



## Weekly Precious Metals News Articles: May 21, 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-

### Gold

- **Gold trades at highest in over 3 months**
  - Gold received an "uplift on a slightly weaker [U.S. dollar], and with real yields turning more negative," Ross Norman, chief executive officer at Metals Daily, told MarketWatch.
  - "Gold investors will feel encouraged that gold is starting to make a recovery after a rocky Q1, but confidence still looks fragile -- you can see that when it approaches important technical levels it appears to do so tentatively," said Norman. "In short, momentum is positive but conviction is light." <https://www.morningstar.com/news/marketwatch/20210517274/gold-trades-at-highest-in-over-3-months>
- **Does inflation signal lift-off for gold?**
  - Gold is one asset that stands to benefit from rising inflation. This is because inflation progressively reduces the buying power of paper currencies, including how much gold can be bought for a given amount of paper. Given that gold is in very limited supply and can't be devalued in the way that paper currencies can, its value should tend to rise with inflation. <https://www.fidelity.co.uk/markets-insights/markets/global/does-inflation-signal-lift-gold/>
- **Gold has the 'green light' as inflation heats up analysts look for break above \$1,850**
  - With inflation on the rise and the U.S. central bank looking to hold the line on its monetary policy, Melek said that it is only a matter of time before gold prices push above \$1,850 an ounce. He added that if that price level breaks then the next primary target would be the January highs above \$1,900. <https://www.kitco.com/news/2021-05-14/Gold-has-the-green-light-as-inflation-heats-up-analysts-look-for-break-above-1-850.html>

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

- **Korea takes \$450 billion aim at microchip supremacy**
  - Nation plans to spend hundreds of billions over next nine years to take the lead in the global semiconductor market
  - South Korea builds more memory than any other nation on Earth, but not much logic (CPUs, GPUs, other types of microprocessors), the report said. Taiwan holds the largest share of the logic market by far thanks to TSMC, while companies like Intel and Micron account for large shares of the US' manufacturing capacity. <https://asiatimes.com/2021/05/south-korea-takes-aim-at-microchip-supremacy/>
- **TSMC looks to double down in Arizona**

- The world's most advanced chipmaker might be eyeing an advanced 3-nanometer plant in the US after it finishes setting up its 5-nanometer fab there  
<https://www.taipeitimes.com/News/biz/archives/2021/05/17/2003757517>
- **Shift from 8" (200mm) Wafer Fabs to 12" (300mm) Could Ease IC Shortages**
  - This is not a new problem, Trends Force stated around the same time that "8-inch wafer capacity has been in severe shortage since 2H19". And EE Times reported in February 2020 that "Shortage's loom after 8-inch fabs run at 99% capacity in Q1".
  - The continuous increase in demand for these mixed signal chips and power devices is the main reason for the shortage of 8-inch wafer production capacity.  
<https://www.eetimes.com/shift-from-8-wafer-fabs-to-12-could-ease-ic-shortages/>

## Silver

- **Silver price: Eyes on \$28 as demand exceeds supply**
  - Silver price is rallying after Fed officials downplayed the ongoing inflation fears.
  - Silver's supply has risen by 8% YTD compared to its demand growth of 15%.
  - This week's focus is on the FOMC meeting minutes on Wednesday.  
<https://invezz.com/news/2021/05/17/silver-price-28-demand-exceeds-supply/>
- **International Energy Agency - Net Zero by 2050: A Roadmap for the Global Energy Sector**
  - A 224-page book on the Net Zero Roadmap proposed by the IEA.
  - Matt: As discussed previously, this roadmap calls for an insane ramp in Solar PV, EV's Wind all drawing on huge mineral resources to accomplish. These ramps in mining are not at all underpinned. Huge impacts to Cu, Ni, Li, Co, Ag, Pt, Ru, Ir, REE's, and many more.  
<https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroby2050-ARoadmapfortheGlobalEnergySector.pdf>
- **Silver Institute Market Report: Silver in Printed & Flexible Electronics**
  - Silver Demand for Printed and Flexible Electronics Forecast to Consume 615 Million Ounces of Silver Through 2030.  
[https://www.silverinstitute.org/wp-content/uploads/2021/05/SilverElectronics\\_MmktTR2021v.pdf](https://www.silverinstitute.org/wp-content/uploads/2021/05/SilverElectronics_MmktTR2021v.pdf)
- **LBMA March Silver Supply Revised Numbers, Class Action Lawsuit to Follow?**
  - Specifically, the LBMA claimed (in March) there was an 11% increase in comparison to February. This 11% represents about \$30 billion or 1,259,310 silver bars. However, the LBMA March silver supply number was off—by a lot. In reality, the LBMA only saw the addition of 561 tonnes, not 3,863 tonnes. This is 6.88 times less than the previous statement, shifting from an 11% increase to merely 1.6%.
  - Also, they somehow counted an extra 3,300 tonnes, which is about 96,251,100 troy oz. This does not seem like a simple error, and critics speculate that this was all an unsurprising ruse. This could be enough for a Class Action Lawsuit against the LBMA since these false numbers potentially affected investors who have futures contracts through the LBMA.  
<https://www.valuewalk.com/lbma-march-silver-supply-revised-numbers-class-action-lawsuit-to-follow/>

