



Weekly Precious Metals News Articles: December 31, 2021

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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-

Happy New Year

Gold

- **Gold Price Prediction for 2022**
 - Gold could remain soft in the first quarter but starting in Q2, we see the potential for a strong breakout advance.
 - If gold adheres to our technical outlook, we think prices could reach \$3000 by the end of next year. <https://finance.yahoo.com/news/gold-price-prediction-2022-115924758.html>
- **Gold marks yearly dip as central banks seek to wean economy off stimulus**
 - Gold prices marked their biggest yearly decline since 2015, hemmed in by a resurgent dollar as investors prepared to usher in a new year in which the money supply could be tightened even as the threat of the Omicron coronavirus variant lingers. Spot gold XAU= was last up 0.4% at \$1,822.11 per ounce by 11:13 a.m. EDT (1613 GMT), after hitting a peak since Nov. 22 at \$1,827.26 on Friday, helped by a retreat in the dollar and global equities. <https://www.nasdaq.com/articles/precious-gold-marks-yearly-dip-as-central-banks-seek-to-wean-economy-off-stimulus>
- **Gold hits a one-month high as inflation concerns mount**
 - Gold prices climbed this morning as the U.S. dollar weakened and concerns over Omicron led bullion's year-end rally to a more than one-month high. Spot gold rose 0.3% to \$1,815.39 an ounce this morning, hitting its highest since the end of November at \$1,816, while U.S. gold futures rose 0.4% to \$1,816.60. <https://www.cityam.com/gold-hits-a-one-month-high-as-inflation-concerns-mount/>

Semiconductor Related Articles (impacting Precious Metals electronics):

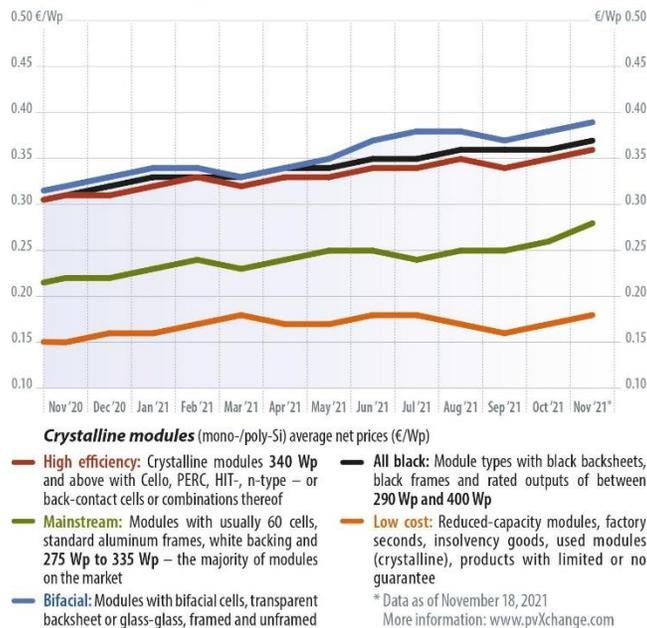
- **Chip Shortages into 2023 Part of a Perfect Storm Sweeping Away Old Car Companies**
 - The world lost 11.3 million units of production in 2021 because of the chip shortage, according to AutoForecast Solutions. IHS predicts chip shortages will mean 7 million fewer cars in 2022 and 1.6 million in 2023. The shortage of cars has increased the average selling price of the remaining new cars that were made and increased used car prices. <https://www.nextbigfuture.com/2021/12/chip-shortages-will-reduce-car-production-into-2023.html>

- **New Copper Material Could Replace Precious Metals in Electronics**
 - A new copper-based material could be used to replace more expensive precious metals like silver and gold in next-generation and printed electronics.
<https://www.designnews.com/electronics-test/new-copper-material-could-replace-precious-metals-electronics>
- **Italy, Intel intensify talks over \$9 billion chip factory, sources say**
 - Rome aims for 'advanced packaging' chip plan. Talks are over a 10-year investment.
 - U.S. group plans to invest 80 billion euros in Europe
 - Germany in lead for Intel's European 'megafab'
<https://www.reuters.com/technology/exclusive-italy-intel-intensify-talks-over-9-billion-chip-factory-sources-say-2021-12-23/>

