



Weekly Precious Metals News Articles: August 28, 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-

Sorry for the delayed distribution this week. I have been managing a family health emergency.

Gold

- **Gold ends at nearly 4-week high as Powell remarks fail to offer any surprises on Fed plans**
 - Gold futures settled back above the key \$1,800-an-ounce mark on Friday, their highest in nearly four weeks. Remarks from Federal Reserve Chairman Jerome Powell, at the Jackson Hole central-bankers symposium, revealed that he supports tapering the pace of bond purchases this year, but continued to see high inflation as “transitory.”
 - “The remarks were measured. Not too hawkish, if anything a bit more on the dovish side,” he said. Powell “did not give any concrete details on a taper timeline, which helped to push gold back above \$1,800 as the dollar remains weak.”
<https://www.msn.com/en-us/money/markets/gold-ends-at-nearly-4-week-high-as-powell-remarks-fail-to-offer-any-surprises-on-fed-plans/ar-AANOfLf?>
- **Inflation-Wary Germans Are Loading Up on Gold**
 - Demand for physical bullion in Germany, traditionally the biggest coin and bar buyer in Europe, was the highest since at least 2009 in the first half, World Gold Council data show. While purchases in other Western markets have also been strong, Germans in particular are pouring into the metal as a hedge against rising inflation -- and dealers say business remains good.
 - “We have a long history of inflation fear in our DNA. Now the inflation risk is picking up,” said Raphael Scherer, a managing director at metals dealer Philoro Edelmetalle GmbH, whose gold sales are up 25% on what was already a strong 2020. “The outlook for precious metals is very positive.”
<https://finance.yahoo.com/news/inflation-wary-germans-loading-gold-143831444.html>
- **These countries bought, and sold, the most gold last year; Jeff Christian explains**
 - The countries whose central banks netted the largest changes in gold reserves this past year.
 - At the top five of the net additions list in 2021 were Thailand, Hungary, Brazil, Uzbekistan, and India, buying 2.9, 2.02, 2.0, 1.08, and 0.87 million troy ounces, respectively.
 - Biggest sellers were Turkey, Philippines, Russia, Germany, and the United Arab Emirates, having sold 1.24, 0.87, 0.20, 0.11, and 0.075 million ounces, respectively.
<https://www.kitco.com/news/2021-08-23/These-countries-bought-and-sold-the-most-gold-last-year-Jeff-Christian-explains.html>

Semiconductor Related Articles (impacting Precious Metals electronics):

- **Taiwan to keep tackling chip shortage - Taipei Times**
 - "Take one major manufacturer as an example. Compared with the first half of last year, it has increased the production of microcontroller units [MCUs] for automotive chips by 30 percent during the first half of this year," the ministry said, without naming the manufacturer.
 - "It is estimated that the manufacturer's MCU production will increase 60 percent from last year, which would be about 30 percent above pre-pandemic levels," it added.
 - While the automotive chip supply chain is long and complex, supply and demand should reach a balance in the fourth quarter of this year, the ministry said, citing the local semiconductor industry's estimate.
<https://www.taipeitimes.com/News/biz/archives/2021/08/23/2003763048>
- **GlobalFoundries CEO: Chip industry output must double in 10 years - Nikkei Asia**
 - The chip industry will need to double its production capacity in the next eight to 10 years to address shortages and growing government concerns over supply chain security, the CEO of the biggest U.S. contract chipmaker said on Monday.
 - A recent acceleration of geopolitical awareness of just how critically important semiconductors, and in particular semiconductor manufacturing, is to supply chain security, sovereign security and economic security," GlobalFoundries CEO Tom Caulfield said.
 - Caulfield said regions around the world are vying for chip manufacturing capacity, and the industry needs to catch up with the trend. "It needs our industry to double capacity in the next eight to 10 years," the CEO said. "It took 50 years for the semiconductor industry to grow to half a-trillion-dollar industry, and we will need to do about the same in about a decade."
<https://asia.nikkei.com/Business/Tech/Semiconductors/GlobalFoundries-CEO-Chip-industry-output-must-double-in-10-years>
- **Worldwide shipments of PCs and tablets to maintain growth through 2021, says IDC**
 - According to a new forecast from the IDC, worldwide shipments of PCs are expected to grow 14.2% to 347 million units in 2021. This is down from IDC's May forecast of 18% growth with continued supply chain and logistical challenges cited as the main reasons. The tablet market is also expected to grow in 2021 but at a much slower pace of 3.4%.
 - "We continue to believe the PC and tablet markets are supply-constrained and that demand is still there," said Ryan Reith, program vice president with IDC's Worldwide Mobile Device Trackers. "The lengthening of the supply shortages combined with on-going logistical issues are presenting the industry with some big challenges. However, we believe the vast majority of PC demand is non-perishable, especially from the business and education sectors."
<https://www.digitimes.com/news/a20210825PR201.html>
- **Bosch says semiconductor supply chains in car industry no longer work**
 - German technology and engineering group Bosch, which is the world's largest car-parts supplier, believes semiconductor supply chains in the automotive industry are no longer fit for purpose as the global chip shortage rages on.
 - Harald Kroegeer, a member of the Bosch management board, told CNBC's Annette Weisbach in an exclusive interview Monday that supply chains have buckled in the last year as demand for chips in everything from cars to PlayStation 5s and electric toothbrushes has surged worldwide.
<https://www.cnbc.com/2021/08/24/bosch-says-semiconductor-supply-chains-in-car-industry-no-longer-work.html>
- **TSMC to hike chip prices 'by as much as 20%' • The Register**

