Weekly Precious Metals News Articles: December 3, 2021

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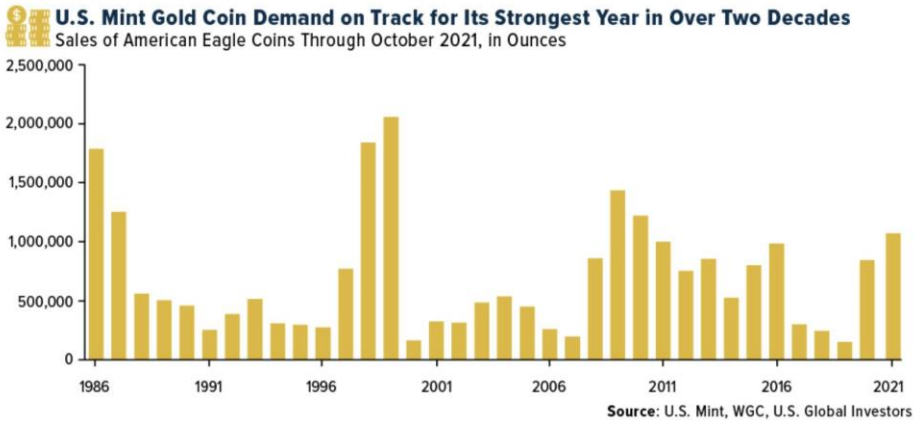
Below is a cross section of relevant news article to the world of Precious Metals:

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

Printable PDF version attached. Enjoy-

Gold

- **Gold bounces off 7-week lows, holds gains after disappointing jobs data**
  - Gold prices traded higher Friday morning, holding the bulk of their gains after U.S. jobs growth fell short of expectations. November U.S. payrolls data showed a gain of 210,000 jobs, against expectations for a rise of 573,000 and a rise of 531,000 in October.
  - Aggressive tapering of asset purchases by the U.S. Federal Reserve "is out of the window, and that is the simple explanation of the data," said Naeem Aslam, chief market analyst at AvaTrade, in a market update. That contributed to the rise in gold prices.
    https://www.marketwatch.com/story/gold-bounces-off-seven-week-lows-as-jobs-data-awaits-11638537569
- **Central Bank stocks up on gold as inflation climbs**
  - The Central Bank of Ireland has been adding to its gold reserves as inflation in the euro area runs far ahead of the European Central Bank target.
  - The bank's purchase of 2 tonnes of gold in recent months has ended a more than decade-long period of unchanged holdings of the precious metal.
    https://www.irishtimes.com/business/economy/central-bank-stocks-up-on-gold-as-inflation-climbs-1.4744124
- **Gold Bullion Sinks to 4-Week Lows, Ratio to Silver Price Slips as Powell 'Accelerates' Taper**
  - Gold slumped to 4-week lows against a rising Dollar late Tuesday in London, erasing an earlier spike after Fed chairman Jerome Powell said high inflation and a strong economy mean the US central bank could accelerate its QE tapering, spurring expectations interest rates will be raised sooner from zero.
    https://www.bullionvault.com/gold-news/gold-silver-covid-113020212
- **U.S. Mint Gold Coin Demand on track for its strongest year in over two decades**
  - Sales of American Eagle Coins through October 2021 in Toz in graph below.
    https://www.linkedin.com/posts/ross-norman-61866532_activity-6871473350225522689-NkQW



Semiconductor Related Articles (impacting Precious Metals electronics):