Silver

- **Outlook 2022: Gold And Silver To Play Catch-Up**
 - The Silver Institute forecasts a supply deficit for the physical silver market in 2022.
 - Analysts note that industrial demand is rising, especially on the green energy front where the white metal is used in solar power and electric vehicle applications.
 - Demand for gold is also strengthening. Global jewelry demand recovered impressively this year, especially in India where it is culturally significant within the world's biggest customer base.
<https://www.gold-eagle.com/article/outlook-2022-gold-and-silver-play-catch>
- **Silver Institute December Newsletter**
 - Silver Industrial Demand Projected to Reach a New High in 2021
 - Australian Scientists Develop an On-Demand Silver Delivery System for Burn Dressings
 - Ion Wound Contact Dressing Receives US Government Fast-Track Approval for Use in Radiation Burns
 - Silver Helps Fix Shortcomings of Lithium Batteries
 - Negro Leagues Baseball Commemorative Silver Dollar Available in 2022
 - A Way to Make Silver Nanowires Cheaper, Faster and in Large Batches Developed in India
 - Sustainable Jewelry from E-Waste: One Entrepreneur's Story
<https://www.silverinstitute.org/wp-content/uploads/2021/12/SNDec2021.pdf>
- **A 200 GW solar year in 2022**
 - Structural imbalances in the supply chain and the energy intensity and consumption controls that China imposed in late September have caused prices for most PV module materials and components to continue to rise. Shipping fees and PV plant construction costs also remain high. PV plants in many regions will therefore be postponed until next year, but it remains unclear when module prices will start to fall. Despite these challenges, the global race to cut carbon emissions continues, and Infolink's Corrine Lin forecasts a bright future for PV deployments in 2022.
 - Matt: If 200GW of new Solar PV installations in 2022, that would require a forecast 156 Moz of silver, or 16% of the global silver supply.
<https://www.pv-magazine.com/2021/12/27/a-200-gw-solar-year-in-2022/>
- **Palladium/Platinum/Silver: 2021 dogs are 2022 thoroughbreds**
 - <https://www.kitco.com/commentaries/2021-12-30/Palladium-Platinum-Silver-2021-dogs-are-2022-thoroughbreds.html>
- **PV module price index: The price spiral winds up**
 - The title of Martin Schachinger's October market commentary was "Module prices set to rocket back to 2019 levels." This month, he writes that prices have already reached December 2018 levels and notes that there is no reversal in sight. Prices for all module technologies have once again risen by an average of 3 percentage points since last month.
<https://www.pv-magazine.com/2021/12/29/pv-module-price-index-the-price-spiral-winds-up/>

EU spot market module prices by technology



Precious Metals Mining:

- **Top gold (mining) stories of the year and what to expect in 2022**
 - #1 Billion-dollar M&As, #2 Earlier deals, #3 Future mines, #4 Overseas conflicts, #5 Other trends
 - What's in store for 2022: The outlook for gold in the first quarter of 2022 is upbeat, with the main driver being inflation, which is keeping a floor under prices, said Jim Wyckoff, a senior analyst at Kitco Metals, in the latest Reuters report.
<https://www.mining.com/top-gold-stories-of-the-year-and-what-to-expect-in-2022/>
- **Grid connection delay hits major (Silver & Gold) Mexican mining project**
 - Staff shortages at Mexican state power company CFE are delaying a grid connection, holding back development of a major mining project. Fresnillo confirmed a six-month delay to its Juanicipio project, a 56:44 JV with MAG Silver, as CFE was unable to complete the tie-in to the grid on time.
 - The US\$440mn project, construction of which is complete, was due to be the biggest Mexican mining project to come on stream by end-2021, with average output forecast at 11.7 Moz/y silver and 43,500 Toz/y gold.
<https://www.bnamerica.com/en/news/grid-connection-delay-hits-major-mexican-mining-project>
- **Eurasia Mining outlines new opportunities in hydrogen/ammonia production**
 - With the opening of its Japan office and the appointment of director Tamerlan Abdikeev, Eurasia has identified opportunities in hydrogen/ammonia production that are complementary to the PGM business in Russia.
<https://www.proactiveinvestors.com.au/companies/news/970240/eurasia-mining-outlines-new-opportunities-in-hydrogen-ammonia-production-970240.html>

E-Waste & Precious Metals Recycle Related:

- **Solar recycling is broken, but there's a plan to fix it**
 - Arizona State University researchers are hoping to change that through a new recycling process that uses chemicals to recover high-value metals and materials, like silver and silicon, making recycling more economically attractive. Earlier this month, the team received a two-year, \$485,000 grant from

the DOE's Advanced Manufacturing Office to further validate the idea, which they hope will lay the groundwork for a pilot recycling plant within the next three years. Matching funds are being provided by ASU and energy company First Solar, which is serving as an industrial adviser on the project.

