published in the MDPI journal Nanomaterials.
- [Investors Should Take a Look at a Gold Miner ETF](#)
 - Global forces are pushing gold prices higher, and investors can turn to smart gold miner exchange traded fund to capitalize on these price moves.
- [Historical Review: Gold Should Lead The Stock Market Higher](#)
 - Gold remains inexpensive vs. the pricing of other assets. It is once again performing as a smart hedge during 2022's bear equity phase.
 - Gold has a history of leading equity pricing higher at major bottoms in the stock market.
 - Record negative adjusted interest rates vs. spiking inflation should continue to support gold outperformance vs. other asset classes.

Semiconductor Related Articles (impacting Precious Metals electronics):

- [Intel CEO Expects Chip Shortage to Persist Through 2024](#)
 - Intel CEO Pat Gelsinger believes that the two-year shortage of chips that's limited output of products ranging from cars to advanced weapons will continue through 2024.
 - "Chip shortage — we're about halfway through," Gelsinger said in an interview with Yahoo Money on the sidelines of the World Economic Forum in Davos, Switzerland. "My expectation is that it persists through 2024."
- [MediaTek to ship 5G car chips this year](#)
 - MediaTek said it would ship the first 5G chips for vehicles to customers in the Asia-Pacific region by year end, as it moves to expand the reach of its 5G chips beyond smartphones.
 - The Hsinchu-based chip designer said it has been developing 5G chips for connected vehicles for the past few years, targeting applications such as telematics and information systems.
 - "We are seeing demand for 5G technology from numerous makers of connected cars, including electric vehicle makers. We have obtained numerous orders from automakers to supply 5G modem chips with highly integrated features," J.C. Hsu, MediaTek
- [TI breaks ground on 300mm wafer fabs in Texas](#)

- Production from the first Sherman fab is expected in 2025. The fabs will complement TI's existing 300mm fabs, which include DMOS6 (Dallas), RFAB1 and the soon-to-be-completed RFAB2 (both in Richardson, Texas), which is expected to start production later this year. Additionally, LFAB (Lehi, Utah) is expected to begin production in early 2023.
- [Electronics are set to get even more expensive as chip giants hike their prices](#)
 - The world's biggest foundries, including TSMC, Samsung and Intel, are considering further price hikes, analysts told CNBC. The foundries are increasing their prices because it's becoming more expensive for them to fund their growing operations.
 - Forrester analyst Glenn O'Donnell told CNBC that rising chip prices should surprise nobody in the current economic climate, adding that he expects prices to rise about 10-15%, or roughly in line with inflation.
- [Semiconductor packaging will take lead in supply chain localisation, say veterans](#)
 - (Nationalization) and localization packaging services, placing semiconductor wafers in casings and getting it ready for shipping, would take off first, given relatively lower requirement in technology and investment.

Silver

- [Silver Demand Forecast to Increase Five Percent in 2022](#)

This year, the outlook for silver demand remains bright, with a 5% increase seen due to industrial fabrication, according to Metals Focus. Meanwhile, the global supply is forecast to rise by 3%.
- [Heterojunction solar cell with 25.18% efficiency, 85.42% fill factor](#)
 - The scientists have found that boron doping, which stems from weakly bound hydrogen atoms, plays a crucial part in the formation of metastable hydrogen configurations in the a-Si:H films. Under standard illumination conditions, the solar cell achieved a power conversion efficiency of 25.18%, an open-circuit voltage of 749 mV, and a fill factor of 85.42%, which the scientists described as the highest values among two-side contacted silicon solar cells.
 - *Matt: SHJ Solar Cell tech. uses twice the silver loadings that today's conventional cells. Achieving nearly a 50% bump in electrical efficiency warrants that added front and back side silver costs.*

Precious Metals Mining:

- [NUM urges Gwede Mantashe to revoke Sibanye-Stillwater's mining rights in gold sector](#)
 - "With poor black mineworkers on strike for almost three months demanding a mere R1 000 and 6% in living wages, Sibanye-Stillwater continues to show workers a middle finger. The company is even boasting it has enough money to fight a strike and stop production for years, which on its own gives the DMRE minister power to suspend or cancel rights, permits or permissions to mine," Mabapa said.
- [AMCU says wage deal agreed with Anglo Platinum](#)
 - 'The agreement has been reached in-principle and we are about to sign the offer.'
- [Amplats agrees 6.6% average wage hike for employees in new, five-year deal](#)
 - "We believe this multi-year agreement will enable our business to remain sustainable through PGM (platinum group metal) price cycles, while also ensuring that our people are rewarded for their work as we seek to deliver enduring value for all our stakeholders across society," said Amplats CEO, Natascha Viljoen. "Anglo American Platinum remains committed to reaching a mutually beneficial settlement with our stakeholder unions that ensures employees continue to be fairly rewarded for their work," said Amplats spokeswoman, Nomonde Ndwalaza in a statement.
- [Nornickel expects mild deficit of palladium, surplus of platinum and nickel in 2022 - report](#)
 - The company expects that global palladium demand to rise by 3% to 10.3 Moz in 2022 mainly on the back of a partial automotive sector recovery from the low base of 2021. Metal supply will grow slightly

