



StoneX Connects.

PGM Trading – Challenges & Trends in a Global Market

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Rhona O'Connell is a full-time employee of StoneX Financial Ltd. She does not have a personal trading account.

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StoneX Precious Metals Trading

Major Player in Global Precious Metals Market

- One of the largest OTC Physical & Hedging counterparties. Average Gold & Silver Flows = \$20bn/Quarter
- Physical trading – We buy or sell in multiple locations: London, Zurich, Dubai, Singapore, Hong Kong, New York
- Products traded: Gold, Silver, Platinum, Palladium, Rhodium, Ruthenium & Iridium
- Full Member of London Bullion Market Association (LBMA) & London Platinum Palladium Market (LPPM)
- ‘Follow The Sun’ Dealing Rooms: London, Dubai, Singapore, Shanghai, New York, Los Angeles
- Small bars & coins offering via our company CoinInvest in Frankfurt (www.coininvest.com)

StoneX Group Inc.

- Fortune 100 Company. NASDAQ: SNEX. 80+ offices across six Continents. 3600+ employees. Total assets = \$20bn
- 54,000+ commercial & 400,000+ retail clients. 2022 trading volume = \$4.4 trillion

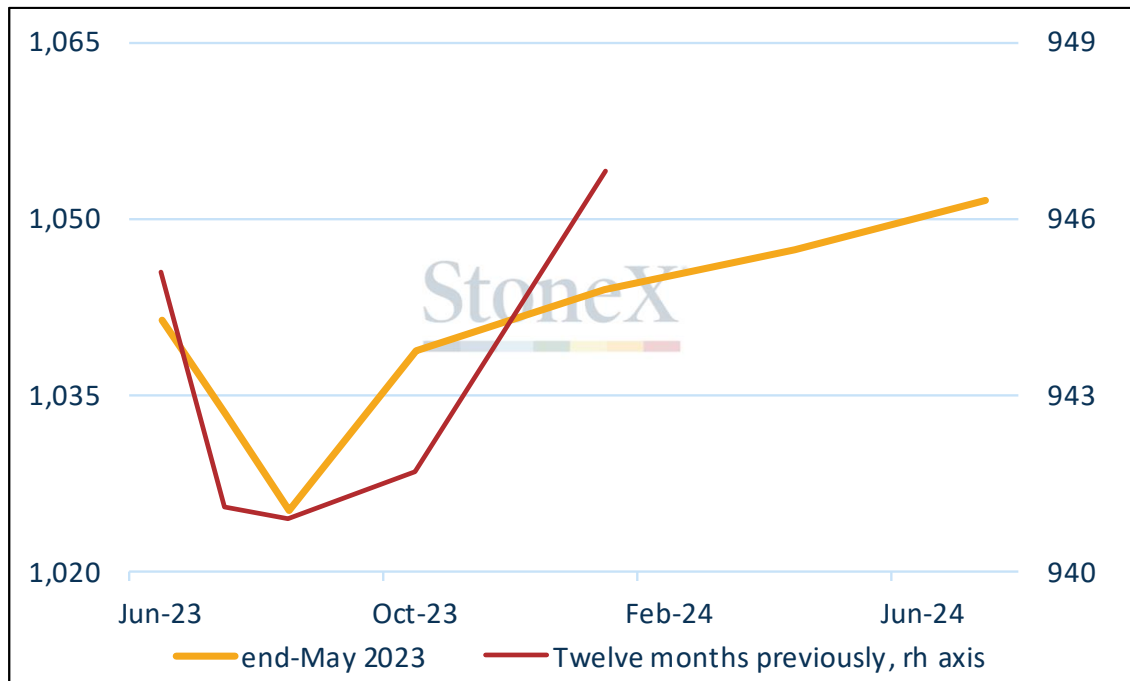
Only Non-Bank Auction Member

- StoneX is a member of the daily LBMA Gold & Silver Auctions
- StoneX is a member of the daily LPPM Platinum & Palladium Auctions (cf. 25% of daily PGM Auction flows)

