



## **Metals & Markets Blog**

Virus Impact on Palladium Supply and  
Demand 2020-2025

September 30, 2020

## METAL

## Demand Losses greater than Supply Cuts, and yet Deficits Remain

- ❖ Mine supply, relative to the pre-virus 2020-25 outlook as of January 2020, has been reduced by 466 thousand ounces.
- ❖ Recycled scrap supply, likewise compared to January, has been squeezed down by industry analysts by 831 thousand ounces for 2020-25.
- ❖ Industrial demand is now 4.2 million ounces lighter for the years 2020-25 relative to January's outlook.
- ❖ Ornamental demand, which covers jewelry, investment and dentistry, has been melted down by 199 thousand ounces for 2020-25.
- ❖ As a result of the virus, the 4.7 million-ounce deficit analysts saw in January for the 2020-25 period has been forced down to 'only' 1.7 million.

Palladium is the black sheep of the precious metal family. When Father Gold, Lady Silver and Prince Platinum sit down to dinner it is a regal, noble affair. Then in walks Palladium. Eyes widen. Napkins clenched. Murmurs. Only recently welcomed to the metal aristocracy<sup>a</sup> the other members do not know what to make of her. Palladium's heritage could hardly be more impressive with etymological roots tying her to the wise warrior goddess Pallas Athena. The leading female figure of Western lore was known in her day for her mettle – undefeated against gods, monsters, men and beasts. Today it is Athena's metal that is in the fore having quintupled in price in the five years before Covid-19 struck. Year-to-date the metal still has a 37% gain.

The reader naturally assumes the other precious metals would welcome her with open arms! But no. Jealousy perhaps. Exasperation maybe. Like her namesake, the metal makes its own way in the world. Ornamental demand? No interest, with the exception of a brief dalliance in the Far-East during the early 2000s. 'Trinkets,' she calls them.

Monetary investment demand (the hallmark of precious metals!)? 'Boring. For the old,' she says.

No, the metal is all about industry and not afraid to get dirty; to get in a scrap. Indeed, like Athena, Palladium is known for helping a worthy cause, specifically the scrubbing of noxious internal combustion engine fumes before they reach the environment.

All around, rather impressive. So then, how did the independent metal handle 2020? How has the year altered the supply and demand picture?

### ANALYSTS IN JANUARY VS. SEPTEMBER

In January 2020 your blogger collected the precious metals analyst supply and demand forecast for the 2020-25. It was, of course, perfect in all but one respect: the COVID-19

pandemic. Repeating the process in September how have the volatile events of the past few months affected each of the main categories of supply and demand?

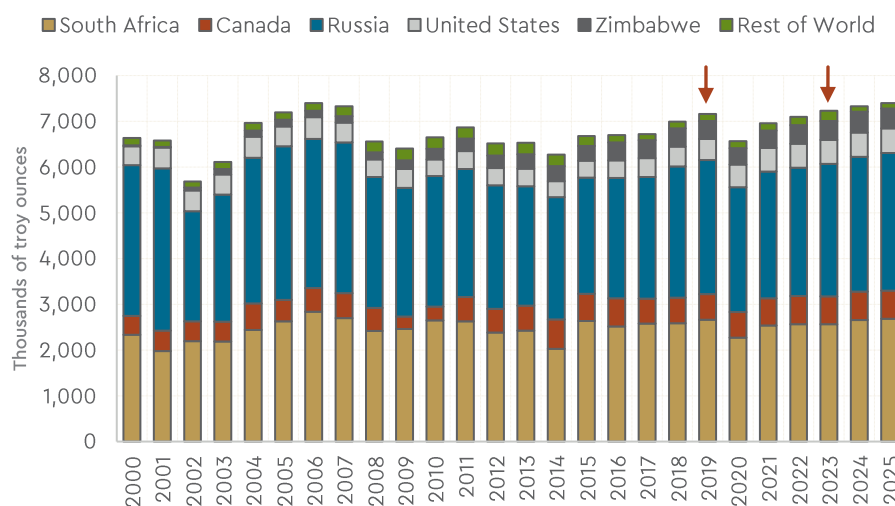
### SUPPLY FALLS 1.3 MILLION OUNCES

Palladium mine supply was expected to run up to 7,105 thousand ounces (Koz) in 2020. But