as well, predominantly due to recovering after the 2021 accidents production at Nornickel's assets. As a result, it is expected that palladium market will be close to balance this year with a deficit of 0.1 Moz.

E-Waste & Precious Metals Recycle Related:

- [INL has a plan to recycle our growing electronic waste without the dirty process of smelting](#)
 - “We can actually reduce over 80% of the total associated emissions of equivalent CO2 versus traditional hydrometallurgical processes,” he said. “There are chemicals in there. There is acid. Of course, you have the smell of acid, but it's not strong. You don't have a lot of gaseous emissions.”
- e-Waste USA: [The strategy behind Exurban's US smelter project](#)
 - Jean-Paul Deco, co-founder of the U.S. subsidiary of U.K.-based Exurban, told E-Scrap **News the smelter and refinery will use both pyrometallurgical and hydrometallurgical processes to recover metals that won't require export for further purification.**
 - “We'll be producing all the way through to refined products. We won't have any intermediate products,” Deco said. “For us, this is a facility that really is for the recyclers and for OEMs,” he added. “This facility will enable them to keep the products domestic, keep the metals domestic, recycling them on a low-carbon basis and enable the circular economy.”
 - Exurban USA recently purchased 77 acres in Fort Wayne, Indiana for the project. Starting ramp ion 2026, when it's up and running, total feedstock capacity of 45,000 mtpa, Deco said.

Platinum

- **WPIC: [Platinum Carrier](#)**
 - Platinum group metal catalysts can accelerate the transition to clean energy by enabling the storage and transportation of hydrogen using existing infrastructure
- **JM [PGM Market Report 2022](#) – In case you missed it.**
 - PGM demand in 2021 was hit by global supply-chain disruption, especially in the auto industry, where the impact of semiconductor shortages was amplified by changes in consumer preference in favour of electric vehicles. While industrial buying was robust, except in a handful of highly price-sensitive applications, net demand for PGM in investment and jewellery contracted sharply. Primary PGM supplies were constrained during early 2021, following process plant outages in South Africa the previous year, but improved as backlogs were processed, pushing all the PGM into fundamental surplus for the calendar year. Nevertheless, temporary mismatches between supply and demand caused dramatic price movements during the early part of 2021, before increasing availability and faltering demand drove prices downwards from mid-year.
 - 60-page publication

Fuel Cells/Hydrogen Economy Related Articles:

- [Could hydrogen ease Germany's reliance on Russian gas?](#)
 - Since the start of the war Germany has reduced its dependence on Russian oil from 35% to 12% and on Russian gas from 55% to 35%.
- [IRENA: Innovation Outlook Renewable Ammonia](#)
 - 144-page deep dive.
 - IRENA estimates that by 2050, this transition would lead to a 688 Mt ammonia market, nearly four times larger than today's market. This ammonia would be decarbonised, with 566 Mt of new renewable ammonia production, complemented with fossil-based ammonia production in combination with carbon capture and storage (CCS).
 - The first of many proposed multi-gigawatt renewable ammonia production plants are already under construction. The first renewable H₂ supply was retrofitted onto an existing ammonia

plant in 2021. Renewable ammonia is expected to dominate all new ammonia production capacity after 2025 when the first movers are expected to have demonstrated innovative renewable ammonia deployment technologies.