PGM Price Action is Dictated by Mine Supply

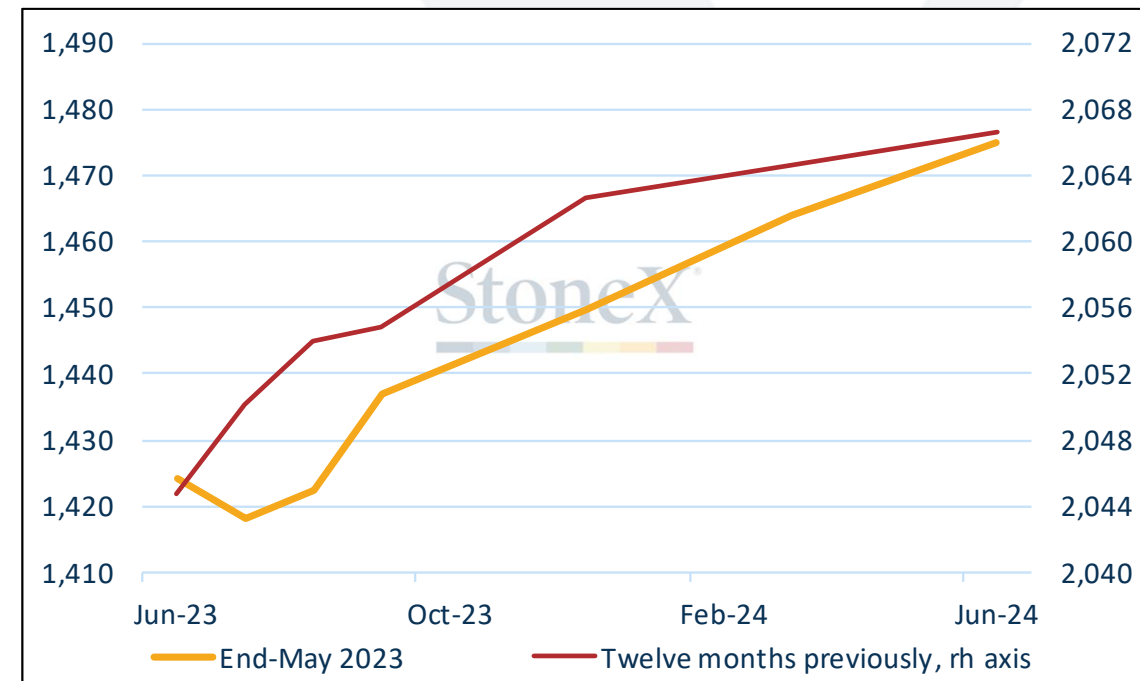
Platinum & Palladium Forward Curves - Now and a year ago

