



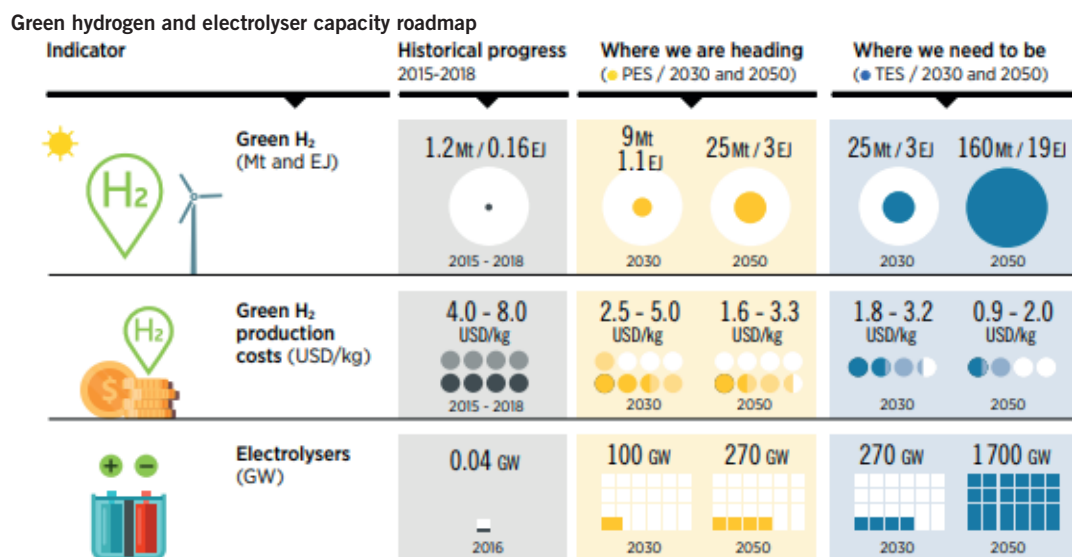
MARKET SPOTLIGHT

Iridium & platinum in electrolysers: the clean, green hydrogen machines

Expansion of the global hydrogen economy is a significant growth opportunity for platinum and iridium demand. Global disruption has affected demand for both metals this year, although large cuts to South African mine supply, which accounts for 81% of iridium production, has brought the iridium market much closer to balance. Iridium has gained 9% (+\$135/oz) in the year to date, although price volatility is expected once supply has normalised. Fortunately, iridium and platinum are critical and unique ingredients in electrolyser technology, so demand is likely to be sustained.

The COVID-19 pandemic is spurring governments to reduce emissions and steer their future towards clean energy. As large swathes of the world were forced into lockdown, there have been huge cuts in global emissions (-8% in 2020 – source: IEA) and people have experienced clean air in their cities. Growing Europe's clean hydrogen economy was a key pillar of the €750 bn post-pandemic recovery plan, *Next Generation EU*, revealed by the European Commission last week.

Electrolysers are the front-runner for producing emission-free fuels for heavier forms of transport and heavy industry. Electrolysers split water into hydrogen and oxygen using electrical energy. Of several competing technologies, proton exchange membrane electrolysis (PEM EL) is best suited for the mass production of clean hydrogen and uses platinum- and iridium-coated electrode catalysts.



Long-term climate goals are driving investment into electrolyser production capacity and R&D on recyclability. A 20 MW electrolyser plant is under construction in the Netherlands, and six of Denmark's leading industrial companies, including airline SAS and shipping group AP Moller-Maersk, have teamed up to launch what will be the largest green hydrogen project in the world at peak capacity, a 1.3 GW electrolyser powered by offshore wind. The International Renewable Energy Agency (IRENA) is forecasting 25 Mt of green hydrogen to be produced annually by 2030, which requires significant scale up of electrolyser capacity, to around 270 GW. Electrolyser production is still in its early stages, but capacity is expanding rapidly which provides significant scope for cost reduction in the near term.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,735	0.22%	1,736	29/05/2020	1,694	27/05/2020
€/oz	1,562	-1.72%	1,591	25/05/2020	1,539	27/05/2020

Retail investors pile into gold. Gold ETF inflows continued last month, gaining 3.5 moz and taking total global holdings to 103.3 moz. March and April also saw a dramatic surge in sales of gold Eagle coins from the US Mint. Year-to-date sales are up 282% at 283,000 oz even after settling back down in May. Last year, bar and coin demand fell by 20% to the lowest level since 2009. Coin demand rebounded in Q1'20 (+36% year-on-year) to a three-year high of 76.9 t (source: World Gold Council), but bar buying remained subdued owing

to weak demand in Asia. Bar and coin purchases account for around 20% of gold demand annually, with coin demand, in particular, expected to remain strong this year.