- The first dedicated ammonia-fueled vessels will be operating at sea, with two-stroke and four-stroke engines commercially available for new-builds and retrofits.
- [Hydrogen production method opens up clean energy possibilities](#)
 - "The presence of the ethanol in water changes the chemistry," said graduate student Wei-Jyun Wang, a co-lead author on the paper. "We can actually do our reaction at a much lower electrical voltage than is typically needed for pure water electrolysis."
- [Topsoe to build world's largest electrolyzer production facility to accelerate Power-to-X capacity](#)
 - Topsoe will build the world's most advanced industrial scale electrolyzer production plant to meet society's need for Power-to-X solutions. The plant will be built in Herning, Denmark. Construction work will start in second half of 2022 with expected start of operations in 2024.
 - It will be world's largest electrolyzer plant with 500 MW capacity per year and with an option to expand to 5 GW.
- [Cummins hydrogen engine offers more capability, lower cost over all-electric](#)
 - Not to be confused with Cummins' fuel cell (as featured in the Kenworth T680 shown in back), Cummins hydrogen internal combustion engine, the X15H, got "a lot of positive feedback" recently at ACT Expo in Long Beach, Calif. according to Cummins general manager of hydrogen engine business Jim Nebergall. "It's really the practicality of it that's resonated with people the most," Nebergall continued. "It's familiar in a way and delivers on the zero carbon need that we're all looking for and it's a part of a lot of corporate initiatives to drive to zero carbon and this does it in a very practical way, in a familiar way in a very risk averse industry."
- [Renault reveals electric-hydrogen hybrid concept car, will have range of up to 497 miles](#)
 - Renault's Scenic Vision incorporates a H₂ engine, EV motor, battery, fuel cell and a H₂ tank.
 - The 2.5 kg H₂ tank is located at the vehicle's front. Matt: Typical FCEV is 6 kg H₂ tank.
 - Scenic Vision's 40 kWh battery is recyclable and will be produced in France by 2024.
- [Hydrogen-drive motorhomes? Cummins building fuel cells for big vehicles - RV Travel](#)
 - Cummins says it will start building hydrogen fuel cells for Freightliner's Cascadia heavy truck line. With its positive aspects as an alternative big rig fuel, hydrogen would almost seem the ideal fuel for use in motorhomes. Could RV manufacturers jump on board? How would hydrogen fit in your RV lifestyle?
- [China dominates transport fuel-cell patents](#)
 - The World Intellectual Property Organization says China accounted for 69% of the patents filed for transport-related fuel-cell tech in 2020, with road transport significantly dominating applications.
- [Experts Urge Preparation Now for Transition to EVs](#)
 - Sometime in the 2020s or early 2030s a growing number of traditional long-haul trucks could be running on hydrogen fuel cell systems while vans and trucks running regional and local routes, in the 150- to 250-mile per day range or going in and out of ports, will rely on battery-electric propulsion systems. Those are the main conclusions from a panel discussion at American Trucking Association's recent Mid-Year Management Conference.
 - "You need to start to have a plan now, what you're doing with the economics of it and you need to do; get in touch with your electric utility early. If you're putting your mini-generation station together now at your yard, and looking at fast chargers, just like with everything in the supply chain, transformers just aren't sitting around."

Palladium

- [NORNICKEL : Quintessentially PGMs Report](#)
 - The conflict in Ukraine affected the demand, yet not fully recovered from the chip shortage, as European automakers cut its production due to the lack of wiring harnesses supplied from Ukraine. Nevertheless, we expect global palladium demand to rise by 3% to 10.3 Moz in 2022 mainly on the back of a partial automotive sector recovery from the low base of 2021.
 - It is expected that palladium market will be close to balance this year with the deficit of 0.1 Moz.
 - Risks associated with palladium supply from Russia are creating additional uncertainty for consumers and contributing to the rising price volatility. However, Nornickel confirms its production guidance for 2022 and continues to deliver metals according to its contract obligations despite logistic obstacles associated with the limited international flights' availability as Russian government has imposed no restrictions on the PGM export from Russia.
 - The decision of LPPM to remove two major Russian stateowned PGM refineries from the Good Delivery List had no material impact on Norilsk Nickel sales since the company has always prioritised sales to the consumers rather than to the London OTC market. A new UK 35% import duty on Russian palladium and platinum will also have no material impact on the market as British import of Russian metals was only 31 koz of palladium and 5 koz of platinum in 2021.
- [Russian Palladium's Taboo Status Dislocates the Top Trading Hubs](#)
 - London forwards trade at a \$30 premium to New York futures
 - Russian ingots can still trade but have become less desirable
- [Palladium and Platinum Situation Creates Chaos, Opportunity](#)
 - Though Russian palladium hasn't been sanctioned and only new ingots are facing restriction, traders are worried that Russian-branded bars will be hard to move. "Self-sanctioning" has started playing out across the commodity markets as individual companies create their own stances that may go beyond what is required by a government when it comes to policy around Russia. Traders are concerned that buyers and manufacturers will be wary of anything from Russia. Futures prices have already been affected, as the U.K. has started issuing steep import tariffs on Russian palladium.