- TSMC is reportedly increasing its chip manufacturing prices by as much as 20% in the near future. For things like microcontrollers and other components on larger process nodes – think 120nm down to about (we guess) 16nm TSMC will raise its prices by 20%, and for higher-end processors and system-on-chips on its more-advanced nodes, everything else down to 7nm and 5nm, prices will go up 10%, according to the Wall Street Journal this week.
 - Typically, the larger-process-node chips tend to be workhorses in vehicles, appliances, and most electronics, and state-of-the-art application processors and accelerators found in phones, PCs, and servers are fabricated using the smaller process nodes. The price rises, if true, may lead to more expensive gear for buyers.
https://www.theregister.com/2021/08/26/tsmc_raises_prices/
- **Pandemic Fuels a PC Boom | EE Times**
 - The reopening of U.S. schools after more than a year of virtual classes along with hybrid work arrangements are creating “massive refresh potential” for PC makers.
 - According to figures released this week by market analyst Canalys, the U.S. PC market grew a healthy 16.6 percent on an annual basis during the second quarter. Shipments of desktops, notebooks, tablets and workstations topped 36.8 million units
<https://www.eetimes.com/pandemic-fuels-a-pc-boom/>

Silver

- **Here's the latest growth forecast for silver as solar and EVs continue to boom**
 - In the latest Precious Metals Weekly, analysts have forecast a 8% year on year growth for the metal – mainly due to the increased uptake in solar photovoltaic (PV) panels and electric vehicles (EVs).
 - “We have retained our positive outlook for silver industrial demand, both this year and looking further ahead, even if the global economy does face several headwinds,” Metals Focus said.
 - “Not only should newer areas thrust ahead, but established uses should also enjoy steady gains, in part as avenues for thrifting and substitution look limited.
<https://stockhead.com.au/resources/heres-the-latest-growth-forecast-for-silver-as-solar-and-evs-continue-to-boom/>
- **Why is silver underperforming gold? StoneX explains**
 - After the flash crash two weeks ago, analysts expected to see a rebound in gold and silver. But silver has lagged behind. StoneX looked into what's keeping the silver market down.
 - "We were looking back at the heavy fall, subsequently unwound, in gold the previous Monday in the so-called 'flash crash,' which took over \$100 or just over 1% off the price. We thought that the subsequent week would see substantial short covering in gold and silver; we were right about the former but wrong about the latter," said Rhona O'Connell, head of market analysis for EMEA and Asia regions at StoneX.
 - While gold managed to recover all of the losses since Aug. 9, silver has struggled behind. And that is despite Tuesday's impressive gains of more than 1% on the day. At the time of writing, September Comex silver was trading at \$23.93, up 1.16% on the day.
 - O'Connell pointed out that instead of seeing increased interest after the price drop, the silver market saw a build-up of short positions, which weighed on the precious metal.
<https://www.kitco.com/news/2021-08-24/Why-is-silver-underperforming-gold-StoneX-explains.html>
- **Silver Institute August Newsletter**
 - Silver Could Replace Expensive Rare-Earth Metal in Touchscreens and Other Consumer Electronics
 - Ohio Latest State to Remove Sales Taxes on Silver Bullion
 - New Silver Compound Sticker Test for Cystic Fibrosis Takes Minutes
 - Hospital Study Shows Silver-Impregnated Plastic Foil Stops Spread of Dangerous Germs
 - Only Silver Olympic Medal is True to its Namesake

