Weekly Precious Metals News Articles: November 27, 2020

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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 price ends at lowest since mid-July, but hangs above key support level at $1,800**
  - Gold dealer's see the metal's support level around $1,800 after slipping below $1,850 on Monday
    https://www.marketwatch.com/story/gold-prices-tumble-further-on-the-verge-of-breaking-below-200-day-moving-average-11606222655
- **Exclusive: JPMorgan dominates gold market with record $1 billion precious metals revenue**
  - JPMorgan has earned record revenue of around $1 billion so far this year from trading, storing and financing precious metals, vastly outperforming rival banks, two sources familiar with the matter told Reuters.
    https://www.msn.com/en-us/money/companies/exclusive-jpmorgan-dominates-gold-market-with-record-dollar1-billion-precious-metals-revenue/ar-BB1bhztY
- **Gold Hovers Above $1,800 as U.S. Data Disappoints, ETFs Decline**
  - Gold continued to hover above $1,800 an ounce after disappointing economic data pointed to a rocky recovery in the U.S., while bullion-backed exchange-traded funds saw further outflows.
    https://www.msn.com/en-us/money/markets/gold-hovers-above-241800-as-us-data-disappoints-etfs-decline/ar-BB1bnYdf

Semiconductor Related Articles (impacting Precious Metals electronics):

- **Rising 5G demand to fuel smartphone market growth**
  - Smartphone shipments are expected to grow 2.4 per cent year-on-year to 377.7 million units. The upward trend is tipped to continue in 2021 with a 4.4 per cent rise over 2020 thanks to "an impressively quick supply chain recovery", and "significant incentives" from OEMs and channels on 5G devices.
    https://www.mobileworldlive.com/devices/news-devices/rising-5g-demand-to-fuel-smartphone-market-growth

Silver

- **Biden the silver bull**
  - But there are some big reasons why Biden could become silver's best friend. The main force behind this thesis is that we can expect stimulus. A lot of stimulus.
  - The second major force behind higher silver prices is the Green New Deal. Biden's clear support for this massive move towards net-zero emissions by 2050 is going to be expensive. The plan is to spend

$1.7 trillion in federal money, and leverage an additional $5 trillion in private sector and local investment funds.
https://www.kitco.com/commentaries/2020-11-25/Biden-the-silver-bull.html

- **Heraeus new product launch: AGXX - The superior antimicrobial technology against bacteria, viruses and all other microorganisms**
    - The AGXX technology promises an outstanding antimicrobial effect and delivers more benefits in comparison to conventional antimicrobial solutions (e.g. silver-ion- or silver-nano-based). AGXX provides broadband effect, longer lasting effect and is non-toxic to humans, animals and the environment.
    - https://www.heraeus.com/en/hch/products_and_solutions_chemicals/antimicrobial_coatings/antimicrobial_technology.html

Precious Metals Mining:

- **The changing dynamics of African mining and energy**
    - The business case for adding renewables to the energy mix should be a no-brainer for African mines: solar generation is widely available and has the potential to improve the reliability of power systems and reduce the risks associated with transporting diesel over thousands of kilometres, all the while reducing costs.
    https://www.miningweekly.com/article/the-changing-dynamics-of-african-mining-and-energy-2020-11-24/rep_id:3650
- **Lowest P/E In Gold Mining: AngloGold Ashanti**
    - AngloGold's valuation is getting absurdly cheap, especially on forward P/E calculations.
    - One of the leading gold mining gainers into July is now on the sale rack in late November.
    - A seasonal gold/silver bottom is due in the coming days, potentially helping a turnaround in AngloGold shares. Record central bank money printing into 2021 should support gold miner performance for another year or two.
    https://seekingalpha.com/article/4391436-lowest-p-e-in-gold-mining-anglogold-ashanti
- **Basket case Zimbabwe still prospective whilst global economy pressures PGM supply**
    - Great Dyke Investments is planning a $500m mine in Zimbabwe and was in October rumoured to have approached Implats for investment in return for off-take of concentrate for Implats' smelter which it wants to expand in Zimbabwe. Nigerian billionaire, Benedict Peters, planning to build a $1bn PGM mine in Zimbabwe, starting in about 18 months. A third firm Tharisa, has an option over a PGM deposit in Zimbabwe, but has so far not advanced its plans.
    - Zimbabwe has failing infrastructure; it has to import electricity from South Africa; and inflation and currency woes, suffice to mention the political deterioration of Emmerson Mnangagwa's administration, don't make for secure investment.
    https://www.miningmx.com/news/platinum/44476-basket-case-zimbabwe-still-prospective-whilst-globes-economics-pressures-pgm-supply/