<https://www.theverge.com/2021/12/29/22857157/solar-recycling-new-better-method>

- **Video: A hot approach to mining urban waste for precious metals**

- The process detailed in Nature Communications is also energy-conserving: it consumes about 939 kWh/ton of material processed, 80 times less energy than commercial smelting furnaces and 500 times less than laboratory tube furnaces. Over 60% of gold in a sample, and over 80% of silver, palladium and rhodium can be recovered.

<https://insights.globalspec.com/article/17775/video-a-hot-approach-to-mining-urban-waste-for-precious-metals>

- **Restrictions on scrap trade could inhibit recycling**

- Those trade volumes could be affected by changes related to scrap import policies, with China having led the way, followed by Indonesia and Malaysia. "Now, India and Europe, too, are talking about new guidelines or statutory requirements related to scrap flows," he said. "In short, less trade leads to less recycling, more trade leads to more recycling." – Murat Bayram of European Metal Recycling Ltd.
- India has proposed scrap classifications that would be created under the Bureau of Indian Standards that could define percentage limits for metallic and nonmetallic impurities, Shah said. These classifications potentially could go into effect before the end of 2022.

<https://www.recyclingtoday.com/article/restrictions-on-scrap-trade-could-inhibit-nonferrous-recycling/>

Platinum

- **U.S. used truck retail sales, average price and age up YTD**

- "Despite the current softness, sales continue to outperform on a YTD basis, now 10% higher with just one month remaining in the year," he continued. "Even though inventory is tight, it has not stopped flowing. New truck activity continues to feed the seemingly insatiable demand from owner/operators and fleets alike." He concluded, "As has been the case since late 2020, the industry's inability to meet truckers' equipment needs has resulted in unrelentless used truck price escalation. As we have posited for some time, increasingly difficult comparisons are shrinking long-term gains, and owing to expectations for more of the same as it relates to freight and equipment availability, prices are likely to continue climbing higher in the near term."

<https://www.fleetequipmentmag.com/used-truck-retail-sales/>

- **Catalyst technology converts methane greenhouse gas sustainably**

- The catalyst consists of one or two layers of platinum, each layer just an atom thick, deposited on two-dimensional metal carbide structures called "MXenes." In this case, the structures are made from carbon, molybdenum and titanium.
- Keys to the methane-to-ethane/ethylene conversion are making the carbides pure enough and making the surfaces clean enough to support the reactions, Wu said. Get it all right, and those reactions exhibit about 7 percent methane conversion with about 95 percent selectivity toward ethane/ethylene in a continuously operating fixed-bed reactor. The products can be turned into plastics and resins, such as the common and ubiquitous polyethylene plastic.

<https://www.worldofchemicals.com/media/catalyst-technology-converts-methane-greenhouse-gas-sustainably/6926.html>

- **Novel nanowires protection shell prepared for stable oxygen reduction reaction**

- Original fcc-PtFeIr catalyst is coated with silicon dioxide (SiO₂) and become fct-phase PtFeIr nanowires. With the protection of SiO₂ cover, it retards the aggregation and breakage of nanowires. Meanwhile, the existence of Ir has guaranteed the thermal stability of catalysts and promotes the phase transformation of nanowires. Electrochemical test results indicate that the mass activity of PtFeIr nanowires has increased over 80% after phase transformation for ORR.

