PLATINUM ESSENTIALS

Sep'25, Five-year supply/demand outlook; current price levels unlikely to shift fundamentals away from deficits

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This Platinum Essentials provides an update to our five-year forecasts for the platinum and palladium markets. In 2025, the platinum market is expected to record a third consecutive year of substantial deficit which in conjuntion with geopolitical competition for physical metal has supported the rise in price (+71% year-to-date). We do not expect the current price level to materially impact our entrenched forecast deficits which we expect to average 620 koz p.a. from 2025f to 2029f, or 8% of average demand. The palladium market will record deficits in 2025f and 2026f, before transitioning to surpluses thereafter.

Since our previous five-year outlook, platinum prices have consolidated the strong increase which commenced in May 2025. Year-to-date, the platinum price has increased by 52%, with very pronounced geographic competition for metal given the broader geopolitical backdrop. In China, there were strong notable increases of 134% and 176% year-on-year for jewellery and investment demand respectively during Q2 2025. Whilst demand trends are certainly encouraging, in revising our medium-term forecasts, we have opted to be more restrained on our Chinese outlook with signs that demand has softened somewhat during Q3 2025 as end users adjust to the new price levels that increasingly reflect fundamentals.

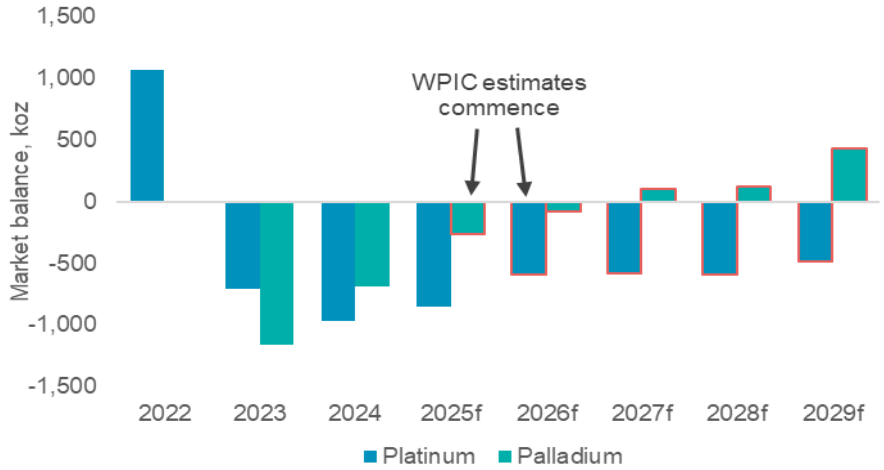
Looking at the broader impact of recent platinum price appreciation, we do not think that current price levels materially change platinum's supply and demand fundamentals in the short to medium-term.

- Our mine supply forecast, based on published company guidance, reinforces constrained output with no appetite for new growth projects.
- Our demand forecast reflects that current price levels are less relevant to auto and industrial demand trends than factors such as the rates of drivetrain electrification and hydrogen adoption. Although jewellery demand is more price elastic, platinum is currently recording demand growth given its favourable discount to gold and white gold jewellery.

In summary, whilst there are multiple changes in our forecasts, the headline revisions to platinum's supply demand forecasts are relatively minor (-0.3% to -1.6% for 2026-2029f). We continue forecasting market deficits which support platinum's attractive investment case.

WPIC's updated two- to five-year supply demand outlook for platinum incorporates only modest changes, with deficits expected to perpetuate for the foreseeable future.

Figure 1. Platinum and palladium market balances 2022 to 2029f



Source: Metals Focus 2022 to 2024 (palladium) and 2022 to 2025f (platinum), Company guidance, WPIC Research

**WPIC in-house supply data is based solely on publicly published supply data, including forward looking guidance, with any adjustments noted. It does not represent the views of any WPIC members or those of Metals Focus which independently prepare our Platinum Quarterly reports. Demand data is based on public data but includes WPIC in-house analysis.*