E-Waste & Precious Metals Recycle Related:

- **Catalytic Converter and How to Recycle It? – GLOBAL RECYCLING**
    - The amount of precious metal that can be obtained by processing approximately 360 kg of ore and rock from nature can be obtained by recycling one catalytic converter, which weighs about 1.5 kg. Recycling costs are lower than ore production costs and environmental awareness can be increased. Because it is possible to produce more by polluting less and consuming less.
    https://global-recycling.info/archives/4594
- **New study highlights the rise in e-waste during global pandemic**

- The findings reveal that the pandemic forced almost half of enterprises worldwide to shift attention to end-of-life electronics challenges.
  https://www.recyclingtoday.com/article/study-highlights-pandemic-drives-increase-e-waste/

- **Europe's Tesla rival is fixing the huge battery recycling mess**
  - In Västerås, a small city in central Sweden, sits an experimental battery recycling facility. It's here that Northvolt is trying to show that car batteries can be recycled on an epic scale.
    https://www.wired.co.uk/article/electric-car-battery-recycling

Platinum

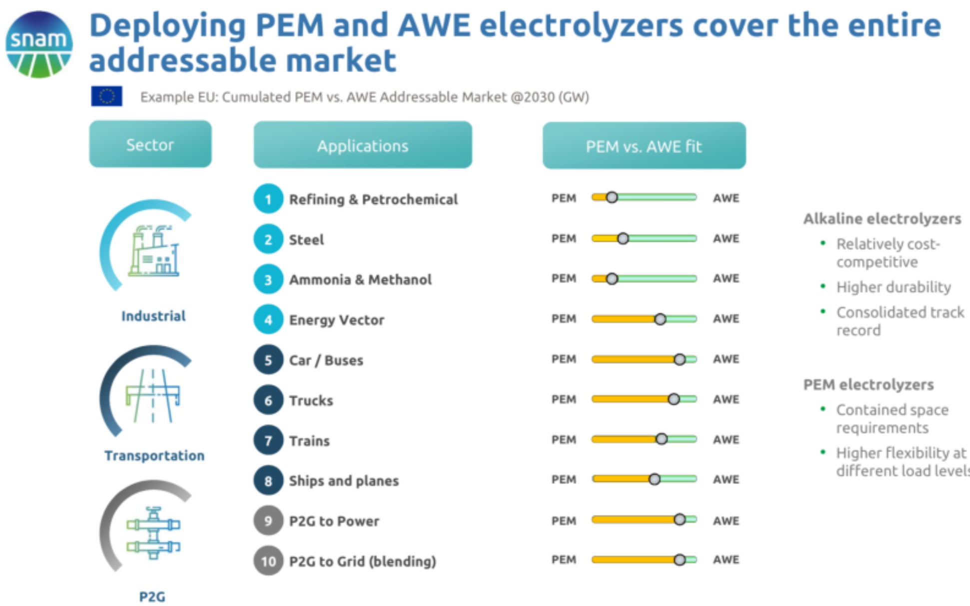
- **WPIC: Decarbonizing Europe**
  - The global platinum demand impact of announced green hydrogen policies is clearly sizeable over the longer-term; current EU and China green hydrogen generation capacity targets alone would require, cumulatively, between 300 koz and 600 koz of platinum by 2030*.
  - *Based on 30% - 60% PEM electrolysers, 90% Heraeus loadings reduction with 0.45gPt and 0.15gIr per kw
    https://platinuminvestment.com/files/sixtysecs/WPIC_60seconds_DecarbonisingEurope_11252020.pdf
- **Green hydrogen is opening doors for higher platinum demand**
  - Platinum is one of the few metals that's on pace to end the year with a loss, even as global supplies of platinum are expected to fall short of demand this year on the back of pandemic-related production disruptions, a rebound in automotive use and, notably, growing interest in clean sources of energy.
    https://www.morningstar.com/news/marketwatch/20201121255/green-hydrogen-is-opening-doors-for-higher-platinum-demand
- **Seagate Is Releasing a 24TB Hard Drive Next Year**
  - Matt: This is the second HARM HDD staged for commercial release. Recall HDD HAMR loadings compared to standard perpendicular or WD MAMR designs use +1,7x Platinum & Zero Ruthenium.
    https://hypebeast.com/2020/11/seagate-24tb-hard-drive-storage-2021-news

Fuel Cells/Hydrogen Economy Related Articles:

- **China goes ahead with hydrogen-powered cars, defying Elon Musk's warnings**
  - In a 15-year plan for new-energy vehicles released on Nov. 2, China's State Council said the country will focus on building the fuel-cell supply chain and developing hydrogen-powered trucks and buses.
  - China's annual sales of fuel-cell vehicles will rise 10-fold over the next five years to 50,000 units before hitting half a million by 2035, says Wang, who predicts China will become the No. 1 market within three years.
    https://www.business-standard.com/article/technology/china-goes-ahead-with-hydrogen-powered-cars-defying-elon-musk-s-warnings-120112000125_1.html
- **Platinum council says hydrogen momentum will continue to bolster PEM demand**
  - Platinum council says hydrogen momentum will continue to bolster PEM demand. The strategy contributes significantly to the EU's goal of achieving climate neutrality by 2050, with a strategic objective to install at least 40 GW of hydrogen electrolysers by 2030 – with production of up to 10-million tonnes a year of 'green' hydrogen across the region.
    https://www.miningweekly.com/article/platinum-council-says-hydrogen-momentum-will-continue-to-bolster-pem-demand-2020-11-25
- **South Korean team develops high-efficiency hydrogen fuel electrocatalyst**
  - The noble metal-based ruthenium oxide (RuO_2) and iridium oxide (IrO_2) are used to boost the oxygen generation rate.
  - The main problem with using noble metal catalysts is that their stability is low under long-term operation and they are very expensive. The University of South Korea researchers

believe they have overcome the challenges of relying on noble metals, using cobalt, iron, and a minimal ruthenium quantity. They published their results in the RSC journal Energy & Environmental Science in an open-access paper.
https://www.hydrogenfuelnews.com/south-korean-team-develops-high-efficiency-hydrogen-fuel-electrocatalyst/8541085/

- **Cummins hydrogen electric power systems and electrolyzers aiming at trains first**
    - Trains and buses appear to be a bigger opportunity than trucks for the company in the near term.
    https://www.hydrogenfuelnews.com/cummins-hydrogen-electric-power-systems-and-electrolyzers-aiming-at-trains-first/8541061/
- **Utilities launch groundbreaking 'green' hydrogen-gas project**
    - Southern California Gas Co. and San Diego Gas & Electric called the announcement a "groundbreaking" first step toward safely blending the two fuels. Both utilities are headquartered in California. In a pilot to be executed over several years, the companies plan to introduce "green" or carbon-free hydrogen (produced from electrolyser) into natural gas pipelines made of steel and plastic. Hydrogen would make up 1% to 20% of the gas being transported on a given line.
    - The aim is to develop technical knowledge "to identify safe blending standards.
    https://www.eenews.net/stories/1063719323
- **MHI to Invest in Green Hydrogen & Green Ammonia in South Australia**
    - To Deliver Project Engineering, Hydrogen Gas Turbines and Compressors to Decarbonize Local Industries, Targeting Green Hydrogen and Ammonia Exports to Japan and Other Countries Going Forward
    https://www.mhi.com/news/201126.html
- **Britain's Richest Man Plans To Make Hydrogen Cars Mainstream**
    - Ineos will supply hydrogen to Hyundai as it looks to expand its FCEV footprint. Ineos already manufactures 300,000 tons of hydrogen annually as a byproduct from the electrolysis of brine to make chlorine. The company currently uses it for fuel as well as in the desulfurization at refineries. The company owns massive underground gas-storage caverns that it could use to store the hydrogen.
    https://oilprice.com/Alternative-Energy/Renewable-Energy/Britains-Richest-Man-Plans-To-Make-Hydrogen-Cars-Mainstream.html
- **Snam taking 33% stake in De Nora to strengthen position in hydrogen technologies**
    - Italy-based global energy infrastructure operator Snam signed an agreement with funds managed by Blackstone Tactical Opportunities for the purchase of a strategic stake of approximately 33% in Industrie De Nora S.p.A. Deal set to close Q1'2021.
    https://www.greencarcongress.com/2020/11/20201121-snam.html