## Precious Metals Mining:

- **South Africa's NUM labour union demands 15% wage hike from gold companies**
  - South Africa's National Union of Mineworkers (NUM) wants a 15% wage increase across the board for employees in the gold mining sector, as well as minimum pay of 15,000 rand (\$1,065), the union said on Thursday. Soaring global gold prices over the past year have seen earning by gold firms surge, but the companies have argued that above-inflation increases are unrealistic.
  - In the statement NUM said it expected firms to "come up with many excuses", and that they would respond "with the required militancy".

<https://www.nasdaq.com/articles/south-africas-num-labour-union-demands-15-wage-hike-from-gold-companies-2021-05-20>

- **Nornickel Restores Mining at Oktyabrsky Mine to Full Capacity**

- Nornickel, the world's largest producer of palladium and high-grade nickel and a major producer of platinum and copper, has restored the copper-nickel ore mining at the Oktyabrsky mine back to its full capacity of 14,100 tonnes per day. Operation of the mine's two shafts is now fully restored, <https://www.newswire.com/news/nornickel-restores-mining-at-oktyabrsky-mine-to-full-capacity-21390069#ixzz6vQVr1YQL>

- **Platinum records for South African mines**

- Though platinum supply is expected to increase by 17% in 2021, the market is forecast to remain in a deficit for the third consecutive year. The WPIC expects continued uncertainty over South African PGM supply because of electricity disruptions.
- There will also be a 3% increase in total demand. And as economies continue to reopen amid vaccine rollouts, demand in platinum-reliant sectors will rise above 2019 levels, the WPIC notes. <https://mg.co.za/business/2021-05-16-platinum-records-for-south-african-mines/>

- **Top Mining Companies in the World**

<https://www.insidermonkey.com/blog/top-mining-companies-in-the-world-943422/>

Rank	Company	HQ	Market Cap (\$B's)	2020 Revenue (\$B's)	Minerals
1	BHP Group	Melbourne, Australia	\$ 193.5	\$ 42.9	Coal, uranium, petroleum, iron ore, copper, and natural gas
2	Rio Tinto Group	Melbourne, Australia	\$ 139.5	\$ 44.6	Iron ore, aluminum, diamond, gold, copper, and borate.
3	Vale	Brazil	\$ 107.9	\$ 40.0	Iron ore, nickel, manganese, copper, bauxite, potash, and cobalt
4	Freeport-McMoRan Inc.	Phoenix, AZ, USA	\$ 61.9	\$ 14.2	Molybdenum, copper and gold.
5	Anglo American	London, England	\$ 64.5	\$ 30.9	PGM's, copper, diamonds, nickel, iron ore, coal
6	Glencore International	Baar, Switzerland	\$ 60.7	\$ 142.3	Zinc, copper, aluminum, nickel, and cobalt
7	Southern Copper Corp.	Mexico City, Mexico	\$ 58.9	\$ 8.0	Copper, molybdenum, zinc, lead, gold, and silver.
8	Noriilsk Nickel	Moscow, Russia	\$ 58.5	\$ 15.5	Palladium, Nickel, platinum, rhodium, copper, gold, silver, iridium, selenium, ruthenium, and tellurium
9	Shenhua Energy Company Ltd	China	\$ 58.4	\$ 36.1	Coal
10	Newmont Mining	Denver, CO, USA	\$ 56.6	\$ 11.5	Gold, silver, copper, zinc, and lead
11	Fortescue Metals Group	Australia	\$ 54.1	\$ 12.8	Iron Ore
12	Barrick Gold Corp.	Toronto, Canada	\$ 42.5	\$ 12.6	Gold and copper
13	Zijin Mining	China	\$ 42.2	\$ 1.0	gold, copper, zinc, and other
14	Nutrien Ltd.	Canada	\$ 34.3	\$ 20.9	Potash and Nitrogen Fertilizers
15	Franco-Nevada Corporation	Canada	\$ 28.4	\$ 1.2	Streaming and Royalties - Gold
16	Polyus	Moscow, Russia	\$ 27.0	\$ 4.9	Gold
17	Wheaton Precious Metals	Vancouver, Canada	\$ 20.2	\$ 1.1	Streaming Company Precious Metals and Cobalt
18	Albemarle Corporation	Charlotte, North Carolina	\$ 19.1	\$ 3.1	Lithium, bromine
19	Agnico Eagle Mines Limited	Canada	\$ 16.9	\$ 3.1	Gold
20	The Mosaic Co.	Tampa FL USA	\$ 13.8	\$ 8.7	phosphate and potash