Platinum forward curves



Source: Bloomberg, StoneX

Palladium forward curves

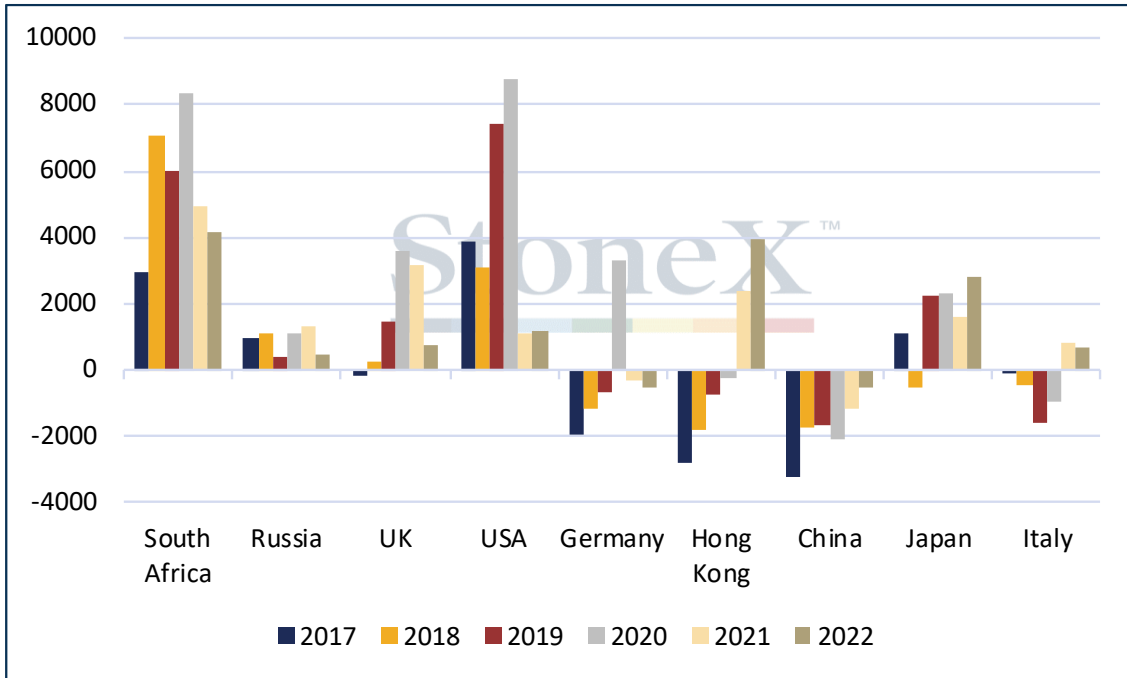


Source: Bloomberg, StoneX

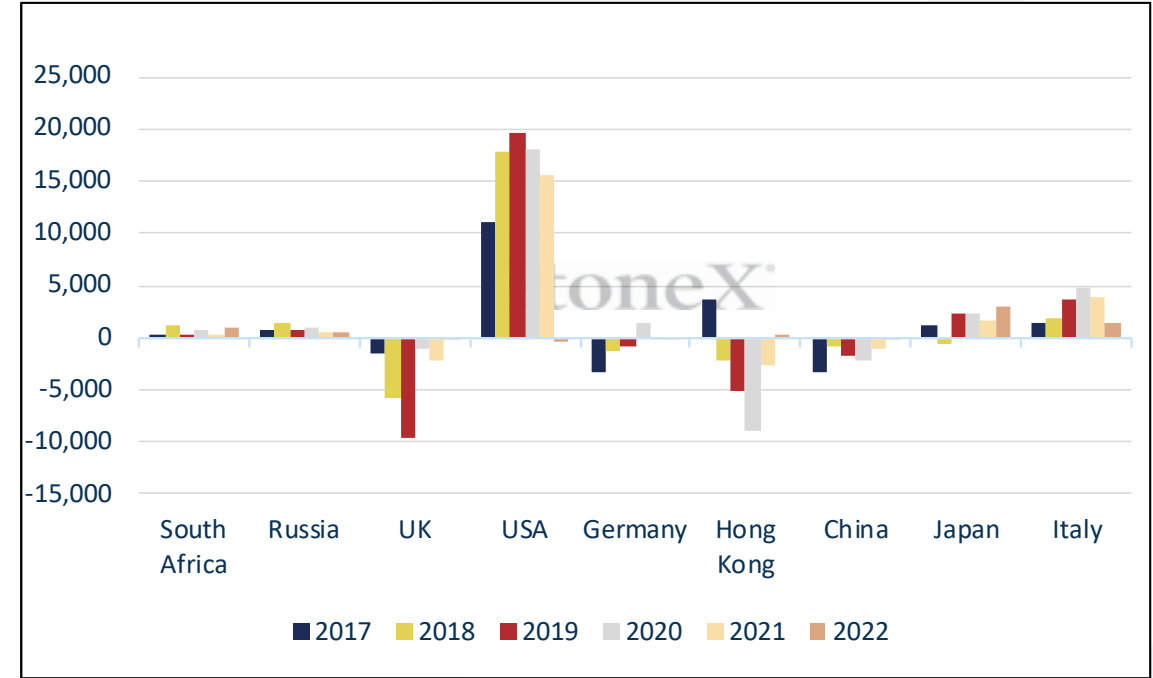
International trade has changed since February 2022