- Silver Institute Membership Elects New Officers
- Rollout Continues for Redesigned American Eagle Silver Bullion Coin
<https://www.silverinstitute.org/wp-content/uploads/2021/08/SNAug2021.pdf>

Precious Metals Mining:

- **Eurasia Mining reports progress on Nyud joint venture project**
 - Eurasia Mining updated the market on the Nyud project on Thursday, following its signing of a binding agreement to create a joint venture with Rosgeo in March.
 - The AIM-traded firm said that under the agreement, it would own a 75% equity stake in nine platinum group metals (PGM) and battery metals assets, four of which were post-Russian feasibility study with state-approved reserves, with a total of 104.6 million ounces of platinum-equivalent Russian code reserves and resources, in the immediate vicinity of its Monchetundra project in the Kola Peninsula.
<https://www.lse.co.uk/news/eurasia-mining-reports-progress-on-nyud-joint-venture-project-ezkluav4sb332s.html>
- **Eskom warns of ‘prolonged’ power cuts due to incoming cold front**
 - Eskom on Wednesday said it was “preparing for the predicted cold front” and warned of prolonged power outages. Is load shedding making a comeback?
<https://www.citizen.co.za/news/south-africa/load-shedding/2597808/load-shedding-power-cuts-eskom-weather/>
- **Platinum mine tense after assassination of unionist**
 - The assassination of a volunteer recruiter for the National Union of Metalworkers of South Africa (Numsa) on the steps of the Commission for Conciliation, Mediation and Arbitration (CCMA) in Rustenburg, has sent shock waves through the union and unsettled workers on the platinum mines in the area. Malibongwe Mdazo was gunned down on 19 Aug. His murder is seen as an attempt to stop Numsa gaining recognition as the majority union at some platinum mining companies in Rustenburg.
<https://www.moneyweb.co.za/mineweb/platinum-mine-tense-after-assassination-of-unionist/>
- **‘Gold Fields or AngloGold merger is off the table’ – Sibanye-Stillwater CEO Neal Froneman**
 - There has been much speculation around the deal-maker looking to merge with the likes of Gold Fields or AngloGold, creating a mining behemoth that could compete with international peers such as Barrick Gold or Rio Tinto. Froneman says this is off the table and Sibanye will rather try accelerate its move to commodities that will benefit from the shift to a clean energy economy.
<https://www.biznews.com/sa-investing/2021/08/27/neal-froneman-sibanye-stillwater>

E-Waste & Precious Metals Recycle Related:

- **Mineworx Likely to be First CleanTech Solution to Recover Diesel Catalytic Converters**
 - Today, the only commercial method to recover platinum and palladium from catalytic converters is smelting, a form of extracting metal in its purest form from its ore. But, smelting is highly hazardous to the environment and is inefficient when recycling diesel catalytic converters. Smelters find it difficult to process diesel oxidation catalysts (DOC) and diesel particulate filters (DPF). Moreover, diesel catalytic converters can create safety issues as trapped carbon can ignite and cause an explosion, which is why many refuse to accept diesel catalyst feedstock.
 - As input materials, Mineworx's processing technology uses core materials that are separated from the metal containers and ground to fine powder. The platinum and palladium are then extracted from the ground materials into a solution through chemical processes and then recovered from the solution using precipitation. The concentrate is ultimately sent to a refinery for upgrading and sale.
 - With this approach, Mineworx expects to recover 90% of the metals while eliminating environmentally unfriendly emissions from smelters.