Figure 2. Platinum and palladium supply and demand summary tables

(koz)	Published Platinum Quarterly*				WPIC ESTIMATES‡			
	2022	2023	2024	2025f	2026f	2027f	2028f	2029f
PLATINUM SUPPLY					Production at mid-point of aggregate guidance ranges			
Refined mine production								
- South Africa	3,915	3,957	4,133	3,869	3,987	3,923	3,902	3,899
- Zimbabwe	480	507	512	491	548	558	548	558
- North America	263	275	254	189	202	197	197	197
- Russia	663	674	677	686	654	654	654	654
- Other	200	190	191	191	191	191	191	191
- Producer inventory movement	43	11	-2	0	0	0	0	0
Total mining supply	**5,563**	**5,615**	**5,764**	**5,426**	**5,581**	**5,523**	**5,491**	**5,499**
Recycling								
- Autocatalyst	1,370	1,114	1,143	1,210	1,274	1,332	1,384	1,437
- Jewellery	372	331	298	309	342	326	323	337
- Industrial	69	71	76	81	95	105	116	122
Total recycling	**1,811**	**1,515**	**1,516**	**1,601**	**1,711**	**1,763**	**1,823**	**1,895**
Total supply	**7,374**	**7,130**	**7,280**	**7,027**	**7,292**	**7,286**	**7,314**	**7,394**
PLATINUM DEMAND								
Automotive	**2,778**	**3,206**	**3,114**	**3,033**	**2,904**	**2,802**	**2,749**	**2,664**
Jewellery	**1,880**	**1,849**	**2,008**	**2,226**	**2,157**	**2,178**	**2,200**	**2,222**
Industrial	**2,166**	**2,389**	**2,423**	**1,901**	**2,223**	**2,287**	**2,357**	**2,396**
Total investment	**-516**	**397**	**702**	**718**	**599**	**599**	**599**	**599**
- Bar and coin	259	322	194	282	325	325	325	325
- China bars ≥500g	90	134	162	186	186	186	186	186
- ETF	-558	-74	296	100	87	87	87	87
- Stocks held by exchanges	-307	14	50	150	0	0	0	0
Total demand	**6,308**	**7,841**	**8,248**	**7,877**	**7,882**	**7,866**	**7,904**	**7,881**
Supply/demand balance	**1,066**	**-712**	**-968**	**-850**	**-591**	**-580**	**-590**	**-486**

	Published Metals Focus			WPIC Platinum ESTIMATES‡				
	2022	2023	2024	2025f	2026f	2027f	2028f	2029f
PALLADIUM SUPPLY				Production at mid-point of aggregate guidance ranges				
Refined mine production								
- South Africa	2,238	2,315	2,354	2,380	2,352	2,356	2,377	2,406
- Zimbabwe	404	428	424	440	455	466	459	471
- North America	822	847	789	649	498	442	442	442
- Russia	2,790	2,692	2,762	2,703	2,703	2,703	2,703	2,703
- Other	235	229	228	234	234	234	234	234
- Producer inventory movement								
Total mining supply	**6,488**	**6,511**	**6,556**	**6,405**	**6,243**	**6,201**	**6,214**	**6,256**
Recycling								
- Autocatalyst	2,602	2,071	2,329	2,508	2,701	2,911	3,122	3,336
- Jewellery	112	93	65	74	65	64	60	58
- Industrial	403	397	395	382	374	364	356	347
Total recycling	**3,117**	**2,561**	**2,789**	**2,963**	**3,140**	**3,339**	**3,538**	**3,741**
Total supply	**9,606**	**9,072**	**9,345**	**9,368**	**9,382**	**9,540**	**9,752**	**9,997**
PALLADIUM DEMAND								
Automotive	**7,976**	**8,491**	**8,091**	**7,740**	**7,721**	**7,649**	**7,825**	**7,727**
Jewellery	**226**	**232**	**235**	**240**	**243**	**246**	**249**	**252**
Industrial	**1,490**	**1,428**	**1,419**	**1,448**	**1,433**	**1,470**	**1,484**	**1,522**
Total investment	**-70**	**85**	**289**	**201**	**70**	**70**	**70**	**70**
- Bar & coin	18	-1	3	1	1	1	1	1
- ETF	-88	86	286	200	69	69	69	69
Total demand	**9,622**	**10,236**	**10,034**	**9,629**	**9,466**	**9,434**	**9,627**	**9,571**
Supply/demand balance	**-17**	**-1,164**	**-689**	**-260**	**-83**	**106**	**125**	**426**

Source: Metals Focus 2022 to 2025f (platinum) and 2022 to 2024 (palladium), Company guidance, WPIC Research

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Introduction

The WPIC's medium-term platinum supply and demand projections are intended to complement the estimates and forecasts published in our *Platinum Quarterly*, but they look further into the future and allow for longer-term scenario analysis. Similarly, our palladium forecasts complement our platinum forecasts.