<https://www.nanowerk.com/nanotechnology-news2/newsid=59461.php>

Fuel Cells/Hydrogen Economy Related Articles:

- **Platinum demand from electrolyzers likely to be between one- and two-million ounces over next 15 years**
 - Electrolyzer markets could grow from almost nothing today to one-quarter of 1 TW by 2030, and over 3 TW by 2050, to meet the demand for fossil-fuel-free green hydrogen, according to a recent Hydrogen Council report by the World Platinum Investment Council (WPIC).
<https://www.miningweekly.com/article/platinum-demand-from-electrolyzers-likely-to-be-between-one--and-two-million-ounces-over-next-15-years-2021-12-08>
- **Can hydrogen fuel electrolyzer suppliers keep up with global demand?**
 - This prediction of the growth of hydrogen fuel electrolyzer demand aligns with a recent Jefferies analysis. The US investment bank predicts that global manufacturing of the units will be inadequate for meeting demand by 2030, even if the smallest possible demand scenarios take place.
 - The hydrogen fuel electrolyzer orders at Nel alone already involve over 800 projects totalling more than 11GW, with the largest project consisting of a 1.6GW facility. That said, this is expected to be only the tip of an oncoming iceberg.
<https://www.hydrogenfuelnews.com/hydrogen-fuel-electrolyzer-nel/8550546/>
- **The Hydrogen Stream: Chile plans 6 green hydrogen projects by 2025**
 - Chilean development agency Corfo has selected six hydrogen projects with a cumulative electrolyzer capacity of 396MW for development, which will be financed by public subsidies totaling US\$50 million. The selected proposals are expected to attract investments of US\$1 billion and produce more than 45,000 tons (45 million kg) of green hydrogen per year. The Chilean government, which accepted 50% of the proposed projects, aims to have the six green hydrogen projects up and running by 2025.
<https://www.pv-magazine.com/2021/12/28/the-hydrogen-stream-chile-plans-6-green-hydrogen-projects-by-2025/>
- **Platinum and the Hydrogen Economy**
 - Due to its unique chemical and physical properties, platinum is at the forefront of proton exchange membrane (PEM) applications – transformative technology that holds the key to unlocking the zero-emissions potential of hydrogen. PEM technology is used in both electrolyzers to produce hydrogen and in hydrogen fuel cells which can power, for example, an emissions-free fuel cell electric vehicle (FCEV).
<https://www.cmegroup.com/articles/2021/platinum-and-the-hydrogen-economy.html#>
- **World's 1st LH₂ (liquid hydrogen) Carrier Suiso Frontier Departs for Australia**
 - Japanese shipbuilder Kawasaki Heavy Industries said the world's first liquefied hydrogen (LH₂) carrier Suiso Frontier left Japan to pick up its first cargo in Australia.
<https://www.offshore-energy.biz/worlds-1st-lh2-carrier-suiso-frontier-departs-for-australia/>
- **What do the different hydrogen colors mean?**
 - White H₂ is naturally occurring H₂.
 - Green H₂ produced through water electrolysis powered by renewable energy. No greenhouse gas emissions are produced when making green hydrogen.
 - Gray H₂ is made using steam methane reforming (SMR).
 - Blue H₂ is grey H₂, only it uses carbon capture and storage (CCS) technology to take most of the greenhouse gas from the emissions and store it underground.
 - Turquoise H₂ refers to thermal splitting of methane using methane pyrolysis.
 - Black or Brown H₂ is made using methods powered by bituminous (black) or lignite (brown) coal via coal gasification, which is highly polluting.

- Purple, or Pink, or Red H₂ is produced using nuclear power plants to split water via combined chemo thermal electrolysis. Pink uses water electrolysis, Red uses high-temperature catalytic water splitting.
<https://www.hydrogenfuelnews.com/hydrogen-colors-meaning/8550335/>
- **Hyundai pauses Genesis hydrogen fuel cell project just days after ending ICE engines**
 - Hyundai has suspended development of their Genesis hydrogen fuel cell vehicle indefinitely. The news comes hot on the heels of Hyundai announcing an end to internal combustion engine development.
 - In September of this year, Hyundai revealed a hydrogen strategy aiming for significant penetration of both commercial and passenger markets by 2040. On the way to that target, Hyundai planned to offer a new third-generation fuel cell vehicle in 2023 (Nexo was #2) and fuel cell systems in all commercial vehicles by 2028 with price points competitive to BEV offerings by 2030. Genesis also announced they will stop introducing new internal combustion models in 2025.
 - But since then, an internal audit showed that Hyundai has fallen short of virtually every target they had for fuel cell vehicles. Production and sales are lower than expected, cost is falling slower than expected, infrastructure is being built slower than expected, and hydrogen fuel prices are higher than expected.
<https://electrek.co/2021/12/29/hyundai-pauses-genesis-hydrogen-fuel-cell-project-just-days-after-ending-ice-engines/>
- **Is a hydrogen combustion engine a viable alternative to battery electric?**
 - Last summer, Toyota announced that it was working on the development of a hydrogen combustion engine, leaving many to wonder whether this technology has the potential to replace traditional gas or diesel vehicles and if it could compete with battery EVs.
<https://www.hydrogenfuelnews.com/hydrogen-combustion-engine-2/8550353/>