now the total is expected to come in at 6,558 Koz, a reduction of 7.7% and the lowest output since 2014. Mines are not expected to reach the same level they achieved in 2019 until 2023. Interestingly, unlike silver, which is not expected to surpass January 2020's expectations until after 2025, palladium mine supply is now forecast to surpass what was assumed in January for the years 2024-25.

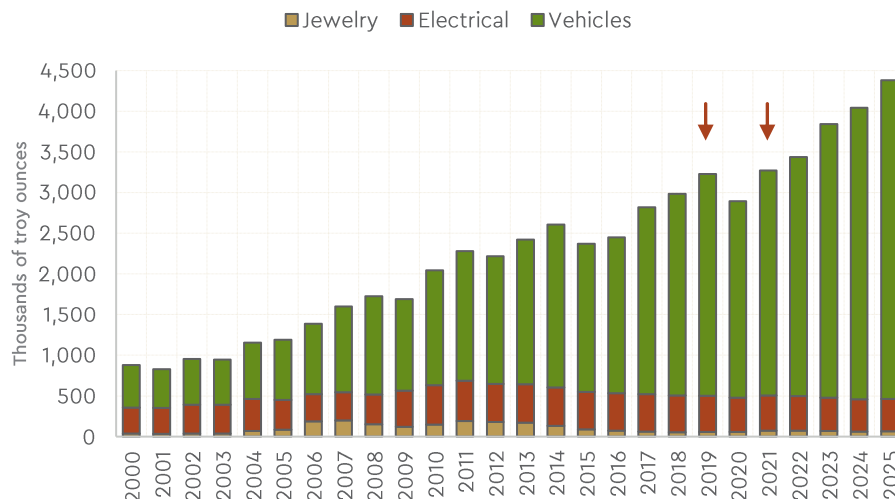
### ANALYSTS ANTICIPATE A FOUR-YEAR, MINE SUPPLY RECOVERY

(PALLADIUM, MINE SUPPLY BY COUNTRY)



### ANALYSTS SEE RECYCLED SUPPLY SNAPPING BACK IMMEDIATELY

(PALLADIUM, SECONDARY SUPPLY, BY SOURCE)



<sup>a</sup> Having only been discovered in 1803.

Over those two years, 453 Koz more ounces will be produced than expected previously. That is half of the anticipated 919 Koz loss between 2020-23.

Mine supply represents 71% of total supply. But unlike gold (27%) or silver (16%), which have secondary sources of supply that fluctuate around a historical mean, palladium's non-primary supply is trending. In the first five years of the millennium supply from junkyard vehicles, recycled jewelry and electrical scrap averaged 13% of total supply. But in the five years prior to 2020 the averaged had more-than doubled to 29%. The point estimate for 2025 stands at 37%.

All of the growth in secondary supply is coming from the junkyard vehicle. Jewelry recycling averaged 1% and will average 1% (of total supply). Electrical scraps averaged 5% and will average 4%. In that way the relatively rare and recently discovered precious metal palladium is turning into the ubiquitous and profoundly boring base metal lead. Both metals derive the majority of their end use from the vehicle. The high-density value of the lead-acid battery and palladium coated catalyst converters are quickly stripped when these oversized cans are junked. Today, the lead market is supplied 37% by mines and 63% via recycling.

The *Through the Looking-Glass*-like 2020 has caused analysts to reduce their palladium secondary supply expectations by 363 Koz, or -11%. The 'six impossible things before breakfast' year accounts for just about half of the 831 Koz that will be missing from supply for 2020-25. Again, silver sees no recovery relative to pre-Covid-19 expectations before 2025 but palladium does. Still, it will not be till 2025 and only by a modest 3%.