WPIC's base case published supply/demand projections for 2026f to 2029f provide the ability to run scenario analysis on different parts of the supply/demand landscape for platinum and palladium.

The *Platinum Quarterly* report and data are prepared independently for the WPIC by Metals Focus, with Metals Focus's estimates provided on a one year forward basis (currently 2025). For the avoidance of doubt,

- All estimates for platinum from 2026f to 2029f included in this report are WPIC forecasts, with the exception of mine supply which is based solely upon publicly published company guidance.
- Palladium estimates from 2025f to 2029f in this report are WPIC forecasts, again with the exception of public company guidance for mine supply.

Specifically, WPIC has made no use of any forward-looking data or views included in Metals Focus's separate five-year forecast available to its clients, that provides an outlook for all the major PGMs.

WPIC's research is predominantly desk based and not focussed on developing extensive in-country and in-industry relationships to obtain fresh/incremental data. The information and sources used to develop our supply/demand model are typically all in the public domain.

Please see the appendix for a complete description of the methodologies we have used to develop each model and section of this report as well as a risk analysis for our forecasts.

Key projections

Our revised outlook is compared to the supply/demand *Platinum Essentials* published in June 2025 (*link*). Since our last update, the US has negotiated several trade agreements where tariffs have largely settled below President Trump's initial outline of country specific reciprocal tariffs (albeit Switzerland was a key exception). However, macroeconomic uncertainty remains heightened since 1) a formal trade deal is still outstanding with China, 2) copper was unexpectantly hit with tariffs, and 3) the independence of the US Federal Reserve is being challenged.

In general, we do not expect current price levels to materially impact supply and demand dynamics. Instead, slower fuel cell electric vehicle adoption has led to the largest revision to this edition of our medium-term forecasts.

The announcement of copper tariffs has had ripple effects in platinum; the rationale for copper tariffs is difficult to understand and the fear is that other metals could be similarly targeted. Platinum stocks held on exchange increased by ~260 koz over the past three months as markets responded to risks that other industrial metals such as platinum could incur a tariff. Increasing exchange stocks in the US exacerbated significant geographic competition for the metal with Chinese platinum imports increasing by 26% year-on-year in Q2 2025 and Europe faced physical supply tightness as evidenced by high lease rates and the steep backwardation of London's OTC curve.

Competition for metal alongside soft H1 2025 mine supply supported platinum price increases of 40% through May and June 2025. Rapid price appreciation carried concerns that current prices may be short-lived, however these have been alleviated with trading settling into a US$1,300 to US$1,500 per ounce range over the last three months. Precious metals should remain supported with the Fed commencing an interest rate cutting cycle from September 2025.

The step-change in platinum prices during 2025, requires a reflection on supply and demand elasticity to price and the potential subsequent impact on forecasts. In our view, current platinum prices are unlikely to materially change platinum's fundamentals, and we forecast platinum markets to remain in deficit throughout our forecast period through 2029f.