Swiss trade statistics reflect economic activity

Swiss net imports of platinum, kg



Swiss net imports of palladium, kg

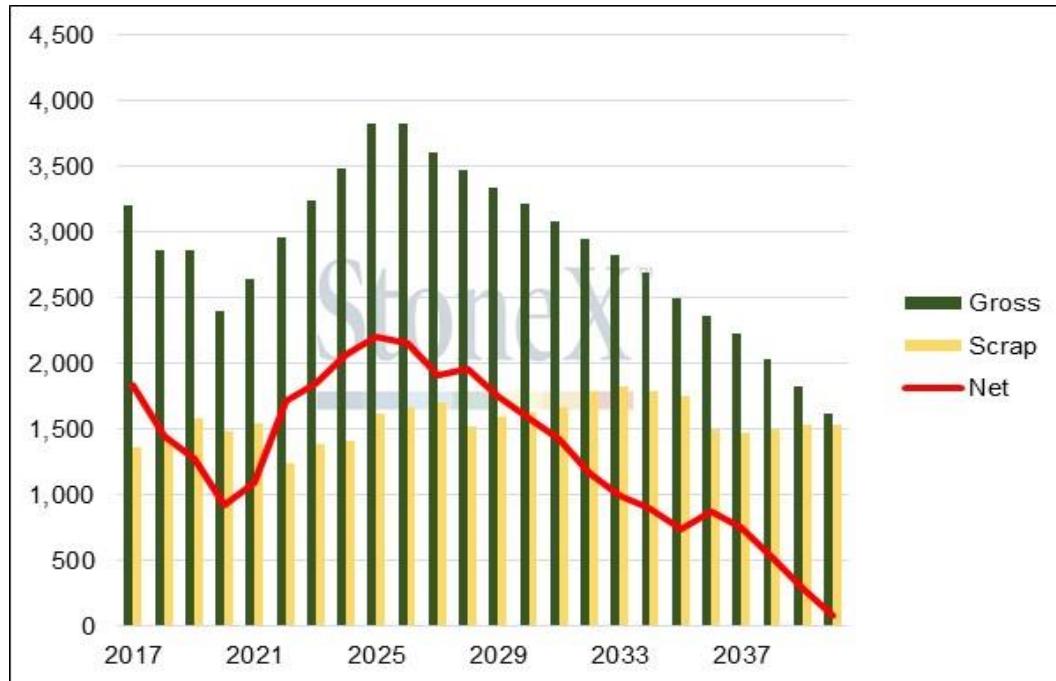


Source for charts: Swiss Federal Customs Administration, StoneX

Declining PGM Usage in Combustion Engines

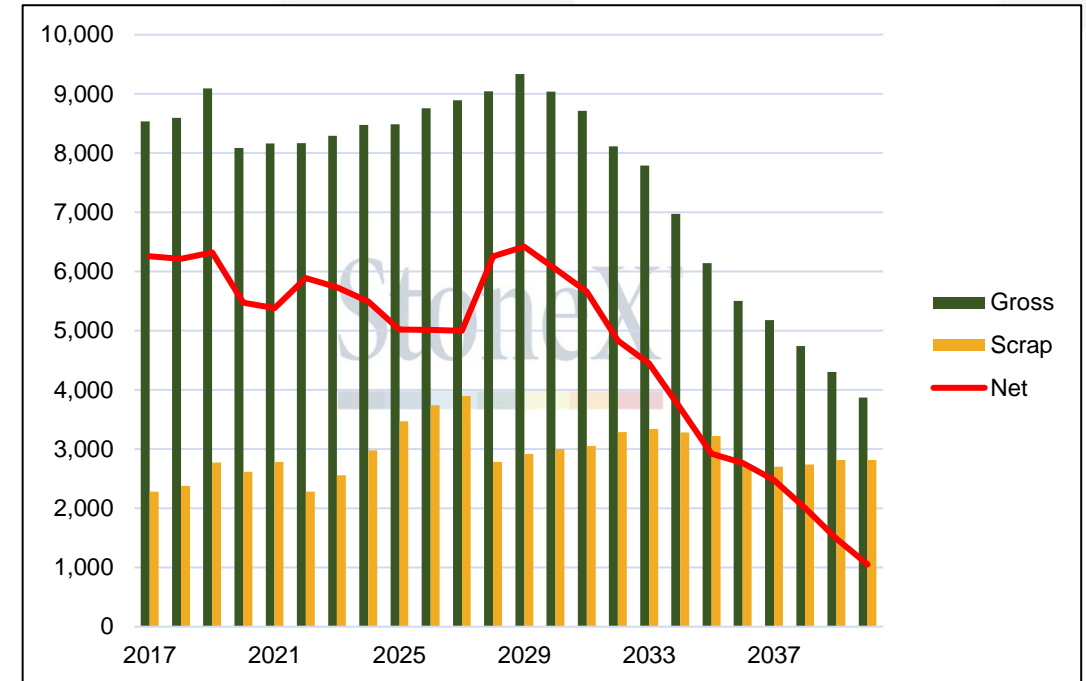
Both metals look to be in peril, but dependent on Net Zero Targets