- **How the global chip shortage is boosting US manufacturing**
  - A pandemic problem led to a $52 billion plan to help chipmakers like Intel and an overhaul of the global economy. A new $17 billion Samsung fab in Texas could benefit.
  - Matt: Analyst perspective. $52B US Investment into a $600B estimated Semiconductor Market is a sizeable investment to start. Toss in Japan, S. Korea and EU investment and its closer to $100B in new investment. Absolutely needed to diversity this market segment away from just Taiwan which remains at risk from China takeover.
    https://www.cnet.com/tech/computing/how-the-global-chip-shortage-is-boosting-us-manufacturing/
- **Apple warns suppliers of demand dip**
  - The company has told its component suppliers that demand for the iPhone 13 series has weakened, people familiar with the matter said, signaling that some consumers have decided against trying to get the hard-to-find item.
  - Already, Apple had cut its iPhone 13 production goal for this year by as many as 10 million units, down from a target of 90 million, because of a lack of parts, Bloomberg reported.
    https://www.taipeitimes.com/News/biz/archives/2021/12/03/2003768910
- **Japan approves a boost for domestic chipmaking industry**
  - The Japanese government yesterday approved ￥774 billion (US$6.8 billion) in funding for domestic semiconductor investment, backing up Japanese Prime Minister Fumio Kishida's commitment to make the nation a major global provider of essential computer chips.
    - ￥617B domestic investment into cutting-edge chip mfg. production capacity
    - ￥47B for legacy production such as analog chips and power management parts
    - ￥110B for the research and development of next-generation silicon.

    https://www.taipeitimes.com/News/biz/archives/2021/11/27/2003768576

Silver

- **Silver Weekly Price Forecast – Silver Markets Slam Into $22**
  - Silver markets have slammed the lower during the course of the week to reach down towards the $22 level, an area that has been crucial more than once. Ultimately, this is a market that has to make up its longer-term mind.
    https://www.fxempire.com/forecasts/article/silver-weekly-price-forecast-silver-markets-slam-into-22-829887
- **The weekend read: Cloud looms over PV's silver lining**
  - Should heterojunction solar technologies be temporarily shelved? Could copper plating replace screen-printed silver conductive surfaces in cells? Why are tandem cells a likely successor to PERC?

Brett Hallam recently sat down with Natalie Filatoff in Sydney to explain the findings of a new study by UNSW that sought to answer these controversial questions.

- Your recent study is called "Design Considerations for Multi-terawatt Scale Manufacturing of Existing and Future Photovoltaic Technologies: Challenges and Opportunities Related to Silver, Indium and Bismuth Consumption." It has spurred a lot of discussion in the PV community – how did you select this theme for study?
  https://www.pv-magazine.com/2021/11/27/the-weekend-read-cloud-looms-over-pvs-silver-lining/

- **Amazon procures more than 1 GW of U.S. solar projects**
  - Amazon has announced 5.6 GW of solar throughout the world. The first U.S. projects are planned for Arizona and Georgia.
    https://www.pv-magazine.com/2021/12/03/amazon-procures-more-than-1-gw-of-u-s-solar-projects/
- **Record solar numbers expected this year but IEA highlights pricing concern**
  - The Paris-based body expects the world will have installed ~160 GW of solar this year, a record number, but still not enough to keep the prospect of a net zero global economy by mid-century.
  - Matt: 160 GW of 2021 Solar PV Installations requires 130 Moz of Silver, ~13% of the global supply
    https://www.pv-magazine.com/2021/12/02/record-solar-numbers-expected-this-year-but-iea-highlights-pricing-concern/

Precious Metals Mining:

- **Nornickel tells investors that ESG and overcoming historical legacies are now paramount**
  - Nornickel, the world's largest producer of high-grade nickel and palladium has told its investors that protecting and cleaning up the environment are now a key part of its operations.
    https://emerging-europe.com/newsupdates/nornickel-tells-investors-that-esg-and-overcoming-historical-legacies-are-now-paramount/
- **Russia's Nornickel ups investment forecast by $6 billion over next decade**
  - This will allow the world's largest producer of palladium and refined nickel to invest more in upgrading its production infrastructure, its senior vice president in charge of strategy said, raising the mining group's 2030 output forecast.
  - "Within 10 years, we see an increase of up to $6 billion in addition to the figures we have given. But the bulk of the increase is on the horizon beyond 2025. We are essentially talking about extending our investment cycle," Sergey Dubovitsky told Reuters in an interview.
    https://www.msn.com/en-us/money/companies/russias-nornickel-ups-investment-forecast-by-246-billion-over-next-decade/ar-AARg1Lf?ocid=BingNewsSearch
- **Anglo to require vaccinations, as some other corporates move quietly**
  - Global commodity producer Anglo American will require all employees to be vaccinated from next year, according to a report in the UK's The Telegraph. It says an "internal update about the proposals states that employees will need to be vaccinated 'to be able to perform their role' and those who refuse may be let go 'as a last resort'." Anglo American confirmed the intention to Moneyweb.
    https://www.moneyweb.co.za/mineweb/anglo-to-require-vaccinations-as-some-other-corporates-move-quietly/
- **Four die at Sibanye Stillwater operations**
  - Four mineworkers died in two separate incidents at Sibanye-Stillwater operations North West and Free State on Friday, the company said.
  - A mineworker died at Sibanye 's Khuseleka shaft in Rustenburg, North West, in the early hours of Friday, due to a fall of ground incident, which occurred while he was barring down the side wall of a development end.
  - "Later this morning, at about 10am, three colleagues at shaft three, at the Beatrice operations, passed away, following a tragic trackless mobile machinery incident. The board and management of

Sibanye-Stillwater extend their sincere condolences to the families, friends, and colleagues of the deceased," the company said.
https://www.iol.co.za/news/south-africa/north-west/four-die-at-sibanye-stillwater-operations-e4760518-567c-4712-accf-406af092bd0e

E-Waste & Precious Metals Recycle Related:

- **East Africa: Region Bans Dumping of Electronic Waste, Calls for Recycling**
  - A ban on the dumping of electronic waste in the region received a boost after the East African Community (EAC) prohibited the importation of cathode rays tubes (CRTs) and standalone used computer monitors with effect from July 1, 2022.
    https://allafrica.com/stories/202111290346.html
- **Former Soviet countries safely recycle just 3.2% of e-scrap**
  - The UN's "Regional E-Waste Monitor, Commonwealth of Independent States + Georgia" report found that electronic waste generation in the 12 former Soviet Union countries rose 50% between 2010 and 2019, roughly on par with the world average. But just 3.2% was collected and safely managed, well below the world average of 17.4%.
    https://resource-recycling.com/e-scrap/2021/12/02/former-soviet-countries-safely-recycle-just-3-2-of-e-scrap/?utm_medium=email&utm_source=internal&utm_campaign=Dec+2+ESN
- **French auto recycler takes sustainability to another level**
  - An example of how the auto recycling industry can support communities and contribute to the sustainability goals is given by an auto recycling company in the Southeast of France, GPA.
    https://autorecyclingworld.com/french-auto-recycler-takes-sustainability-to-another-level/
- **EV Batteries, Cheaper way to recycle material developed in Japan – Sumitomo Metal to recycle cobalt, lithium and others materials from used EV batteries**
  - Tapping its expertise in copper refining, Sumitomo Metal has developed a method to cheaply extract copper, nickel, cobalt and lithium from used EV batteries by crushing them, heating the resulting powder to specific temperatures, and adjusting oxygen levels. The company hails the process as the first of its kind in the world.
  - Sumitomo Metal plans to bring a recycling facility online in Japan by 2023. It will have the capacity to process 7,000 tons of crushed batteries a year — enough to extract 200 tons of cobalt, sufficient for 20,000 EVs, out of batteries using nickel-manganese-cobalt cathodes.
    https://batteriesnews.com/ev-batteries-recycle-material-developed-japan-sumitomo-metal-cobalt-lithium-batteries/