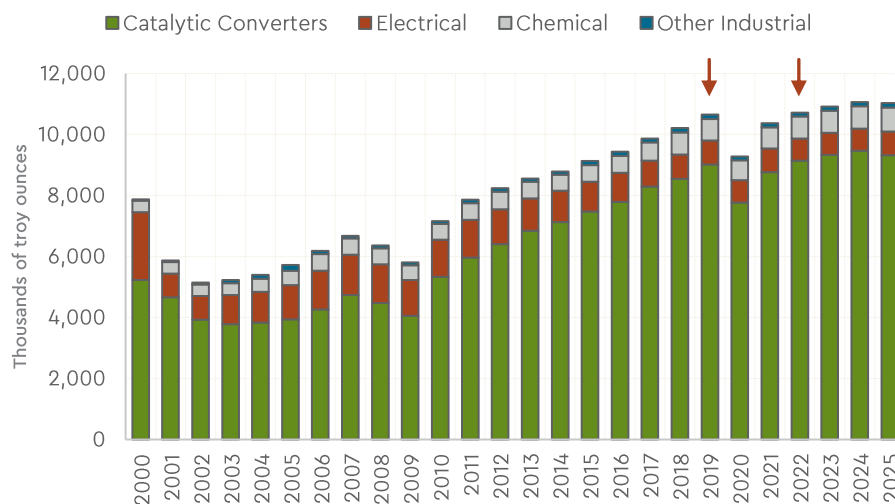
Combine primary and secondary sources of supply and the overall loss for 2020-25 is anticipated to be 1,297 Koz. Just under three quarters of that loss will be slotted for 2020 with a 910 Koz shortfall relative to January's outlook, a 9% cut.

### THE SLICE GROWS AS THE PIE SHRINKS

The industrial end users of the metal are anticipated to cut 15% of their pre-Covid-19 demand. A full 1,605 Koz are 'missing' in 2020 and 4,150 total for the 2020-25 forecast. Analysts are, in your blogger's pointed opinion, optimistically forecasting demand will return to 2019's levels by 2022. As the vehicle industry is the overwhelming user of this metal, what can be observed there?

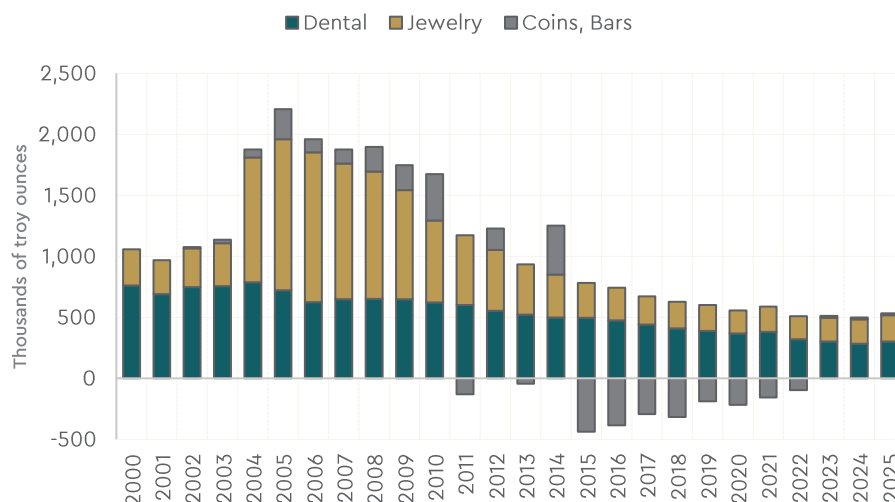
### ANALYSTS OPTIMISTICALLY SEE RECOVERY WITHIN THREE YEARS

(PALLADIUM, INDUSTRIAL DEMAND, BY END USE)