<https://news.yahoo.com/mineworx-likely-first-cleantech-solution-122832535.html>

- **Going to e-waste: Australia's recycling failures and the challenge of solar**
 - More than 100,000 tonnes of solar panel waste are forecast to enter Australia's waste stream by 2035
<https://www.theguardian.com/environment/2021/aug/22/going-to-e-waste-australias-recycling-failures-and-the-challenge-of-solar>
- **EPA outlines multifaceted e-scrap threat from batteries - E-Scrap News**
 - Federal officials recently examined battery-related fires in a variety of recycling settings, including electronics processing sites. In addition to noting safety concerns, the analysis determined that batteries "jeopardize the economics of the electronics recycling industry."
 - The EPA report, published last month, comes as there is heightened attention on lithium-ion battery fires across many sectors of the waste management industry. For the report, EPA researchers examined e-scrap facilities, municipal recycling centers, landfills, transfer stations and other locations.
 - Similar to recent findings from the European Waste Electrical and Electronic Equipment Forum (WEEE Forum), the EPA report offers no simple fixes, but it says existing efforts are not solving the problem and that all stakeholders must coordinate further to reduce the threat.
 - The report laid out how a typical e-scrap firm might handle devices that contain lithium-ion batteries (LIBs) – and the fire danger that arises in this process.
<https://resource-recycling.com/e-scrap/2021/08/26/epa-outlines-multifaceted-e-scrap-threat-from-batteries/>

Platinum

- **US-based Ohmium launches green hydrogen electrolyzer gigafactory**
 - Renewable energy startup Ohmium International on Tuesday announced the start of India's first green hydrogen electrolyzer gigafactory that will turn power from renewable sources into carbon-free hydrogen. The Bengaluru plant will have an initial manufacturing capacity of 500 MW per year, with plans to scale to 2 GW (2000 MW), the firm said in a statement.
<https://auto.economictimes.indiatimes.com/news/industry/us-based-ohmium-launches-green-hydrogen-electrolyzer-gigafactory/85614949>
- **EPA Will Update GHG Emission Standards for Trucks**
 - The agency is working on a series of what it calls "major rulemakings" over the next three years.
 - The first, to be finalized in 2022, will apply to heavy-duty vehicles, starting with model year 2027.
 - A second rule "would set more robust GHG emission standards for new heavy-duty vehicles sold as soon as (model year) 2030 and beyond."
<https://www.moderntiredealer.com/articles/32352-epa-will-update-ghg-emission-standards-for-trucks>

Fuel Cells/Hydrogen Economy Related Articles:

- **Durable biomimetic nanotruff electrodes for proton exchange membrane fuel cells**
 - Design and construction of naturally inspired Pt nanotruff electrodes. The membrane electrode assembly is the core of a proton exchange membrane fuel cell (PEMFC). However, the high consumption of platinum on conventional cathodes and the low durability of carbon-supported platinum nanoparticles (Pt / C) have hampered the large-scale commercialization of fuel cell vehicles. The electrodes are a nanotruff-like catalyst layer (NTCL), which has a low Pt load and improved durability.
 - Researchers have adopted a simple template-assisted method to construct a nanotruff catalyst layer by electrospinning and magnetron sputtering.
 - "Achieved a peak power density of 22.26 W/mgPt-1 42 µg cm platinum load-2 In cathodelt was 1.27 times the conventional Pt / C electrode. " In addition, ultra-high durability has been achieved in accelerated stress tests. "This may be due to a self-healing mechanism that involves lysis and redeposition of Pt," says Professor SHAO.

<https://floridanewstimes.com/durable-biomimetic-nanotruff-electrodes-for-proton-exchange-membrane-fuel-cells/327521/>