Platinum

- **WPIC Platinum Perspectives November 2021: Drivers behind China's excess import trend could move the global platinum market into deficit**
  - As discussed in our recent Q3'21 Platinum Quarterly, the reason for China's platinum imports continuing to run significantly ahead of estimated demand remains unexplained. Indeed, it is possible that these 'excess' imports could have consumed the forecast 2021 surplus in just the first nine months of the year (769 koz, v excess 9-month imports of 1,154 koz). So why is China importing so much more than its estimated demand? Is consumption genuinely as much as twice estimated levels, or is there an element of speculation involved?
    https://platinuminvestment.com/files/554999/WPIC_Platinum_Perspectives_November_2021.pdf
- **China's Mystery Platinum Imports 'Help Absorb' Record Surplus**
  - Platinum imports into China have however "run well ahead" of the world No.2 economy's domestic demand for platinum, the Council's latest report goes on, "potentially absorbing much of the excess metal supply and resulting in reduced metal availability in the market."

https://www.bullionvault.com/gold-news/platinum-supply-demand-112820211

- **New process breaks bulk metal into atoms for sustainable catalyst production**
  - Researchers from the University of Nottingham have demonstrated that "naked" Pt atoms can be dispersed onto powder supports directly by splitting bulk metal to atoms at the record-breaking rate of four and a half thousand trillion atoms per second (4.5 x 1015 atom/s) by magnetron sputtering. The method is scalable and solvent-free and opens the door for fabrication of valuable catalyst materials where Pt atoms are supported on powder particles.
    https://phys.org/news/2021-11-bulk-metal-atoms-sustainable-catalyst.html

Fuel Cells/Hydrogen Economy Related Articles:

- **Toyota starts European production of 2nd generation fuel cell modules**
  - Toyota Mirai's fuel cell system has been re-packaged into compact fuel cell modules. From January 2022, Toyota will start production of the 2nd generation modules, based on its advanced 2nd generation fuel cell system. The new system, which is packaged into more compact, lighter modules also provides more power density. The modules are available in two shapes, a cube and a flat, rectangular shape to allow more flexibility and easier adaptation for a variety of applications.
  - The second-generation fuel cell modules will be assembled by our manufacturing team in Europe, at Toyota Motor Europe's R&D facility in Zaventem, Brussels. Starting in Jan. 2022, the new facility houses a pilot assembly line combining advanced technology content with high-quality assembly.
    https://www.automotiveworld.com/news-releases/toyota-starts-european-production-of-2nd-generation-fuel-cell-modules/
- **BP looks to massive green hydrogen plant for trucks**
  - Energy giant BP has said that it is planning to build a substantial 60-megawatt green hydrogen plant by 2025 as the firs step in its HyGreen Teesside project.
  - Once the first stage of the green H_2 plant is complete, the project may grow to reach a much larger facility. The intention for the facility is to "match production to demand", bringing it to 500-MW of electrolysis by the close of the decade. This will add to the planned capacity of 1-GW of blue hydrogen – grey H_2 made with natural gas and using carbon capture and storage. That blue H_2 production is already part of the announced H_2Teesside initiative.
    https://www.hydrogenfuelnews.com/green-hydrogen-plant-bp/8550294/
- **Hyundai backs hydrogen powered cars despite being a decade behind EVs**
  - Hyundai has announced that while it believes that H2 vehicles remain a decade behind their battery electric counterparts, it is still worthwhile to invest in both zero-emission technologies.
    https://www.hydrogenfuelnews.com/hydrogen-cars-hyundai-news/8550287/?mc_cid=ac9cb96c50&mc_eid=70c1246d58
- **California green lights $1.4B for hydrogen fueling and electric truck charging infrastructure**
  - The majority of the funding from this plan will be poured into the 2021-2023 charging infrastructure. There will be $314 million headed to light-duty vehicle charging, with another $690 million designated for medium-duty and heavy-duty zero-emission vehicle infrastructure. This, according to a California Energy Commission (CEC) news release. The medium-duty and heavy-duty vehicle infrastructure includes funding for both battery electric and fuel cell commercial truck infrastructure.
    https://www.hydrogenfuelnews.com/hydrogen-fueling-ev-ca/8550261/?mc_cid=338e4e727e&mc_eid=70c1246d58
- **Several Japanese vehicle makers expand the use of hydrogen internal combustion engines**