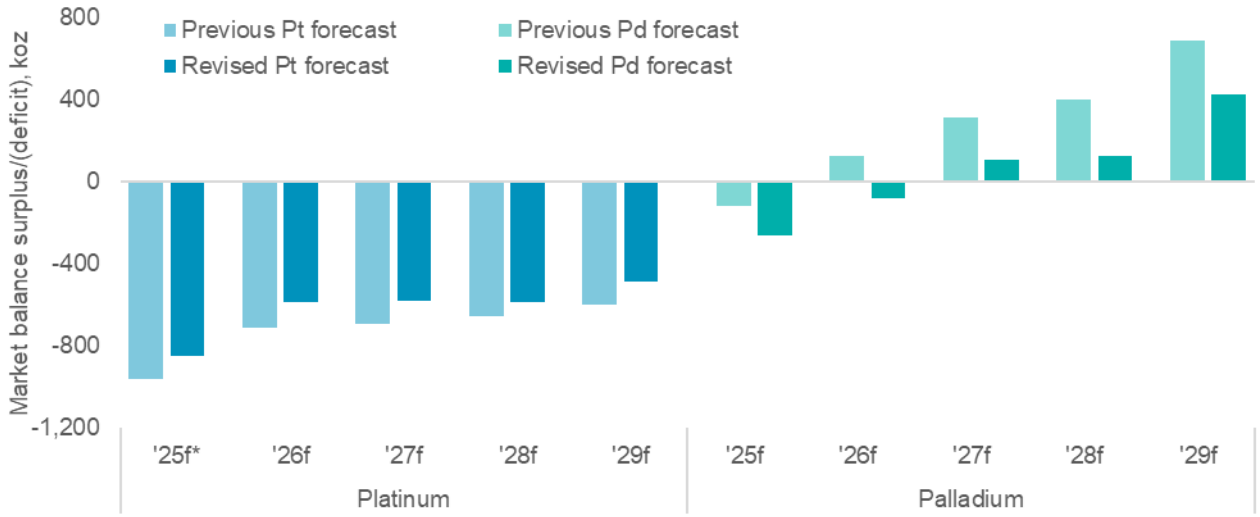
For platinum, we expect market deficits to average 562 koz from 2026f to 2029f (667 koz previously). In summary,

1. **Total supply** has reduced by -0.3% on average, with downward revisions to mining supply offsetting minor upgrades to recycling.
2. **Total demand** is forecast to be -1.6% lower on average than previously published with an uplift in jewellery demand being offset by lower automotive demand where our fuel cell electric vehicle forecasts have been reduced.

For palladium, we now expect markets to be in deficit for a year longer than previously, now only transitioning to a surplus from 2027f, with the subsequent surpluses being smaller than previously forecast.

1. **Total supply** has been decreased by an average of -0.6% on the same basis as platinum supply downgrades.
2. **Total demand** has been increased by 1.7% on average with upgrades to automotive demand following the assumption that China 7 emission legislation commences from 2028f. Moreover, ETF inflows YTD of 218 koz have exceeded prior forecasts.

Figure 3. Platinum market deficits are forecast at around 500 koz to at least 2029f, while palladium markets will move from deficits to a surplus by 2027f, albeit with smaller surpluses than previously forecast



*Source: *Metals Focus provides the 2025 platinum forecasts in WPIC's Platinum Quarterly, WPIC Research*

Economic overlay

Despite the ongoing macro uncertainties, the global economic outlook for 2025 and 2026 appears to have stabilised. The launch of protectionist US trade policies has not yet led to a sharp slowdown in global growth or rapid uptick in inflation. That being said, President Trump's "Big Beautiful Bill" and criticism of the Fed has kept uncertainty high which has seen the US$ depreciate through 2025.

In general, dollar weakness is supportive of commodity prices and similarly, we expect the Fed's first rate cut of the year (announced in September) and its signalling for further cuts, to support precious metals prices. A weaker dollar, tariff uncertainties and platinum's strong fundamentals have collectively pushed platinum prices 52% higher year-to-date. Accordingly, although we believe that US trade policy has had less impact on platinum's supply demand dynamics than initially feared, the risk to platinum's investment case may stem from whether current price levels incentivise supply growth or cause demand erosion.

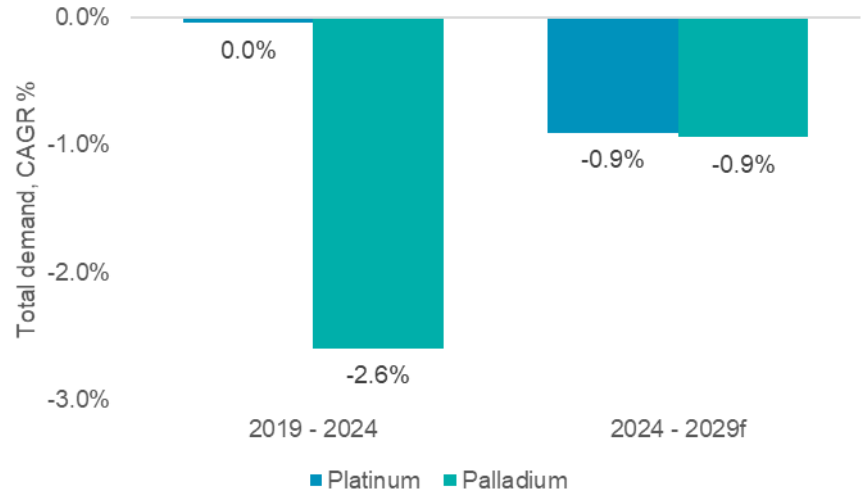
Global growth has not responded as badly as feared to US tariffs, yet uncertainty remains high.