- **Sea Change hydrogen fuel cell ferry launches in California**
 - All American Marine (AAM) and Switch Maritime shipowner have jointly launched a hydrogen fuel cell ferry called Sea Change.
 - The 70-foot fuel cell ferry will be transporting as many as 75 passengers at a time during its operations in the California Bay Area. It is currently undergoing zero-emission operational trials following its first launch. It is being called the first vessel in the United States to be powered by hydrogen fuel.
<https://www.hydrogenfuelnews.com/fuel-cell-ferry-california/8547972/>
- **Mobis to build two hydrogen fuel cell plants in South Korea - Just Auto**
 - South Korean automotive equipment supplier Hyundai Mobis Company announced on Friday it plans to invest KRW1.32trn (US\$1.13bn) in two domestic hydrogen fuel-cell plants by 2025, according to local reports.
 - The company said in a statement a hydrogen fuel-cell stack plant will be built in Incheon, just west of the capital city Seoul, while a hydrogen fuel-cell systems assembly plant will be built in Ulsan, on the country's east coast.
 - Construction of the two plants is set to begin in 2023, with completion scheduled for 2025. The fuel-cell systems, comprising stacks containing up to several hundred fuel cells, will be supplied mainly to Hyundai Motor & Kia Corp. for their future hydrogen-powered vehicles.
<https://www.just-auto.com/news/mobis-to-build-two-hydrogen-fuel-cell-plants-in-south-korea/>
- **New partnership to produce hydrogen fuel cells between Proton Motor and Aumann AG**
 - Proton Motor Fuel Cell GmbH (LON stock symbol PPS) and Aumann AG have announced that they are forming a new partnership to produce hydrogen fuel cells.
 - In this collaboration they will be building H2 fuel cell stacks beyond their existing agreement together. The companies have been working together in the Fit-4-AMandA (Fit for Automatic Manufacturing and Assembly) program since 2017. They have been working to produce hydrogen fuel cells in stacks with FCH JU (Fuel Cells and Hydrogen Joint Undertaking) agency financing.
<https://www.hydrogenfuelnews.com/produce-hydrogen-fuel-cells/8548129/>
- **JPMorgan points to massive growth in fuel cell vehicles in China**
 - JPMorgan's Elaine Wu has predicted that hydrogen fuel cell vehicles (FCVs) will become a central figure in the Chinese commercial truck market.
 - "Currently, the fuel cell vehicles account for less than 5% of the commercial truck market in China and that could grow to about one-third of total market share in 2050," said the firm's head of Asia ex-Japan ESG and utilities research in a "Squawk Box Asia" report from CNBC. According to Wu, the rapid refueling time of only about 10 to 15 minutes for trucks makes this greenhouse gas emission-free option an appealing one in China's commercial market.
[JPMorgan points to massive growth in fuel cell vehicles in China \(hydrogenfuelnews.com\)](https://www.hydrogenfuelnews.com/jpmorgan-points-to-massive-growth-in-fuel-cell-vehicles-in-china/)
- **Toyota To Make Fuel Cell Modules For Hydrogen Big Rigs At Kentucky Plant**
 - The automaker said it's setting up a dedicated line at its Georgetown, Kentucky, plant that will begin assembling the electrochemical devices in 2023. Toyota said the dual fuel cell modules produce 160 kilowatts of continuous electricity and are part of a propulsion system that includes a high-powered battery, electric motors and hydrogen tanks supplied by partner companies. Toyota is working with its Hino truck subsidiary on hydrogen-powered semis, and will also supply fuel cell modules made in Kentucky to other manufacturers.
<https://www.forbes.com/sites/alanohnsman/2021/08/25/toyota-to-make-fuel-cell-modules-at-kentucky-plant-for-hydrogen-big-rigs/>
- **UK government plans to roll out a hydrogen economy**

- **Future Ruthenium IC Demand: Next-Gen Chips Will Be Powered From Below - IEEE Spectrum**
 - Delivering (electrical) current to billions of transistors is quickly becoming one of the major bottlenecks in high-performance SoC design. As transistors continue to be made tinier, the interconnects that supply them with current must be packed ever closer and be made ever finer, which increases resistance and saps power. This can't go on: Without a big change in the way electrons get to and from devices on a chip, it won't matter how much smaller we can make transistors.
 - Buried Power Rails or BPR. The technique builds power connections below the transistors instead of above them, with the aim of creating fatter, less resistant rails and freeing space for signal-carrying interconnects above the transistor layer. That BPR metal will need to withstand the processing steps used to make high-quality transistors, which can reach about 1,000 °C. At that temperature, copper is molten, and melted copper could contaminate the whole chip. We've therefore experimented with ruthenium and tungsten, which have higher melting points.
 - Nanometer-size "through-silicon vias," or nano-TSVs. These are vertical interconnects that can connect up through the back side of the silicon to the bottom of the buried rails, like hundreds of tiny mineshafts. Once the nano-TSVs have been created below the transistors and BPRs, you can then deposit additional layers of metal on the back side of the chip to form a complete power-delivery network. The best choice of metal materials for the BPRs and nano-TSVs is critical to manufacturability and electrical efficiency. Also, the high-aspect-ratio (deep but skinny) trenches needed for both BPRs and nano-TSVs are very difficult to make. Reliably etching tightly spaced, deep-but-narrow features in the silicon substrate and filling them with metal is relatively new to chip manufacture and is still something the industry is getting to grips with. Developing manufacturing tools and methods that are reliable and repeatable will be essential to unlocking widespread adoption of nano-TSVs.
<https://spectrum.ieee.org/next-gen-chips-will-be-powered-from-below>
- **Ruthenium and Platinum: Western Digital in talks with Kioxia over merger - Taipei Times**
 - Western Digital Corp is in talks to merge with Japan's Kioxia Holdings Corp in a deal that could unite two technology storage providers, a person familiar with the matter said.
 - A deal, which could be worth more than US\$20 billion, might be reached by the middle of next month at the earliest if negotiations are successful, the person said, asking not be identified because the matter is private. Talks could still fall apart and Kioxia, which is closely held, is still also pursuing an initial public offering (IPO), the person added.
<https://www.taipeitimes.com/News/biz/archives/2021/08/27/2003763283>