Palladium

- **Pandemic Continues To Challenge Car Sales**
 - Sales of new vehicles were hemmed in again during December, setting the stage for what could be a bumpy ride in 2022. The auto industry is still haunted by COVID-19, causing shortages of key materials critical to the growing market for electric vehicles.
 - That's the joint forecast issued by J.D. Power and LMC Automotive. The companies estimate December 2021 U.S. retail auto sales will decline 17.4% to 1.105 million units compared with December 2020 when adjusted for the number of selling days. Without the adjustment, sales decreased 20.4% year-over-year.
<https://www.thedetroitbureau.com/2021/12/pandemic-continues-to-challenge-car-sales/>
- **SUV sales hit new records, driving up emissions**
 - Global sales of SUVs have hit new records in 2021 both in terms of the numbers sold and their share of the market. A new report from the International Energy Agency says SUVs are expected to account for 45% of all new car sales this year.
<https://www.rte.ie/news/environment/2021/12/22/1268163-emissions/>
- **Platinum Palladium prices to hold steady in 2022; hydrogen economy a bullish unknown**
 - Looking ahead to 2022, optimism is growing among analysts that these two precious metals can maintain a steady course as the global supply chain continues to recover. Commodity analysts at TD Securities are particularly bullish on PGMs and see the current price as a buying opportunity.
<https://www.kitco.com/news/2021-12-29/Platinum-Palladium-prices-to-hold-steady-in-2022-hydrogen-economy-a-bullish-unknown.html>
- **One more rally before electric vehicles sideline palladium**

- Palladium is set for one last rally next year as a revival in the auto sector boosts demand for the metal used in engine exhausts, before the rise of electric vehicles that don't use the metal sends prices into long-term decline.

<https://www.nasdaq.com/articles/graphic-one-more-rally-before-electric-vehicles-sideline-palladium>

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

- **(Ru Catalyst) Clean energy from ammonia: UW discovery a step towards carbon-free economy**
 - Berry wanted to test how ammonia would react with diruthenium, a pair of ruthenium atoms bonded together with other molecules. He thought if he applied an electrical current, the ammonia would oxidize, releasing nitrogen. Researchers figured out there was no need to add energy.
 - "If you just add ammonia to this complex, it spits out nitrogen on its own," Berry said.
 - Mike Trenerry, one of Berry's current graduate students and co-author of the paper, figured out how to pull the electrons off and repeat the reaction by exposing the catalyst to oxygen

https://madison.com/wsj/news/local/environment/clean-energy-from-ammonia-uw-discovery-a-step-towards-carbon-free-economy/article_f8c21b4a-f635-5407-9f4b-2c9c822a21dc.html
- **Ru & Pt PVD Materials: The best of 2021 - top MRAM stories**
 - Here are the top 10 stories posted on MRAM-Info in 2021, ranked by popularity:
 1. [TSMC shows its eMRAM technology roadmap](#) (May 6)
 2. [Samsung improves its MRAM performance, will expand its target applications](#) (Feb 5)
 3. [New SOT-MRAM device structure can be scaled up and is highly efficient](#) (Aug 9)
 4. [Avalanche announces new 64Mb industrial x16-interface STT-MRAM memory devices](#) (Sep 29)
 5. [Orthogonal Spin Transfer MRAM developer Spin Memory liquidates](#) (Jul 15)
 6. [Everspin reports its financial results for Q1 2021](#) (May 7)
 7. [Everspin reported its preliminary Q4 2020 and full-year 2020 financial results](#) (Mar 1)
 8. [Researchers developed a promising antiferromagnetic MRAM device structure](#) (Jun 27)
 9. [Lucid Motors adopted Everspin's MRAM in its Lucid Air all-electric sedan](#) (Jun 16)
 10. [Researchers use stochastic MRAM elements to create highly efficient AI devices](#) (Jul 7)

<https://www.mram-info.com/best-2021-top-mram-stories>

Clean Energy General News

- **Toyota Is Right On Their Stance Towards Electric Vehicles**
 - "Carbon is our enemy, not the internal combustion engine," says Akio Toyoda
 - Perhaps Toyota's statement perfectly sums up what I've always wanted to point out. It's not the internal combustion engine that's our problem, but rather, it's carbon dioxide emissions. The world shouldn't just rely on and incentivize a single type of technology to solve climate change. Rather, it should be open to other innovations, and that includes Toyota's hydrogen combustion engine, hydrogen fuel cell electric vehicle (FCEV), and other potential new technologies that could even be better than all of the stuff mentioned in this article.