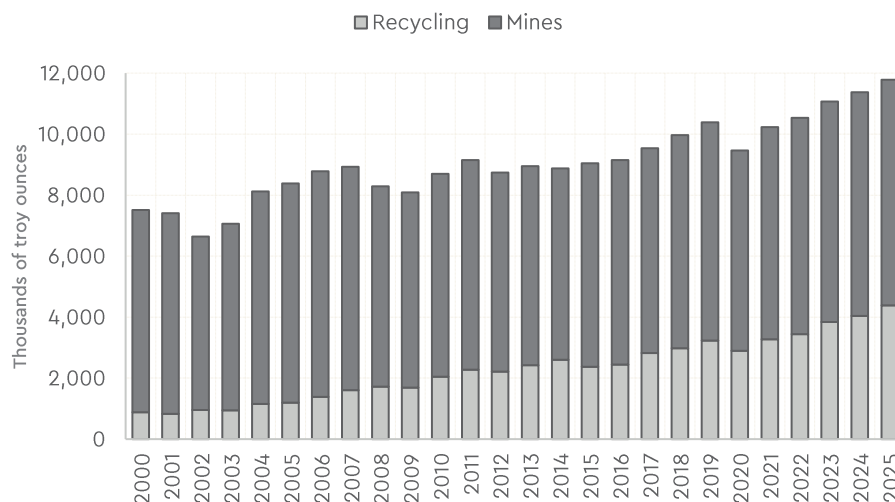
### SECULAR DECLINE -- NO MATTER WHAT THE COVID

(PALLADIUM, ORNAMENTAL DEMAND, BY END USE)



### PALLADIUM MAY BE LIKE LEAD, WHERE RECYCLING DOMINATES

(PALLADIUM, TOTAL SUPPLY, BY TYPE)



It took around seven years for vehicle sales in the United Kingdom and United States to return to levels seen before the 2007-08 banking crisis. Germany and France only returned to pre-crisis levels last year. Neither Spain nor Italy have. Car registrations needed a full decade across the European Union to get back to previous levels. China, the world's largest car market, had been in a two-year downtrend before 2020's events. The good news is that car registrations in Japan 'only' needed five years to recover. The bad news is that it has been an almost unrelenting downturn since and, like China, was in a downturn two years before the curtain on 2020 was pulled back.

What analysts are most likely counting on is that despite a shrunk, slowing rising economic pie – palladium's slice of it will expand faster. This is true in two respects. Firstly, palladium is expected to gain market share at platinum's expense as the latter metal is primarily used for diesel-powered engines and that fuel is no longer considered environmentally friendly. Secondly, palladium loadings per unit are forecast to increase as emission standards tighten.

Palladium's ornamental end-uses include: jewelry, dentistry, coins and bars. In the early 2000s palladium jewelry became a fad in Japan and a mania in China. Your blogger is not exaggerating when he writes that once the moment passed demand was extinguished to 'nothing' in China and about a third of its peak in Japan. The use of palladium in dentistry is in a steady downtrend. Investment in coins and bars is effectively non-existent. Had there been no coronavirus, had there been no government shutdowns, the ornamental demand for palladium would have fell. Now it is going to fall faster. Analysts expect 2020 to come in 9% below January's expectations and 199 Kozs are missing from the overall 2020-25 period.

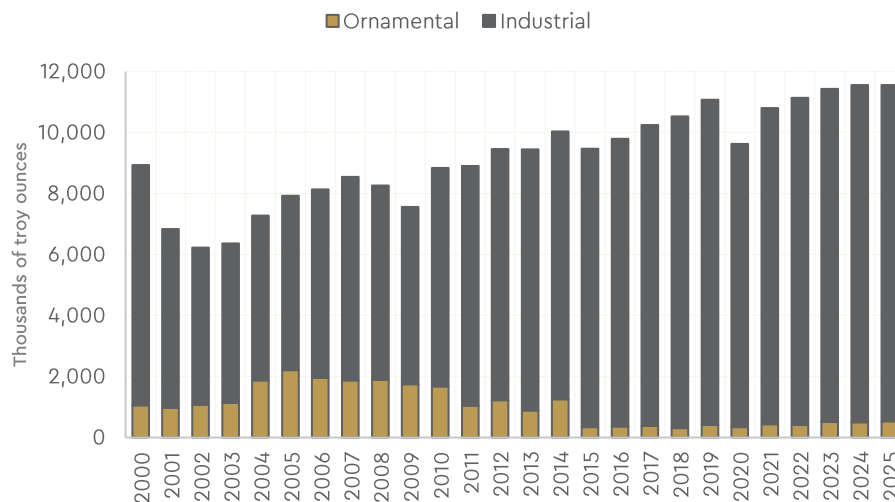
Overall, industrial and ornamental demand for 2020-25 are anticipated to be 4,349 Koz short of what commodity analysts anticipated this past January. About 2/5<sup>th</sup> of that loss will come just in 2020 with a 1,637 Koz missing, a jarring 15% cut.