Palladium

- **Cox Automotive November Forecast: Seasonality Weakens U.S. Auto Sales After Months of Recovery**
    - U.S. auto sales for November are expected to show a market that is now weakening after months of recovery from April's historic low seasonally adjusted annual rate (SAAR). The sales pace for light vehicles is expected to fall to 15.8 million this month, down from last year's 17.0 million pace, but more importantly down from last month's 16.2 million level. https://markets.businessinsider.com/news/stocks/cox-automotive-november-forecast-seasonality-weakens-u-s-auto-sales-after-months-of-recovery-1029835614
- **General Motors drops out of the lawsuit against California emissions standards**
    - Several automakers, including GM, Fiat Chrysler, and Toyota joined the Trump administration in seeking to remove that ability. Others, including Nissan, Hyundai, Kia, and Subaru, joined the lawsuit in support of California.
    - On Thursday, General Motors CEO Mary Barra announced in a letter to environmental groups that she would no longer support the White House in that lawsuit. She says the company agrees with President-Elect Joe Biden's plan to expand the use of electric vehicles. https://www.wlns.com/news/general-motors-drops-out-of-the-lawsuit-against-california-emissions-standards/

PGM Minor Metals (Rhodium, Iridium, Ruthenium)

- **Ruthenium: New electrocatalyst for hydrogen production with enhanced faradaic efficiency**
    - Researchers at UNIST have successfully developed a new water-splitting hydrogen catalyst, which consists of ruthenium (Ru) nanoparticles uniformly distributed and anchored on the surface of multiwalled carbon nanotubes (MWCNTs), or (Ru@MWCNT). The research team also evaluated the catalytic performance of the Ru@MWCNT. The results indicated that the Ru@MWCNT catalyst is superior in many ways to the commercial Pt/C catalysts. https://phys.org/news/2020-11-electrocatalyst-hydrogen-production-faradaic-efficiency.html
- **Ruthenium: New technique seamlessly converts ammonia to green hydrogen**
    - The research team completed the ammonia-to-hydrogen conversion using renewable electricity to the reaction that functions at much lower temperatures than traditional methods (250° C Vs. 500°-600° C). Second, the new technique generates pure hydrogen that does not need to be separated from any unreacted ammonia or other products. Third, the process is efficient because all of the

electrical current supplied to the device directly produces hydrogen, without any loss to parasitic reactions. Because the hydrogen produced is pure, it can be directly pressurized for high-density storage by simply ramping up the electrical power.

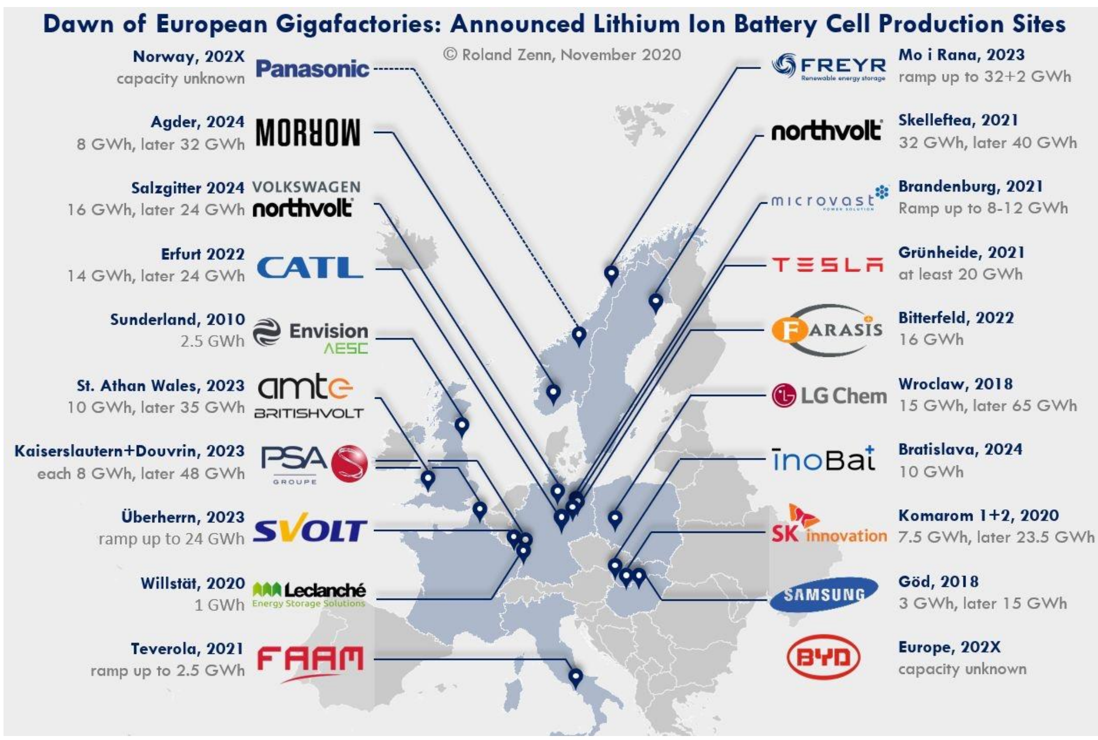
- By continually pulling off the hydrogen, we drive the reaction to go further than it would otherwise. This is known as Le Chatelier's principle. By removing one of the products of the ammonia-splitting reaction—namely the hydrogen—we push the reaction forward, beyond what the ammonia-splitting catalyst can do alone."
https://phys.org/news/2020-11-technique-seamlessly-ammonia-green-hydrogen.html