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

- **Who is stealing all the catalytic converters in Seattle?**

- If you own a Toyota Prius or a Honda Element, beware. Catalytic converter theft has shot up more than 3,800% in Seattle and King County over the past year. Prime targets include the Toyota Prius or a Honda Element.

<https://kuow.org/stories/your-prius-is-perfect-for-catalytic-converter-theft>

- **Experts call for mandatory recycling of products containing rare metals**

- Disc drives, circuit boards, fluorescent lamps and batteries for electric vehicles could be among affected products

<https://www.theguardian.com/environment/2021/may/10/recycling-rare-metals-climate-green-technology>

- **Australia's first solar panel recycling plant swings into action**
  - The plant, which was completed last September in Thomastown by Melbourne based co-operative Lotus Energy, claims to recycle 100% of end-of-life solar PV modules and all associated materials recovered – inverters, cables, optimisers, mounting structures – using no chemicals.  
<https://reneweconomy.com.au/australias-first-solar-panel-recycling-plant-swings-into-action/>
- **EU auditors: The EU is not doing enough to recover e-waste**
  - The EU member states collect and recover more discarded electrical and electronic equipment than most of the world but risk missing more ambitious e-waste collection targets, according to a new review report published on Thursday by the European Court of Auditors (ECA).  
<https://www.brusselstimes.com/news/eu-affairs/170290/eu-auditors-the-eu-is-not-doing-enough-to-recover-e-waste/>
- **Experts discuss the record rise in copper prices - E-Scrap News**
  - “We’re going to see prices probably continue to remain high and move higher likely over the next couple of years,” he said.
  - Agreeing that medium- and long-term prospects for the red metal look promising, Bloomberg commodities columnist David Fickling argued in a piece published yesterday that the recent price increases are due for a pause.  
<https://resource-recycling.com/e-scrap/2021/05/20/experts-discuss-the-record-rise-in-copper-prices/>

## Platinum

- **HERAEUS PRECIOUS METALS - Setting the PGM agenda for the years ahead**
  - The Platinum Standard 2021 – 66 page 1H 2021 deep dive report.  
[https://www.heraeus.com/media/media/hpm/doc\\_hpm/precious\\_metal\\_update/The\\_Platinum\\_Standard\\_2021.pdf](https://www.heraeus.com/media/media/hpm/doc_hpm/precious_metal_update/The_Platinum_Standard_2021.pdf)
- **Platinum set for third year of deficit as industry demand surges, WPIC says**
  - The World Platinum Investment Council (WPIC) said on Monday the global platinum market will be more undersupplied this year than it previously thought as economic recovery fuels a surge in demand from industry.  
<https://www.reuters.com/business/environment/platinum-set-third-year-deficit-industry-demand-surges-wpic-says-2021-05-17/>
- **Palladium, rhodium undersupplied as platinum swings to surplus -Johnson Matthey**
  - It said the roughly 8-million-ounce platinum market would be oversupplied by 615,000 ounces this year, returning to surplus after undersupply of 669,000 ounces in 2020 and 365,000 ounces in 2019.  
<https://www.nasdaq.com/articles/palladium-rhodium-undersupplied-as-platinum-swings-to-surplus-johnson-matthey-2021-05-17>
- **Silicon Rubber Catalysts – Precious Metal Chemicals: Ashby & Karstedt Catalysts**
  - BASF offers both Karstedt and Ashby catalysts in various concentrations and dilutants. We consider it important to offer catalysts with an adjustable curing rate and minimal turbidity of the catalyst solutions to ensure that the customer can realize complete curing and the often-desired high transparency of their product. To achieve those qualities BASF builds on its expertise in precious metal chemistry, a unified global product supply, and customer-oriented bottling and dispensing.  
<https://catalysts.basf.com/products/precious-metal-chemicals-ashby-karstedt-catalysts>