- Subaru, Mazda, Toyota, Kawasaki, and Yamaha recently announced a joint effort to expand the use of alternative fuel technologies—including hydrogen combustion engines.
- The effort builds on Toyota's use of hydrogen engines in racing. The automaker previously entered a Corolla Sport hatchback with a hydrogen-powered engine (developed with help from Yamaha) in the Japanese Super Taikyu series. Hydrogen will be supplied by a new facility in Fukuoka City, Japan, which will produce hydrogen from sewage biogas, according to a press release.
https://www.greencarreports.com/news/1134191_japanese-expand-hydrogen-internal-combustion-engines

Palladium

- **OSU research pushes auto industry closer to clean cars powered by direct ethanol fuel cells | Oregon State University**
  - "Our team showed that introducing fluorine atoms into palladium-nitrogen-carbon catalysts modifies the environment around the palladium, and that improves both activity and durability for two important reactions in the cell: the ethanol oxidation reaction and the oxygen reduction reaction," Feng said. "Advanced synchrotron X-ray spectroscopy characterizations made at Argonne suggest that fluorine atom introduction creates a more nitrogen-rich palladium surface, which is favorable for catalysis. Durability is enhanced by inhibiting palladium migration and decreasing carbon corrosion."
https://today.oregonstate.edu/news/osu-research-pushes-auto-industry-closer-clean-cars-powered-direct-ethanol-fuel-cells
- **Palladium ETF tops $100m in AUM for the first time**
  - A substantial influx of interest from institutional investors and wealth management allocations has pushed the Global Palladium fund (GPF), an exchange-traded fund created by Russia's Norilsk Nickel, above $100 million in assets under management (AUM) for the first time.
https://www.mining.com/nornickel-palladium/

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

- **Ruthenium Catalyst: Researchers find new class of catalysts producing ammonia under mild conditions - Green Car Congress**
  - Today's Haber-Bosch and the other processes involved in industrial-scale production require high temperatures (more than 400°C) and high pressure (more than 150 bar). Those conditions are needed to break the strong bonds in nitrogen and react with hydrogen to form ammonia (NH_3).
  - Their process allows them to synthesize ammonia at temperatures as low as 300 °C (573 K) and at pressures as low as 1 bar. Practical application of these catalysts shows promise concerning small-scale production of ammonia based on renewable energy.
  - Conventional heterogeneous catalysts based on metallic iron or ruthenium mediate dinitrogen dissociation and hydrogenation through a relatively energy-expensive pathway. **Here we report the ternary ruthenium complex hydrides Li_4RuH_6 and Ba_2RuH_6 as an alternative class of catalysts, composed of electron- and hydrogen-rich [RuH_6] anionic centres**, for non-dissociative dinitrogen reduction, where hydridic hydrogen transports electrons and protons between the centres, and the Li/Ba cations stabilize N_xH_y ($x = 0–2$, $y = 0–3$) intermediates.
https://www.greencarcongress.com/2021/11/20211123-vegge.html
- **Iridium & Platinum Catalyst: The Hydrogen Stream: 8 GW green hydrogen project announced in Chile**
  - French renewable energy developer Total Eren has announced research plans for the development of a large-scale green hydrogen Project called "H2 Magallanes" totaling up to 10 GW of installed wind

capacity. It is expected to be located near the borough of San Gregorio, in the Magallanes region, Southern Chile. "The H2 Magallanes installed capacity coupled with up to 8 GW of electrolysis capacity, a desalination plant, an ammonia (NH3) plant, and port facilities to transport the green ammonia to national and international markets. The objective is to conduct studies in order to launch the project in 2025, aiming to produce hydrogen by 2027," Total Eren wrote on Thursday. Chile wants to reach 25 GW of electrolysis capacity by 2030.
https://www.pv-magazine.com/2021/12/03/the-hydrogen-stream-8-gw-green-hydrogen-project-announced-in-chile/

Clean Energy General News (New Section)