More positive outlook holds back gold. Stock markets have continued to climb on hopes of economic recovery now that lockdowns are being eased and news of possible vaccines. While market sentiment remains positive, the gold price will struggle to make progress.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	17.84	4.44%	17.86	29/05/2020	16.85	25/05/2020
€/oz	16.06	1.84%	16.06	29/05/2020	15.42	27/05/2020

China's solar market suffers pandemic setback. China added 3.95 GW of photovoltaic (PV) solar capacity in Q1'20 despite the coronavirus outbreak, a 24% decline from the same period last year (source: National Energy Administration). The state grid was one of the first sectors to emerge from coronavirus lockdown measures, which helped to revive some PV demand towards the end of Q1. IHS Markit has forecast China will add as much as 45 GW of solar capacity in 2020, a 50% increase year-on-year. Installations dropped to 30 GW in 2019 as government subsidies ended, and in the absence of any financial support this year, 45 GW is optimistic. Global annual PV installations are forecast to fall by 16% this year to 105

GW, with Europe leading the global decline (source: IHS Markit). There is additional downside risk to this forecast if the Chinese market fails to pick up as predicted. Silver PV demand rose by 7% last year to 3,069 t (source: The Silver Institute) but is likely to decline in line with the drop in installations this year, with additional losses as a result of thrifting.

The silver price has continued its remarkable recovery in May, taking the gold:silver ratio back under 100. Further advance may be slower going as industrial demand is not going to lend much support.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	836	-0.03%	853	25/05/2020	820	27/05/2020
€/oz	753	-1.99%	781	25/05/2020	744	29/05/2020

China's heavy-duty demand is a bright spot for platinum this year. Auto sales in China were boosted by an impressive rebound for commercial vehicles in April, increasing 31.6% year-on-year to 533,756 units. Truck sales were particularly strong, gaining 33.8% y-o-y to 497,521 (source: China Automotive Information Net). Demand was supported by subsidies, and restrictions on older vehicles in certain areas incentivised sales of new, cleaner models. Heavy-duty demand in China is one of few remaining platinum markets predicted to see growth this year, though it is a small market (~150 koz).

The platinum price has held above \$800/oz, but considering key demand sectors remain fundamentally weak, and with a market surplus in excess of 1.2 moz (ex. investment) forecast for this year, the price could well head lower.

For more in-depth analysis of how the platinum market is expected to play out this year, including the impact of COVID-19 on both supply and demand, you can access the latest copy of *The Platinum Standard* [here](#).



PRECIOUS METALS REVIEW

⁴⁶ Pd **Palladium**

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,918	-0.79%	2,037	26/05/2020	1,889	28/05/2020
€/oz	1,727	-2.70%	1,866	26/05/2020	1,711	28/05/2020

China's car sales recovered in April. With the country through the worst of the coronavirus outbreak, passenger car sales were down a modest 2.6% year-on-year to 1,536,000 million units (source: China Association of Automobile Manufacturers). The relatively healthy demand was likely driven by generous cashback deals and gifts from dealers, as well as consumers seeking an alternative to public transport. The sharp recovery in China's auto market is unlikely to be mirrored in other major markets where consumer sentiment remains depressed. In China, it remains to be seen how car sales hold up since sales momentum from pent-up demand can carry the industry only so far. Full-year light-vehicle sales are estimated to drop by around 10% year-on-year in China (source: LMC Automotive). China's automotive palladium demand is forecast to decline by around 200 koz as a result.

Zero car sales in India in April. While dealers in parts of Europe and the US managed to sell some cars in April, India's lockdown brought the industry to a complete standstill. A nationwide lockdown and ban on car sales resulted in no sales in April. The restriction was lifted on 17 May, but economic growth was slowing before the virus arrived, and so the car market could struggle for the remainder of the year.

With a large contraction in light-vehicle sales now likely this year, global palladium demand is expected to fall by well over 1.5 moz. Even with some cuts to production, that brings the market close to balance and so palladium trading at around \$1,900/oz still looks expensive.