In reflecting on price elasticity, we discuss below how we believe that neither supply nor demand appear set to materially change due to PGM price rises through 2025.

Platinum and palladium demand to witness minor erosion to 2029f

Over the five years from 2019 to 2024, total platinum demand has been stable at ~8.2 Moz per annum. Palladium over the same period has recorded demand erosion of -2.6% CAGR (Fig. 4). Looking to the five years to 2029f, platinum's relative strength versus palladium is set to unwind. WPIC expects the growth rates of total platinum and palladium demand to converge from 2024 to 2029f to -0.9% CAGR respectively, with gradually shrinking automotive demand due to drivetrain electrification being the primary factor behind the modest declines.

Figure 4. Growth rates for total platinum and palladium demand are expected to converge over the five-year period from 2024 to 2029f



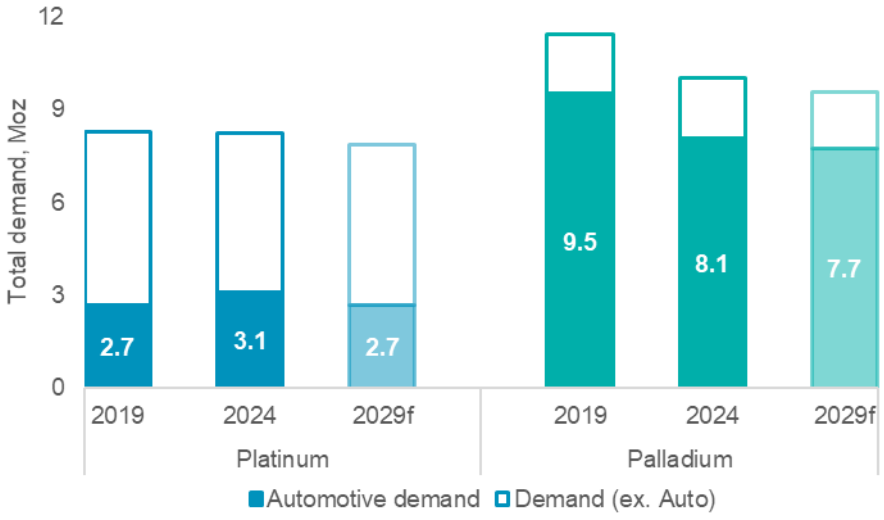
Source: Metals Focus (2019 and 2024), WPIC research (2029f)

Automotive demand

Automotive is the key segment which helps explain the relative growth rates across both platinum and palladium demand over the last five years and next five years. Price driven platinum for palladium substitution (at a 1:1 ratio) in gasoline vehicle autocatalysts led to an incremental 720 koz of platinum demand in 2024 according to Metals Focus. Despite the rise of electric vehicle market share and declining diesel demand, substitution supported platinum automotive demand of 3.1 Moz in 2024, up from 2.7 Moz in 2019 (Fig. 5).

Platinum's use in more diverse end markets helps to insulate it (relative to palladium) from downward pressure in automotive demand.

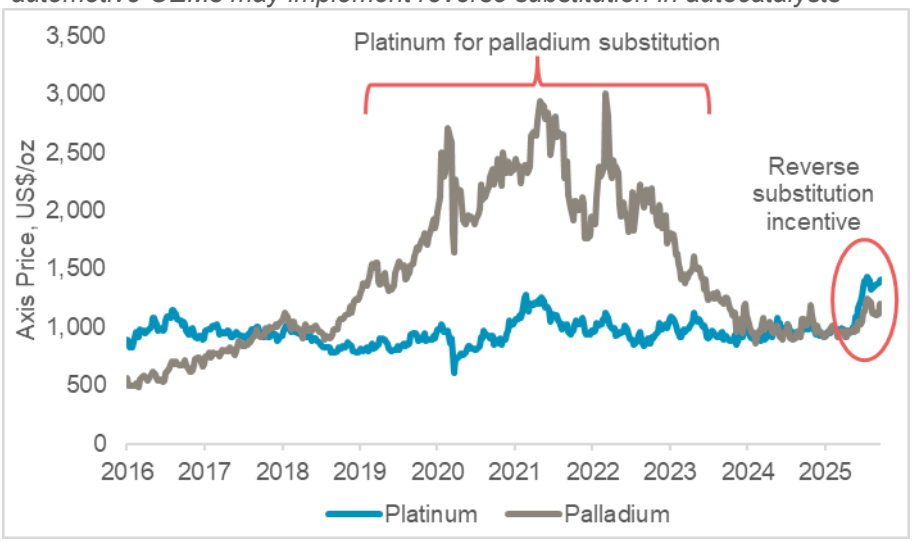
Figure 5. Drivetrain electrification is the main factor in the gradual decline in automotive demand for platinum