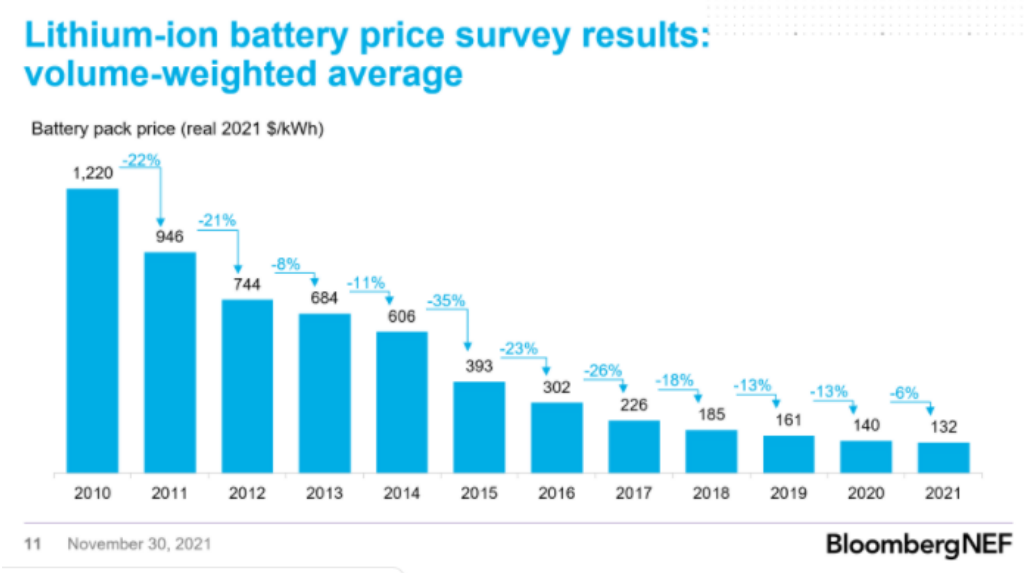
- **Will 2021 Challenges Slow the 2022 Renewable Energy Market?**
  - The 2022 renewable market faces some of the most challenging conditions in decades, threatening to derail global climate goals and corporate renewable energy commitments alike.
  - **Raw Materials:** Declining Supplies as Demand Booms: Massive increases in polysilicon costs, along with increases in steel, aluminum, and other components, all factor in.
  - **Rising Freight Costs, Less Space**: Ports everywhere have jammed up due to unusually high traffic. L.A. port 100+ ships waiting offshore as recently as October 20, 2021, with 2+ week wait times. Bottlenecks will likely continue well into next year. Incoming ocean shipments for September 2021 were booking four to eight weeks out. Costs for shipping have risen with traffic.
  - **Labor Challenges Continue**: The American Trucking Associations estimated the industry needed an additional 80,000 drivers to meet demand. Over the next nine years as current drivers retire, the industry will need to recruit an estimated 1 million new workers to replace them. Meanwhile, renewable energy industries added 500,000 jobs world-wide in 2020 despite pandemic impacts, a 4% increase. While 13% of these jobs required a bachelor's degree or higher, most job pathways relied on apprenticeship, vocational training, or on-the-job instruction. And yet some renewable sector manufacturers have struggled to find properly skilled workers for needed specialties like welding.
  - **Despite Everything, The Future Looks Positive:** The EIA forecasts 6.5 GW new USA wind capacity and 18.3 GW solar capacity in the coming year, with renewables 22% of all energy production by Q4 2022.
https://www.altenergymag.com/article/2021/11/will-2021-challenges-slow-the-2022-renewable-energy-market/36222
- **Toyota says all Europe sales will be zero-emission cars by 2035**
  - By 2030, at least half of Toyota's model mix will be zero emission, including electric vehicles (EV) and hydrogen fuel cell cars, Toyota said in a press release on Thursday.
  - Toyota, like other car makers, is releasing a slew of electric cars to meet tougher emission regulations in key markets such as Western Europe.
https://www.msn.com/en-gb/cars/news/toyota-says-all-europe-sales-will-be-zero-emission-cars-by-2035/ar-AARpb5F?ocid=BingNewsSearch