Clean Energy General News (New Section)

- **China-backed mining deepens Papua New Guinea's golden dilemma - Nikkei Asia**
 - When the COVID-19 pandemic shrank Papua New Guinea's economy, the country looked to what one top official branded the "devil" for answers.
 - In April, the PNG government reversed its long-running efforts to stop Canadian conglomerate Barrick Gold and Chinese partner Zijin Mining from running the Porgera gold mine in the highlands. "Though Barrick has taken us to court, we work in harmony. It's better to work with the devil you know," Mining Minister Tuke said at a signing ceremony for the refreshed agreement, according to Radio New Zealand. Barrick representatives in attendance laughed, the report said. Not laughing are the activists and landowners who have long protested the mine and others like it. For PNG, mining poses a dilemma with livelihoods, natural habitats, diplomatic influence & billions of dollars on the line.
 - Community and human rights groups have painted a grim picture of the Barrick-Zijin mine, its environmental track record and a security contingent Human Rights Watch accused in 2011 of using

excessive force. Multiple cases of gang rape inflicted on women in the area were also alleged, leading to settlements in 2015.

- More recently, last year, nearly 8,000 people backed by their provincial government sued the Chinese-owned Ramu NiCo mine after toxic slurry leaked into the nearby Basamuk Bay.
- Also last year, Rio Tinto was accused of human rights violations related to claims that its defunct Panguna copper mine had poisoned waters during its operation from 1972 to 1989, leaving families with "no option but to continue to use the polluted rivers for bathing and washing," according to Australia's Human Rights Law Centre.
- Rio Tinto last month finally agreed to fund an independent assessment of Panguna's human rights and environmental impacts.
- Then there is the big prize: the proposed Frieda River mine, which would span 16,000 hectares and is expected to yield gold, silver and copper worth an estimated \$1.5 billion a year for more than 30 years. PanAust, an Australian-registered miner nabbed in what the market referred to as a "hostile takeover" by Chinese state-owned group Guangdong Rising Assets Management in 2015, is working to secure an operating permit.
<https://asia.nikkei.com/Spotlight/Asia-Insight/China-backed-mining-deepens-Papua-New-Guinea-s-golden-dilemma>
- **California dreaming: Eight million EVs by 2030, without crashing the fragile grid**
 - According to Noel Crisostomo, an Air Pollution Specialist at the CEC, much work needs to be done if California is to end up with a charging network that is able to support 8 million EVs by 2030 without crashing its fragile grid.
 - This summer and next, the California's Independent System Operator or CAISO is barely able to keep the lights on during extreme heat conditions amidst an unprecedented drought. The capacity shortfall for 2022 is projected around 5 GW.
<https://reneweconomy.com.au/california-dreaming-eight-million-evs-by-2030-without-crashing-the-fragile-grid/>
- **Sustainability | CBAM: a blunt tool to "level the playing field"**
 - In the absence of global carbon pricing, the Carbon Border Adjustment Mechanism (CBAM) is a key policy to help the EU manage domestic decarbonisation goals within the globally traded commodities market. Yet the CBAM is a blunt tool. CRU finds that the CBAM would not equalise EU and non-EU carbon costs nor effectively discriminate between high and low carbon materials.
https://sustainability.crugroup.com/article/cbam-a-blunt-tool-to-level-the-playing-field?utm_campaign=CRU+S+Insight+email+4+-+Aug+21&utm_medium=email&utm_source=Pardot#
- **Expanding the supply chain for rare earth materials**
 - From cars and construction equipment to cell phones and military weapons, rare earth materials are critical to manufacturing many important things businesses and consumers use on a daily basis. While people around the world rely on these minerals in their everyday lives, China produces 80% of the U.S. rare earths, and has been doing so for quite some time.¹ What's made things even worse over the past 12 to 18 months is a global pandemic. Many consumers stuck at home decided that their current cell phone or computer needed to be replaced, which ultimately caused a shortage of these materials that is affecting various other sectors including the automotive and electronic industries.
<https://www.kitco.com/commentaries/2021-08-24/Expanding-the-supply-chain-for-rare-earth-materials.html>