<https://www.topspeed.com/cars/car-news/toyota-is-right-on-their-stance-towards-electric-vehicles-ar194002.html>
- **Big Money Is Eyeing Metals Over Oil As Mining Assets Soar**
 - The energy transition is driving the next commodity supercycle, with immense prospects for technology manufacturers, energy traders and investors. Indeed, new energy research provider BloombergNEF estimates that the global transition will require ~\$173 trillion in energy supply and infrastructure investment over the next three decades with renewable energy expected to provide 85% of our energy needs by 2050.
 - But nowhere is the outlook brighter than the metals industry. Clean energy technologies require more metals than their fossil fuel-based counterparts. According to a recent Eurasia Review analysis, prices for copper, nickel, cobalt, and lithium could reach historical peaks for an unprecedented, sustained period in a net zero emissions scenario, with total value of production rising more than four-fold for the period 2021-2040, and even rivaling the total value of crude oil production.

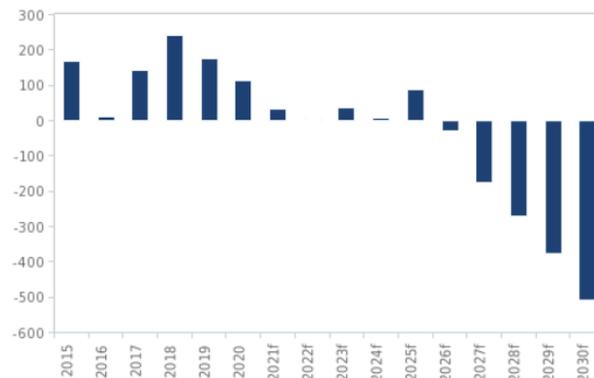
<https://oilprice.com/Metals/Commodities/Big-Money-Is-Eyeing-Metals-Over-Oil-As-Mining-Assets-Soar.html>

- **IMF Projects \$13 Trillion in Revenue Up for Grabs from 4 Key Metals**
 - A typical electric vehicle battery pack uses 8 kilograms (kg) of lithium, 35kg of nickel, 20kg of manganese and 14kg of cobalt, while charging stations require large amounts of copper.
 - Renewable energy such as solar panels use large quantities of copper, silicon, silver and zinc, while wind turbines require iron ore, copper, aluminum, and rare earth elements. A clean energy transition could require as much as 3 billion tons of these materials. According to the IMF paper, this demand would push metal prices to historical peaks for an "unprecedented, sustained period" in a net-zero emissions scenario. The total value of metals production would rise more than four times from 2021 to 2040, surpassing the total value of crude oil production.
<http://prospectorportal-8333928.hs-sites.com/your-weekly-nugget-3>
- **2021 was the year clean energy finally faced its mining problem**
 - It's about time to scrutinize what that hunger for minerals might cause, given the recent boom in pledges from countries and companies alike to reach net zero greenhouse gas emissions. Digging up the necessary minerals is already proving to be a minefield. Protests are popping up at proposed mines that no one really wants in their backyard. The conflicts that cropped up in 2021 are just the beginning of a challenging road ahead.
<https://www.theverge.com/22858437/2021-mining-critical-minerals-clean-energy-renewables-climate-change>
- **Shanghai copper hits one-month high on easing Omicron fears**
 - Copper prices in China hit a one-month high on Tuesday, helped by easing worries over the impact of the Omicron variant and hopes of continued policy support for economic growth in the world's top metals consumer.
<https://www.nasdaq.com/articles/metals-shanghai-copper-hits-one-month-high-on-easing-omicron-fears>
- **China's Zijin starts production at giant Tibet copper mine**
 - Julong Copper is expected to produce 120,000-130,000 tonnes of copper in 2022, including volumes from Phase 1 of Qulong and the Zhibula mine, which is also in Tibet, Zijin said in a filing to the Hong Kong stock exchange. "After Phase 1 reaches the designated production capacity, the annual copper production volume will be approximately 160,000 tonnes," it added.
<https://www.nasdaq.com/articles/chinas-zijin-starts-production-at-giant-tibet-copper-mine>