BEV / LiB Battery Market News

- **Tesla pulls application for more than $1 billion in subsidies to build battery plant near Berlin**
  - Tesla said - in an official statement - it has withdrawn its application for state aid for its planned battery factory near Berlin as CEO Elon Musk declared the electric vehicle maker opposed all subsidies. The European Union in January approved a plan that included giving state aid to Tesla, BMW and others to support production of electric vehicle batteries
https://batteryindustry.tech/tesla-pulls-application-for-more-than-1-billion-in-subsidies-to-build-battery-plant-near-berlin/?utm_source=mailpoet&utm_medium=email&utm_campaign=the-last-newsletter-total-posts-from-our-blog_1
- **NISSAN BETS ON IN-HOUSE SOLID-STATE BATTERY FOR 2028**

- The Japanese automaker said that it would have a pilot plant in Yokohama to produce its in-house solid state batteries by 2024 & expects costs to reach as low as $65 a kilowatt-hour at the pack level. https://www.benchmarkminerals.com/membership/nissan-bets-on-in-house-solid-state-battery-for-2028/

- **REUTERS NEXT-Congo state cobalt monopoly aims to start buying in January**
  - Democratic Republic of Congo's state cobalt monopoly plans to start buying artisanal cobalt in January, its CEO Jean-Dominique Takis said in an interview at the Reuters Next conference, as the world's biggest producer of the metal tries to ramp up revenue.
  - Cobalt, which is trading at around $62,000 a tonne, is used in many of the batteries that power electric vehicles, sales of which are expected to soar as the world strives to cut carbon emissions. https://www.nasdaq.com/articles/reuters-next-congo-state-cobalt-monopoly-aims-to-start-buying-in-january
- **The key question on EVs that automakers are getting wrong**
  - But a few commentators in the industry who specialise in raw materials (including me) have been saying for several years that that is not going to occur and, in fact, we expect battery prices to increase. The reason for that is that we expect battery raw material prices to increase. The broad explanation for this is large-scale under-investment in primary extraction which is leading to a shortage of key battery raw materials, which actually began to come through this year. (I won't labour the issue on raw materials – if you want a justification for why I think that raw materials prices will go higher, please feel free to read my previous blogs or most issues of Battery Materials Review!)
  - In fact, we've seen evidence of this in the lithium market already this year, where prices of spodumene concentrate have risen nearly six times over the past 14 months. Lithium isn't the only raw material price that's risen (nickel, cobalt, manganese prices are all up) but it's certainly the raw material that's seen the most significant rise. https://www.batterymaterialsreview.com/ourblogs/the-key-question-on-evs-that-automakers-are-getting-wrong/
- **The results of BloombergNEF's 2021 lithium-ion battery price survey are in**
  - BloombergNEF found volume-weighted pack prices were $132/kWh in 2021. - 6% from 2020.
  - 2021 price dynamics: Battery prices have continued to fall in 2021 despite intense pressure from rising raw material and component costs.
  - Automakers and stationary storage developers have widely adopted Lithium iron (Fe) Phosphate (LFP) in 2021, helping to offset rising costs.
  - 2022 price outlook: In 2022 the impacts of higher raw material and component prices will hit the automotive industry. Already Chinese LFP producers have increased prices by 10-20%. We expect that the volume-weighted average battery price will increase for the first time in 2022 in nominal terms, to $135/kWh.
  - BEVs had the lowest pack prices in the passenger EV's, at $118/kWh.
  - Reaching $100/kWh could delay the point at which pack prices reach $100/kWh by two years. https://www.linkedin.com/posts/james-frith-424a2b6a_ev-battery-lithium-activity-6871415661998956544-Mcfs


Lithium-ion battery price survey results: volume-weighted average
Battery pack price (real 2021 $/kWh)
1,220
-22%
946
-21%
744
-8%
684
-11%
606
-35%
393
-23%
302
-26%
226
-18%
185
-13%
161
-13%
140
-6%
132
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
11 November 30, 2021
BloombergNEF

Regards –