BEV / LiB Battery Market News

- **Tesla Adopting More LFP Designs**
 - Yesterday, Elon Musk confirmed that Tesla will be using #LFP in some of its US Model 3's, this has raised the normal Q's around patents and licensing. Below I explain the three key patents relating to LFP and why China can produce the material at such a low cost.

- Patent 1 - The first LFP structural patent was filed by Nobel prize winner John Goodenough in 1996, granted in 2003 and expired in 2017. The patent described the performance of the material and its use in batteries. <https://lnkd.in/dfp7pG3d>
- Patent 2 - This was filed by the Université de Montréal. It was granted in 2008, and expired earlier this year. The patent described how the performance of LFP, which has a low electronic conductivity, can be improved by coating it in carbon. <https://lnkd.in/dpdma4xY>
- Patent 3 - Was filed by Hydro Québec, Université de Montréal & CNRS in 2001, but only granted in 2007. It expires in the US in 2022, and September 2021 in Europe. It brings the two other patents together and describes a method to synthesis the coated material. <https://lnkd.in/dfnYsqzk>
- The three patents were tied together to create a license under the consortium <https://lifepo4ag.com>. The license has never been defended in China, but has been licensed around the world to companies like BASF, Aleees and Mitsui & Co., Ltd.. Despite the license not being defended in China, Chinese companies like Pulead Technology Industry Co., Ltd., are licensees. This may be to allow them to more easily sell LFP outside of China.
- While the license costs millions of dollars a year, and licensees have to pay additional fees for each kg of LFP produced, the impact on LFP cathode prices is limited.
- The real reason that Chinese companies can produce low cost LFP is because the government in China provided high subsidies for cathode production facilities between 2014-17 when lithium carbonate and hydroxide prices were high. This means that the production costs for LFP made in Chinese facilities are lower than the rest of the world.
- While Tesla will benefit from low pack prices by importing LFP from China, it will have to pay a 10% tariff on those packs.
https://www.linkedin.com/posts/james-frith-424a2b6a_lfp-ev-battery-activity-6837043554490060801-kKsC
- **Congo reviewing \$6 billion mining deal with Chinese investors -Finance Minister**
 - Democratic Republic of Congo's government is reviewing its \$6 billion "infrastructure-for-minerals" deal with Chinese investors as part of a broader examination of mining contracts, Finance Minister Nicolas Kazadi told Reuters.
 - President Felix Tshisekedi said in May that some mining contracts could be reviewed because of concerns they are not sufficiently benefiting Congo, which is the world's largest producer of cobalt and Africa's leading miner of copper.
 - His government announced this month it had formed a commission to reassess the reserves and resources at China Molybdenum's massive Tenke Fungurume copper and cobalt mine in order to "fairly lay claim to (its) rights".
<https://www.msn.com/en-us/money/markets/exclusive-congo-reviewing-6-billion-mining-deal-with-chinese-investors-finance-minister/ar-AANP1Fb?ocid=BingNewsSearch>
- **First Cobalt secures \$45M to build battery material refinery in Ontario**
 - "This is one of our most important catalysts for the year, as this financing will allow us to advance construction of our Canadian battery material refinery," said President & CEO Trent Mell. "Every director and officer is participating in the financing, underlining our confidence in our business strategy and strengthening our alignment with shareholders."
<https://www.kitco.com/news/2021-08-23/First-Cobalt-secures-45M-to-build-battery-material-refinery-in-Ontario.html>
- **More nickel consolidation likely: fund manager - Mining Journal**
 - "Given the lack of quality nickel sulphide production for battery use, we expect to see future consolidation within the nickel sector as larger players move to secure quality assets and add mine life to their portfolios," Eden Partners said in a nickel update.
<https://www.mining-journal.com/m-amp-a/news/1416476/more-nickel-consolidation-likely-fund-manager?>

Regards –