### THE SUPPLY AND DEMAND BALANCE

For the period 2020-25, 2% of total supply has been lost to the events of 2020. Meanwhile, triple has been erased in total demand (6%). As a result, the yawning deficits previously forecast in the annual supply and demand

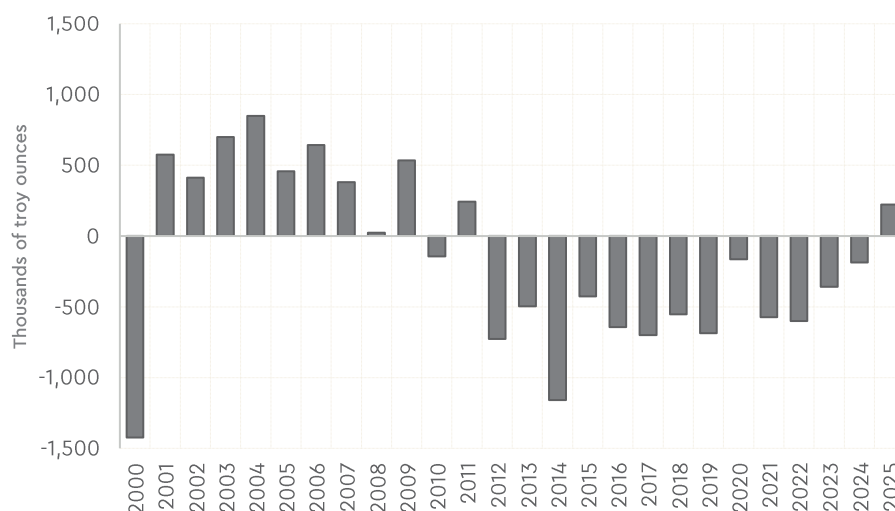
### A "PRECIOUS METAL" IN NAME ONLY

(PALLADIUM, TOTAL DEMAND, BY END USE)



### VEHICLE PRODUCTION AND RECYCLING TO DETERMINE RESULTS

(PALLADIUM, ANNUAL SUPPLY AND DEMAND BALANCE)

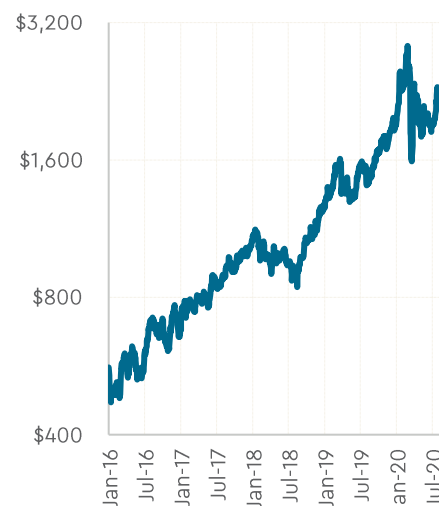


balance are 65% smaller. But the deficits are still there! Supply continues to be inadequate relative to anticipated demand, in turn forcing the end users to draw down on existing stocks. Whereas previously the imbalance was indefinite, now the forecast anticipates a surplus in 2025, the first since 2011.

The metal has been wounded by 2020, but like Athena, not defeated.

### PALLADIUM

(USD, TROY OUNCE, DAILY, LOG SCALE)





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