BEV / LiB Battery Market News

- **The World's Largest Nickel Mining Companies**
<https://elements.visualcapitalist.com/the-worlds-largest-nickel-mining-companies/>
- **US: Over 10 New Battery Plants To Be Launched In 2022-2025**
 - Let's try to list some of the battery cell projects and see how big the new wave is:
 - 1) Stanton, west Tennessee - Blue Oval City (43 GWh) - 2025
 - 2) and 3) Glendale, central Kentucky - BlueOvalSK Battery Park (2x 43 GWh) - 2025
 - 4) Lordstown, Ohio (30+ GWh) - 2022
 - 5) Spring Hill, Tennessee (30+ GWh) - 2023
 - 6) and 7) in the pipeline (details not announced yet) SK Battery America (SKBA)
 - 8) Commerce, Georgia - Plant 1: 9.8 GWh - early 2022
 - 9) Commerce, Georgia - Plant 2: 11.7 GWh – 2023 Stellantis and LG Energy Solution JV
 - 10) 40 GWh - 2024
 - 11) 23 GWh with potential for 40 GWh – 2025 - Stellantis and Samsung SDI joint venture
 - A quick look shows that the total manufacturing output will be north of 300 GWh per year by 2025.
 - 12) very large Tesla Gigafactory for its 4680-type cylindrical cell in Texas. XXX? GWh
<https://insideevs.com/news/556697/us-over10-new-battery-plants/>
- **Prices for EV metal magnesium at 3-month highs, users scramble for non-Chinese supply**

- Magnesium prices in China have surged to ~\$US7,846/t for the first time in three months, and are expected to stay high amid tightening environment controls, according to S&P Global Platts.
<https://www.msn.com/en-au/money/markets/prices-for-ev-metal-magnesium-at-3-month-highs-users-scramble-for-non-chinese-supply/ar-AASezUA?ocid=BingNewsSearch>
- **Apple to Sign with LG Electronics and Magna to Produce Electric Vehicle**
 - Apple to sign with LG Electronics and Magna to produce electric vehicle. The much-rumoured Apple car may be produced by LG Magna e-Powertrain.
 - The two companies are said to be close to finalising an agreement to build Apple’s first car, according to a new report from newspaper The Korea Times.
 - Announced in December 2020, LG Magna e-Powertrain is the joint venture between Korean tech giant LG Electronics and the large Canadian automotive company Magna. Despite being only months old, the company is estimated to be valued at US\$1 billion
<https://batteriesnews.com/apple-sign-lg-electronics-magna-produce-electric-vehicle/>
- **Blood Cobalt? - LA Progressive**
 - Thanks to investigations by The New Yorker and The New York Times, we have a pretty well-rounded understanding of how cobalt mining has jumped to the top of the international environmental and trade agendas. It’s not a pretty picture.
<https://www.laprogressive.com/blood-cobalt/>
- **Elon Musk says he is ‘almost done’ selling Tesla stock**
 - Tesla Inc Chief Executive Officer Elon Musk, who has sold more than \$15bn worth of shares in the company since early November, said on Wednesday that he was “almost done” with his stock sales.
 - The billionaire had made confusing statements as to whether he might or might not be done with his stated goal of selling 10 percent of his Tesla shares.
<https://www.aljazeera.com/economy/2021/12/23/elon-musk-says-hes-almost-done-selling-tesla-stock>
- **Lithium production growth to accelerate, but supply risks abound — report**
 - In spite of strong production growth in the years to come, market analyst Fitch Solutions forecasts the global lithium market to remain very tight in the coming years as the green transition accelerates, boosting demand for batteries spanning from EVs to utility- scale batteries.
 - Fitch says it also expects the market to record increasingly large deficits out to 2030. Fitch sees lithium supply facing a number of tailwinds and bottlenecks, which it says could deeply alter the market’s dynamics.
<https://www.mining.com/lithium-production-growth-to-accelerate-but-supply-risks-abound-report/>



f = Fitch Solutions forecast. Source: National sources, Fitch Solutions

Regards –