⁴⁵ Rh ⁴⁴ Ru ⁷⁷ Ir **Rhodium, Ruthenium, Iridium**

	Rhodium	Ruthenium	Iridium
Reporting week	\$10,150/oz	\$305/oz	\$1,650/oz
Previous week	\$9,950/oz	\$305/oz	\$1,635/oz

Remote working supporting mass capacity HDD demand. The effects of COVID-19 have forced millions of people around the world to work from home and pushed employers to consider how this may be continued even post-pandemic. As a result, there has been a spike in nearline hard disk drive (HDD) demand in order to meet increased demand from remote working and streaming. Nearline storage is the intermediate between online and offline storage. In Q1'20, Seagate (the largest HDD manufacturer) shipped 120.2 exabytes of HDD with an average capacity per drive of 4.1 TB, the former being a 12% increase from the previous quarter. Mass capacity

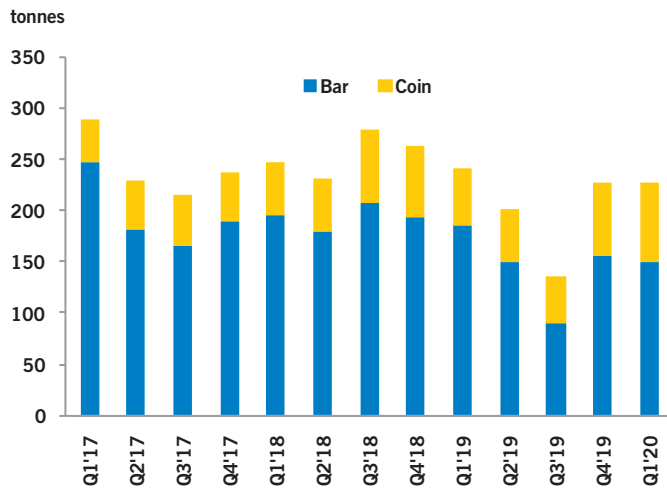
HDDs, which include nearline HDDs, made up 57% of Seagate's revenue in Q1, up from 43% in the previous quarter. HDDs are part of electrical ruthenium demand which is a third of total demand. Ruthenium use in HDDs is projected to increase over the next few years owing to greater capacity requirements.

Rhodium gained \$200/oz last week and is now trading between \$9,000/oz and \$10,000/oz. Iridium continued its gradual appreciation, rising \$15/oz to \$1,650/oz, whereas ruthenium held steady at \$305/oz.



TRENDS AND INVESTMENTS

Gold bar and coin demand



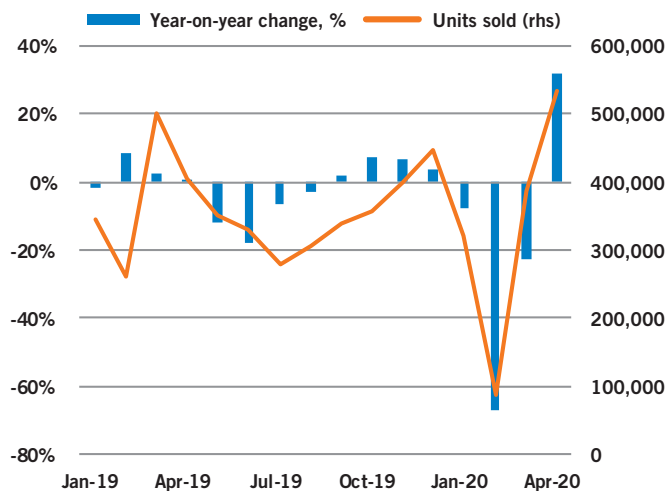
Source: World Gold Council

Silver price



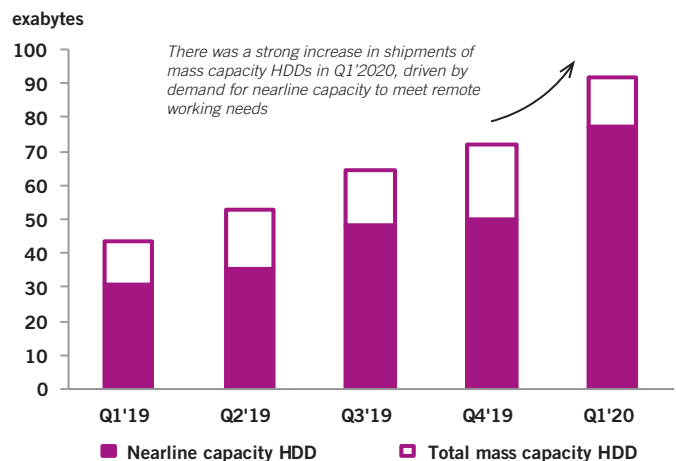
Source: SFA (Oxford), Heraeus

China commercial vehicle sales



Source: SFA (Oxford), China Automotive Information Net

Seagate mass capacity HDD shipments



Source: SFA (Oxford), Seagate

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