- **Perfect imperfection: Electrode defects boost resistive memory efficiency**
    - Non-Volatile resistive memory cell is a layered structure with an insulating layer positioned between two electrodes, to which the switching voltage is applied. The properties of the cell depend on the material between the electrodes, as well as on the composition and shape of the electrodes themselves. It is common for one electrode to be made of titanium nitride and the other of platinum. However, platinum is incompatible with modern semiconductor technology due to the absence of dry etching capability. This is not the case with ruthenium, which has a further advantage of being suitable for atomic layer deposition, enabling the manufacture of 3D vertical memory structures.
    https://www.eurekalert.org/pub_releases/2020-11/miop-pie112320.php

BEV / LiB Battery Market News

- **Cobalt Miners News For The Month Of November 2020**
    - Cobalt spot prices were slightly down for the month and LME cobalt inventory was unchanged.
    - Cobalt market news - Roskill sees a more balanced cobalt market in 2020 & forecasts cobalt demand to double by 2030. Wood Mac forecasts cobalt demand to triple by 2040.
    - Cobalt miners news - Glencore YTD cobalt output down 37% at 21,600t owing to the shuttering of its Mutanda mine. China Moly boosts Q3 cobalt output by 21%.
    https://seekingalpha.com/article/4391256-cobalt-miners-news-for-month-of-november-2020
- **Tesla reveals plans to mine own battery metals at 'Battery Day' event**
    - As part of the Battery Day event, Tesla CEO Elon Musk and manufacturing industry executive Drew Baglino confirmed that the company is taking the "first official step" by securing the rights to a 10,000-acre lithium clay deposit in Nevada, US.
    - Musk and Baglino also disclosed Tesla's intentions to build its own cathode plant and lithium conversion facility, both of which will be in North America.
    - Baglino stated: "We're going to go and start building our own cathode facility in North America, leveraging all of the North American resources that exist for nickel and lithium.
    https://www.mining-technology.com/news/tesla-reveals-plans-mine-own-battery-metals/
- **Why this Tesla partner is betting big on the European electric-vehicle market**
    - The Japanese electronics giant Panasonic is powering into Norway with two industry partners
    https://www.marketwatch.com/story/why-tesla-partner-panasonic-is-betting-big-on-the-european-electric-vehicle-market-11605717533
- **Rare-Earth Elements: A National Security Crisis**
    - Rare-Earth Elements (REEs). They are composed of 17 complex elements that are unpronounceable but are essential in four industries: high tech, pharmaceuticals, national defense, and energy.
    https://www.realcleardefense.com/articles/2020/11/17/rare-earth_elements_a_national_security_crisis_649952.html
- **ASF breaks ground for cathode plant in Germany**
    - While the ceremony was only just announced, work in Schwarzheide has already been underway since August. Construction has now officially begun and scheduled for operation in 2022. The new BASF plant will produce battery materials for over 400,000 EV's per year.
    https://www.electrive.com/2020/11/14/basf-breaks-ground-for-new-cathode-plant-in-germany/

- **Roland Zenn – LinkedIn Posting**
    - November 2020 #Gigafactories Update: 20 Gigafactories for Li-Ion #battery cells production have been announced for #Europe, enough to equip approximately 7M electric vehicles (ave. 60kW each, meaning mix of BEV and Hybrids).
    - New Developments in Q4 2020:
        - Tesla announces in-house production of 4680 cylindrical cells in Gruenheide, Berlin. One production line will have an output of 20 GWh/a, multiple lines are planned.
        - Svolt announces 24 GWh Battery Cell Gigafactory in Germany, Saarland.
        - Panasonic-Equinor-Hydro plan to form a strategic partnership to explore possibilities for establishing a Gigafactory in Norway.
    - Matt LiB transportation global production ~225GW this year, and this LinkedIn Post illustrates a total of 424.5+ GW of EU LiB Capacity Planned for the near future. https://www.linkedin.com/posts/roland-zenn_gigafactories-battery-europe-activity-6734843951553110016-XUKJ



Regards –