Estimated Platinum in Light ICE vehicles, 000 ounces



- Net Pt in autos could fall from 2M ounces in 2023 to 1M ounces by 2031 and veer below zero in 2039.
- BUT there are several caveats that soften this blow.
- Trend could be interrupted by higher demand for Diesel & Fuel Cell vehicles (+600k ozs p.a.)

Estimated Palladium in Light ICE vehicles, 000 ounces



Source: BNEF, StoneX

- Net Pd in autos could fall from ≤ 6 M ounces in 2023 to 3.5M ounces by 2031, and even below zero in 2040+
- Trend could be interrupted by higher demand for Gasoline vehicles & Pd Fuel Cell Technology breakthrough
- Cost of living crisis likely to see less EV subsidies & increased demand for Gasoline consumer vehicles in coming years, as Net Zero targets are unrealistic

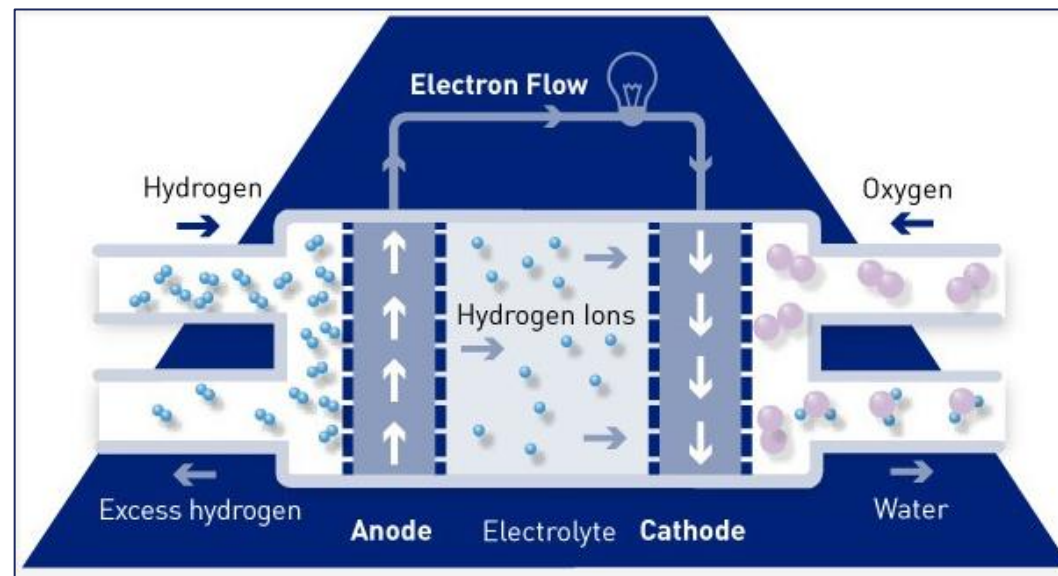
Fuel Cells: PGMs Saviour?