## Fuel Cells/Hydrogen Economy Related Articles:

- **Hyundai's Hydrogen SUV Sets Impressive World Record**
  - This is the longest distance covered by a hydrogen-powered vehicle on a single tank.  
<https://carbuzz.com/news/hyundais-hydrogen-suv-sets-impressive-world-record>
- **BMW to offer hydrogen fuel-cell X5 SUV model in 2022**

- BMW is introducing a limited series hydrogen fuel-cell powered SUV in 2022 as a zero-emission alternative to electric battery cars, according to the chief executive of the German luxury carmaker.
- The company is planning to manufacture the zero-emission model of the X5 SUV on a small scale next year, BMW CEO Oliver Zipse announced at a recent shareholder meeting, according to a Reuters report.  
<https://www.bignewsnetwork.com/news/269494883/bmw-to-offer-hydrogen-fuel-cell-x5-suv-model-in-2022>
- **Toyota launches fuel cell cooperation with Eneos**
  - Toyota and Eneos will collaborate to explore the use and application of hydrogen energy, particularly testing and demonstrating the supply chain – from production to delivery to use of hydrogen in and around Woven City.  
<https://www.electrive.com/2021/05/11/toyota-launches-fuel-cell-cooperation-with-eneos/>
- **Daimler Testing Hydrogen-Powered Truck for Long Haul**
  - Daimler Trucks is focusing on hydrogen-powered fuel-cells for the electrification of long-haul truck models. It aims to achieve ranges of up to 1,000 kilometers (more than 600 miles) and more without any stops for refueling.  
<https://www.truckinginfo.com/10143896/daimler-testing-hydrogen-powered-truck-for-long-haul>
- **(Chinese) Automakers to up fuel cell vehicle production**
  - Mu Feng, vice-president of Great Wall Motors, said: "If we have 1 million hydrogen fuel-cell vehicles on our roads (instead of gasoline ones), we can cut carbon emissions by 510 million (metric) tons a year."
  - Later this year, the Chinese carmaker will roll out its first large-sized hydrogen fuel-cell SUV model, with a range of 840 kilometers, and launch a fleet of 100 hydrogen heavy trucks.  
<http://www.chinadaily.com.cn/a/202105/17/WS60a1d789a31024ad0babe48f.html>
- **Japanese manufacturers cooperate on development of hydrogen-fueled marine engines**
  - Kawasaki Heavy Industries Ltd, Yanmar Power Technology Co., Ltd, and Japan Engine Corp. have formed a consortium of Japanese engine manufacturers to pursue joint development of hydrogen-fueled marine engines for ocean-going and coastal vessels towards establishing a world-leading position in hydrogen engine technologies.  
<https://www.hydrocarbonengineering.com/clean-fuels/07052021/japanese-manufacturers-cooperate-on-development-of-hydrogen-fuelled-marine-engines/>

## **Palladium**

- **European new car sales jump 256% y/y in April- ACEA**
  - New car registrations rose by 256% year-on-year (in April) to 1,039,810 vehicles in the European Union, Britain and the countries of the European Free Trade Association (EFTA), figures from the European Automobile Manufacturers' Association (ACEA) showed.  
<https://www.reuters.com/article/europe-vehicleregistrations/european-new-car-sales-jump-256-y-y-in-april-acea-idUSL5N2N54PB>
- **Toyota thinks 85% of its new US vehicles will have tailpipes in 2030**
  - In the U.S., Toyota says that electrified vehicles will make up 70% of sales by 2030, the majority of which will be hybrids. Battery electric models and fuel-cell vehicles, combined, will make up 15% of U.S. sales by 2030, according to the company.  
[https://www.greencarreports.com/news/1132255\\_toyota-thinks-85-of-its-new-us-vehicles-will-have-tailpipes-in-2030](https://www.greencarreports.com/news/1132255_toyota-thinks-85-of-its-new-us-vehicles-will-have-tailpipes-in-2030)
- **Palladium and platinum better leveraged to recovery than gold – Deutsche Bank**
  - From a high-level perspective on market structure, palladium and platinum are more akin to traditional commodities than gold and silver, although they may sometimes be mentioned in the

same breath. In the coming months, economists at Deutsche Bank prefer a long palladium and platinum basket vs gold.