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

- [Plug Power to supply 1GW water electrolyzer to H2 Energy Europe](#)
 - Green hydrogen solutions provider Plug Power Inc. (NASDAQ stock symbol PLUG) has scored a deal with H2 Energy Europe to provide a 1GW water electrolyzer in support of the global green hydrogen economy.
- [New tech aims to drive down costs of hydrogen fuel](#)
 - One key to the success of the new technique is that it is a continuous-flow reactor which resembles a thin, clear tube packed with sand. The "sand" consists of **micron-scale grains of titanium oxide, many of which are coated with rhodium**. The H₂-carrying liquid is pumped into one end of the tube. The rhodium-coated particles line the outer part of the tube, where sunlight can reach them. These particles are photoreactive catalysts that, in the presence of sunlight, react with the liquid carrier to release H₂ molecules as a gas.

Clean Energy General News

- [Siemens Energy warns on wind costs ahead of Gamesa acquisition](#)
 - Siemens Group's chief says market is 'in dire straits' because of surging raw material prices
 - A surge in raw material costs is threatening hopes that wind energy will stay a cheaper alternative to power generated by fossil fuels, the head of Siemens Energy has warned.

- [Smelting giant Korea Zinc to invest \\$6.6 billion in green power](#)
 - The Seoul-headquartered zinc, gold, silver and lead smelter plans to invest \$6.6 billion over the next eight years developing solar and wind power generation and green hydrogen production, with aim of meeting its RE100 goal of using electricity generated entirely from renewable sources, according to Yun Choi, Korea Zinc's vice chairman and heir apparent.
- [Copper market in 25,000 tonne deficit in March 2022 -ICSG](#)
 - The world refined copper market had a 25,000 mt deficit in March, compared with a 95,000 mt surplus in February. In 2021 the market was in a deficit of 439,000 mt, against a 415,000 mt 2020 shortfall.

BEV / LiB Mineral & Battery Market News

- [The Trouble With Lithium](#)
 - The electric car market is driving insatiable demand for lithium. But a supply crisis of the wonder metal could dent the world's chances of meeting its climate goals.
 - Elon Musk wants to mine it, China is scouring Tibet for it, battery makers are crying out for it. Lithium, the wonder metal at the heart of the global shift to electric cars, is in a full-blown crisis. Demand has outstripped supply, pushing prices up almost 500% in a year and hindering the world's most successful effort yet to halt global warming.
- [The simple error causing analysts to greatly underestimate nickel demand](#)
 - BEV's Sold * LiB Chemistry Mix % * Ave. BEV kWh size * Ave Ni. Loadings per BEV * 15-year Ni Recycle @ 94% yield and 99% recovery.
- [Nolan: America's electric vehicle ambitions need American mining](#)
 - Right now, there simply aren't enough battery materials being produced to meet the auto industry's voracious appetite. Carmakers are warning with ever greater frequency that the coming battery material shortfall could stop the EV revolution in its tracks.
 - (Battery) Metals accounted for 40 percent of battery costs in 2015. Today, they account for 80 percent. Where the price of these metals goes, so does the cost of batteries and EVs.
 - While it takes just two years to get a new battery mega-factory up and running, it regularly takes a decade or more to permit new U.S. mines — if they are approved at all.
- [South Korean EV battery makers in \\$13 billion spree to win U.S. market](#)
 - South Korean battery makers have stepped up their U.S. investment ambitions and cumulative spending announcements since 2018 now total some \$13 billion. This year alone, plans worth \$5.5 billion have been flagged.
- [Indonesia considers export tax on low content nickel products - minister](#)
 - Indonesia, once a major nickel ore exporter, has stopped shipments of unprocessed nickel since 2020. While that has succeeded in attracting investment from major Chinese metal companies, the processing industry remains dominated by low-nickel content products such as nickel pig iron or ferronickel.
- [Nornickel expects nickel market surplus of 40,000 tonnes in 2022, rising to 100,000 tonnes in 2023](#)
 - There was a market deficit of 149,000 tonnes in 2021. "The 2022 nickel market is currently expected to be in a mild surplus of around 40,000 tonnes and mostly in low-grade nickel. It leaves our previous forecast virtually unchanged," Nornickel said.
 - "In 2023, we expect the market surplus to widen to around 100,000 tonnes, predominantly in low-grade nickel, on the back of the new nickel pig iron capacities in Indonesia, coupled with the growing production of nickel chemicals and a further growth of Class 1 nickel and ferronickel output," it said.

Regards –