Source: Metals Focus (2019 and 2024), WPIC research (2029f)

Substitution is expected to peak in 2025 and thereafter gradually reverse given platinum prices have traded at an average premium of US$59/oz to palladium prices over the past twelve-months (Fig. 6). WPIC expects reverse substitution (i.e. palladium for platinum) to reach 250 koz by 2029f. With palladium now benefitting from reverse substitution, palladium will also relatively benefit (versus platinum) from China 7 emission legislation which we have added into our forecasts from 2028f. Accordingly, we expect palladium automotive demand erosion will ease to -0.9% CAGR from 2024 to 2029f, which is less than a third of automotive platinum demand erosion over the same period (-3.1% CAGR).

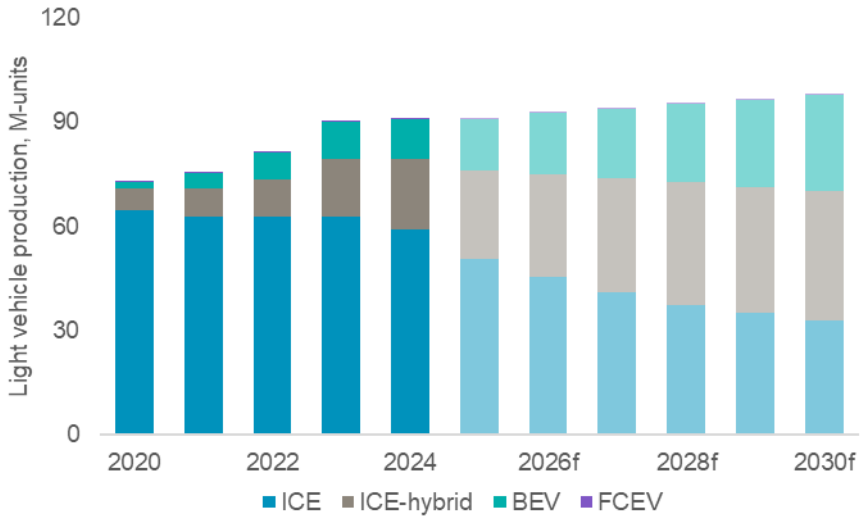
Figure 6. With platinum prices now trading at a premium to palladium, automotive OEMs may implement reverse substitution in autocatalysts



Source: Bloomberg, WPIC research

Combined, platinum and palladium automotive demand (from catalysed vehicles) of 11.2 Moz in 2024 is forecast to decrease to 10.3 Moz by 2029f. This demand erosion equates to a -1.7% CAGR from 2024 to 2029f, which is in line with the rate of the past five years and is underpinned by an increase in light vehicle BEV market share from 13% (2024) to 26% (2029f).

Figure 7. Automotive PGM demand will have a long tail underpinned by both pure ICE and hybrid vehicles