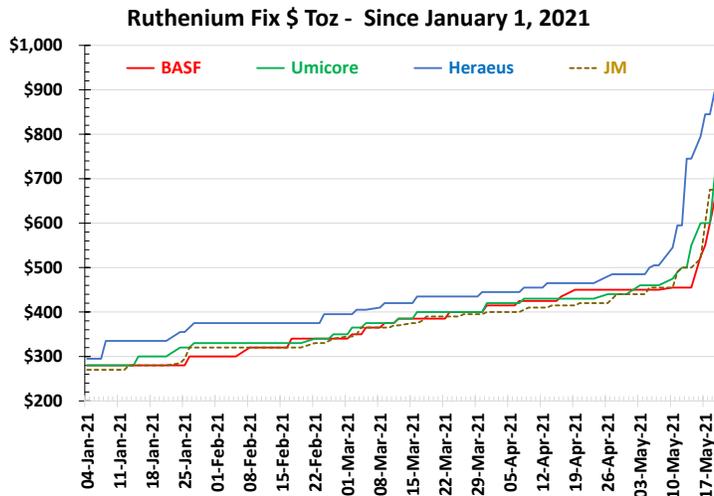
<https://www.fxstreet.com/news/palladium-and-platinum-better-leveraged-to-recovery-than-gold-deutsche-bank-202105181203>

- **Million-ounce palladium deficit will drive record prices, says Metals Focus**
  - The roughly 10 million ounce-a-year palladium market will be undersupplied by around a million ounces in 2021 and the price will average \$3,000 an ounce, up 37% from 2020 and the highest on record, consultants Metals Focus said on Tuesday.

<https://www.nasdaq.com/articles/million-ounce-palladium-deficit-will-drive-record-prices-says-metals-focus-2021-05-18>

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

- **Iridium/Platinum Catalyst: Solar-plus-storage to produce hydrogen from seawater**
    - Spanish PV project developer Gransolar is planning to build a large-scale green hydrogen production plant in the Port of Almería, in southern Spain.
    - A company spokesperson told pv magazine that the plant will produce hydrogen from seawater and will be powered by a 30 MW solar plant and a 20 MWh storage system with an autonomy of 4 hours.
    - The facility will be based on double-reverse osmosis treatment with energy recovery followed by electrolysis of deionized water through proton exchange membrane (PEM). Furthermore, secondary electrolysis of concentrated brine will be implemented by cell membrane electrolysis.
    - The main electrolyzer at the facility will have an installed capacity of 20 MW and an estimated production of 1,000 tons (or 1M kg of H<sub>2</sub>) per year. The produced fuel will be then stored in trucks for pressurized gas at 400 bar pressure.
- <https://www.pv-magazine.com/2021/05/19/solar-plus-storage-to-produce-hydrogen-from-seawater/>
- **Iridium/Chloride compounds: Flat-Panel Display Demand Soars**
    - Demand for PCs, TVs & other products fueled renewed growth for displays. The flat-panel display market reached \$118 billion in 2020, +6% over 2019, according to DSCC. That's above the previous +2% forecast.
    - The numbers include LCDs, OLEDs and other displays. Of those figures, the LCD market reached \$84 billion, while OLEDs were \$33 billion in 2020, according to DSCC.
- <https://semiengineering.com/flat-panel-display-demand-soars/>
- **Ruthenium Catalysts: Ammonia to power 45% of shipping in 2050 net-zero scenario: IEA**
    - Ammonia and hydrogen will be the main marine fuels if the world reaches net-zero in 2050, accounting for about 60% of the market together and with ammonia occupying the largest share, the International Energy Agency said May 18.
    - Outlining its first road map for how the global energy sector can achieve net-zero emissions, the IEA said in such a scenario ammonia will account for 45% of energy demand from shipping.
- <https://www.hellenicshippingnews.com/ammonia-to-power-45-of-shipping-in-2050-net-zero-scenario-iea/>
- **Ru Ammonia Catalysts: Mitsubishi Heavy Industries Looks Into Decarbonizing Existing Ships**
    - In a sign of the cross-sector demand for green energy resources, the MHI subsidiary Mitsubishi Power is developing a 40 megawatt turbine generator that can run on pure ammonia - the "first commercialized gas turbine to make exclusive use of ammonia as a fuel in a system of this scale."
- <https://maritime-executive.com/article/mitsubishi-heavy-industries-looks-into-decarbonizing-existing-ships>
- **Ruthenium Index Price Is Exploding:**
    - Matt: No article link. I thought I would simply post the Ruthenium Index from the major processors over the past few months. Ruthenium has suddenly doubled in price.
    - Matt: Every indication is that China buying, both speculative and for true catalyst needs is driving this most recent spike.