Promising outlook for Platinum & Iridium (potential supply constraints here, too)

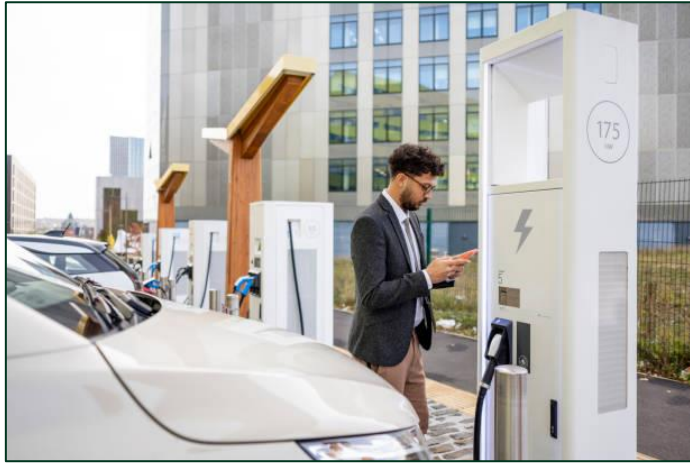
Polymer Electrolyte Membrane (PEM) Electrolysis

- This involves the use of a Proton Exchange membrane and electrolyses water into hydrogen and oxygen.
- There are two reactions; firstly on the anode side the catalyst oxidises water to oxygen, and splits the hydrogen into protons and electrons (this needs **Iridium**);
- Then the electrons and the protons are combined to create hydrogen. This needs **Platinum** on both electrodes.
- A source of electricity is needed at the outset to generate the electrochemical reaction that causes electron transfer from a molecule; in this case, water.

The PEM Fuel Cell; usually a lower weight and volume than other fuel cells and the most suitable for transport applications.



What's In Store For 2024?



Source: Getty Images

ESG Net Zero Targets To Drive Government Policy

- Asia can strive to make itself a focal point of catalyst recycling, Fuel Cell technology & market liquidity for trading Green metals
- Singapore's unique location & ability to serve both East & West markets will enable it to continue to be a major international trading centre
- Multiple opportunities for Metals, Energy, Agriculture, FX trading & expanding into a highly technical regional Asian marketplace to match rising demand
- Utilisation of technology is key to compete in the evolving global marketplace (AI will be a major feature)

BRICS vs USA = Cold War 2.0?

- The next decade will see the largest shift in global commodity demand & supply-chain restructuring in modern history. China & USA increasingly competing for global resources
- China's BRI "multipolar order" will become a major threat to the post-1945 Bretton Woods Western-led economic "rules based" international order
- BRICS + 19 additional countries seeking to join Shanghai Cooperation Agreement following USA/EU weaponisation of economic sanctions
- Increased substitution of USD-based commodity trade for a basket of alternative non-USD currencies (CNY, INR, RUB, ZAR, Real) = Arbitrage trading opportunities



StoneX®

Opportunity For An Asian PGM Marketplace

Create an Asian Catalyst Recycling Hub

- Spent catalysts from major ICE markets in China, India, Japan & SE Asia can be sent to local recycling plants in Singapore as more Green vehicles gradually replace ICE vehicles
- China is pushing to expand market share of EVs & Hydrogen Fuel Cell vehicles ahead of 2035 target
- Fuel Cells will require Platinum, Iridium & Palladium for Hydrogen production, purification & storage
- Separation & recycling of these metals locally can reduce costs & drive efficiency for Asian auto producers

Increased Bilateral PGM Trading With Japan

- Japan has one of the most advanced manufacturing economies in Asia producing majority of catalysts
- Japan is being seen as a major foreign investment destination by the US, UK & EU to substitute China
- Singapore/Japan partnership in PGM trading, recycling & fuel cell production could be a game changer

Global Supply-Chain Restructuring

- Singapore is ideally placed to become a major supply-chain hub serving East & West during “deglobalisation”
- Asian safe-haven for investment, manufacturing & financial services will be key in a fragmented marketplace

StoneX Connects.

THANK YOU

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