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

- **LG Chem to Supply 90%-Nickel NCMA Cathode Materials to Tesla**
  - Commercializes NCMA Cathode Materials with 90% Nickel  
<http://www.businesskorea.co.kr/news/articleView.html?idxno=67529>
- **QuantumScape - QuantumScape and Volkswagen Sign Agreement to Select Location for Joint Venture Pilot-Line Facility**
  - QuantumScape Corporation today announced that it has entered into an agreement with VW of America, Inc. to select the location of their joint-venture solid-state battery pilot-line facility by the end of 2021. The companies currently contemplate Salzgitter, Germany for the location.
  - The pilot-line facility, QS-1, will initially be a 1-gigawatt hour battery cell commercial production plant for electric vehicle batteries. QuantumScape and Volkswagen intend to expand production capacity by a further 20 GWh at the same location.  
<https://ir.quantumscape.com/news/news-details/2021/QuantumScape-and-Volkswagen-Sign-Agreement-to-Select-Location-for-Joint-Venture-Pilot-Line-Facility/default.aspx>
- **YouTube Video: How Tesla's Battery Mastermind Is Tackling EV's Biggest Problem**
  - Former Tesla CTO and Elon Musk's right-hand man, JB Straubel, started Redwood Materials in 2017 to help address the need for more raw materials and to solve the problem of e-waste. The company recycles end-of-life batteries and then supplies battery makers and auto companies with materials in short supply as EV production surges around the world. Straubel gave CNBC an inside look at its first recycling facility in Carson City, Nevada. Watch the video to learn why battery recycling will be an essential part in making EV production more sustainable.  
<https://www.youtube.com/watch?v=xLrOGStrnwQ>
- **Biden Considering Point-of-Sale Rebates for Electric Car Buyers**
  - Rebates, charging stations would be aimed at boosting sales  
<https://www.bloomberg.com/news/articles/2021-05-18/biden-considering-point-of-sale-rebates-for-electric-car-buyers>
- **Crazy metal prices inflate miners' capex conundrum**
  - According to analyst Wood Mackenzie, for copper alone miners need to add an extra 23 million tonnes of capacity, around double current levels. It reckons the investment required works out at \$22,900 a tonne, or \$526 billion.
  - Throw in nickel, aluminium, cobalt and lithium, and the gap between miners' current spending plans and what the energy transition requires over the next 15 years is almost \$2 trillion.

<https://www.mining.com/web/crazy-metal-prices-inflate-miners-capex-conundrum/>

- **Will the increase in material prices affect the price of lithium batteries?**

- The rising price of materials greatly increased the cost pressure of battery companies. Taking LFP battery for example, the total material cost of LFP battery has risen from 304.8 RMB per kilowatt hour in 2020 to 373.2 in 2021, an increase of 22.4%. Meanwhile, the gross profit of LFP battery also dropped from 29.1% to 15.4%. Currently there is nearly no net profit for Chinese battery companies.
- Even in the case of crazy price increase of materials, it's unlikely for the battery companies to increase battery prices. Instead, it might lead to production suspension or reduction in lithium battery industry. Battery companies and auto manufacturers usually sign long-term contract where battery companies are obliged to reduce prices by a fixed percentage every year. However, with material price increase, it's likely that they wouldn't reduce battery prices next year, or there would be changes in payment terms.

<http://www.iccsino.com/news/show-htm-itemid-14760.html>

- **Copper Prices Are Surging. The Green Economy Will Force Them Even Higher.**

- 'An electric vehicle contains as much as 180lbs of the red metal, 4x the amount in regular vehicle. Onshore wind turbines use about 4x as much copper as power plants fired by fossil fuels per megawatt of electricity. Offshore wind farms are even more..'

<https://www.barrons.com/articles/green-economy-will-be-a-gold-mine-for-copper-51620424287>

- **Could soaring prices see copper fly too close to the sun?**

- Too many forecasts ignore the fact that aluminium is a serious competitor to copper in a number of high volume applications, including high- and mid-voltage power cable, busbars, transformer windings and motor windings. It's worth noting that Tiripatu Graphite PLC are working on combining aluminium with graphene to offer a product with 95% of the conductivity of copper – a development which really would put the cat among the pigeons!

<https://www.woodmac.com/news/opinion/could-soaring-prices-see-copper-fly-too-close-to-the-sun/>

- **Lithium extraction techniques increasingly under ESG scrutiny**

- More than half of global lithium reserves are within what is referred to as the 'Lithium Triangle,' covering parts of Argentina, Chile and Bolivia. Historically, extraction within the salt flats of the lithium triangle has been substantially water-intensive, requiring about two million litres of water per tonne of lithium extracted.
- This presents a substantial risk of water shortages for future agricultural needs in a region that already has a reputation as one of the driest places on the globe, Fitch says.

<https://www.mining.com/lithium-extraction-techniques-increasingly-under-esg-scrutiny-fitch-report/>

- **Record metals boom may threaten transition to green energy**

- Iron ore reached the apex of a super-rally that drove prices to \$237.57 a tonne in New York on Wednesday. The record followed a surge in demand from China's steel-making regions, now recovering after the pandemic, which has pushed prices up from less than \$94 this time last year.
- Copper, which is used in products from smartphones to electric cars, has doubled in price over the past year. The metal hit a fresh record of more than \$10,700 a tonne last week as Chinese demand continued to rise.

<https://www.theguardian.com/business/2021/may/15/record-metals-boom-may-threaten-transition-to-green-energy>

- **Lithium prices diverge and defy expectations as new EV trends unfold**

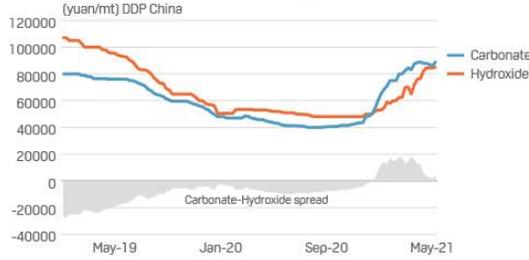
- Lithium hydroxide was traditionally produced from lithium carbonate. When Australia's spodumene capacity increased after new projects came online in 2018, the spodumene production route for lithium hydroxide became dominant. The increased Australian production, which altered supply routes, combined with a slower than anticipated growth in global EV sales and changes in Chinese

policy, have combined to boost demand and liquidity in the lithium carbonate market, altering the price relationship between the products.

- A key driver for lithium chemical demand and prices is the changing fortunes of different battery compositions. Lithium iron phosphate (LFP) chemistry has always been cheaper versus nickel manganese cobalt oxide (NCM) and lithium nickel cobalt aluminum oxide (NCA), which require expensive nickel and cobalt. LFP is also considered safer, as less prone to thermal runaways, thanks to the absence of nickel, but the trade-off has been lower range.

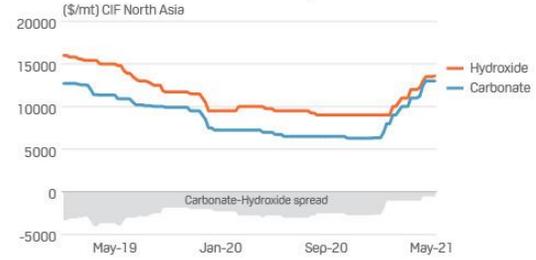
<https://www.spglobal.com/platts/en/market-insights/blogs/metals/051921-lithium-carbonate-hydroxide-batteries-ev-policy-subsidies-china-eu>

**LITHIUM CARBONATE vs HYDROXIDE, CHINA DOMESTIC MARKET**



Source: S&P Global Platts

**LITHIUM CARBONATE vs HYDROXIDE, N. ASIA IMPORT MARKETS**



Source: S&P Global Platts

- **Regards –**