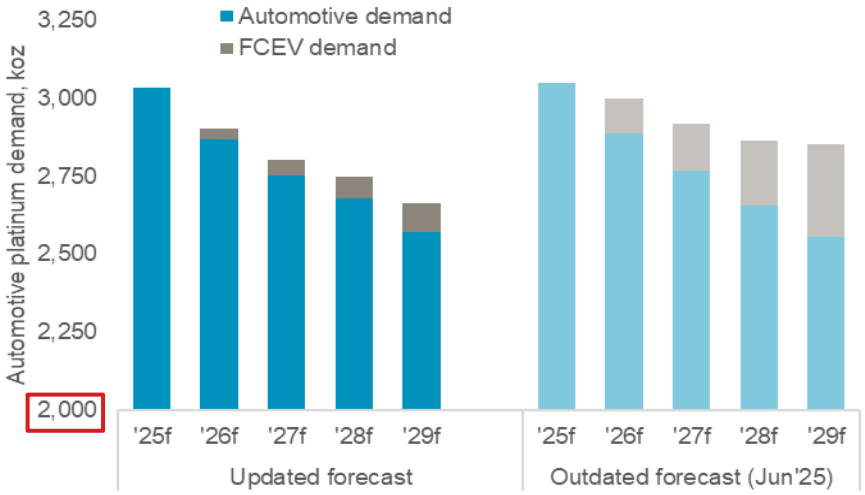
Source: OICA, Regional automotive bodies, WPIC research

High costs, negligible infrastructure and a lack of policy support are all weighing on the uptake of fuel cell electric vehicles.

Downgrading FCEV expectations

Looking beyond catalysed vehicles to hydrogen, we have slowed our expectations for the uptake of fuel cell electric vehicles (FCEV). We now expect FCEV demand to account for 3% of platinum automotive demand in 2029f versus 10% previously (Fig. 8). Key headwinds to FCEV adoption remain costs, negligible infrastructure and a lack of policy support, while more recently trends of walking back emission reduction targets are also likely to weigh on demand for green technologies. Notably, since our last outlook, Stellantis has halted investment in its hydrogen development programs. The impact of lower FCEV market share is that compared to our previous five-year outlook, our platinum automotive demand forecast for 2029f has been reduced from 2,853 koz to 2,664 koz.

Figure 8. Slow adoption of FCEVs has necessitated downward revisions to automotive platinum demand forecasts



Source: Metals Focus (Pt: 2025f), WPIC research

More time is needed to see how sustained Chinese jewellery demand will prove to be

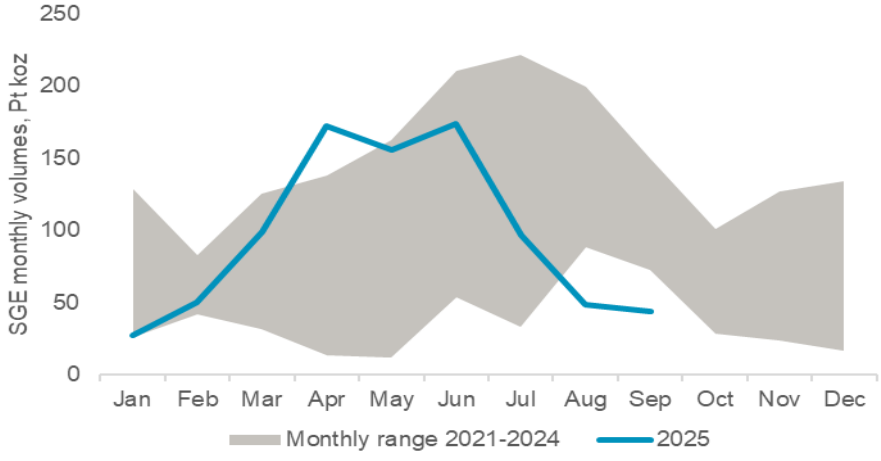
Turning to other non-automotive demand segments. We have held back on large changes to our medium-term forecasts despite notable reports of strong Chinese platinum jewellery and investment demand growth in the second quarter.

China's platinum imports increased by 26% year-on-year in Q2 2025.

Jewellery

During Q2 2025, China's platinum jewellery demand and bar and coin investment demand increased by 134% and 176% year-on-year respectively. Rising jewellery demand was in response to weak gold jewellery demand which led Chinese wholesalers to liquidate unsold gold stock and transition into lower cost platinum jewellery. It is unclear if the sharp increase in China's wholesale platinum jewellery volumes will translate into higher consumer demand. Recent Shanghai Gold Exchange (SGE) volumes would suggest that platinum jewellery demand is softening. We note that the jewellery trade buys platinum from SGE and monthly trade data shows a contrast between Q2 and Q3 in terms of where 2025 volumes were relative to the prevailing four years.

Figure 9. SGE volumes have declined from above the average monthly range in Q2 2025, to below the month range in Q3 2025. This suggests there is a slowdown in platinum jewellery and bar and coin manufacturing



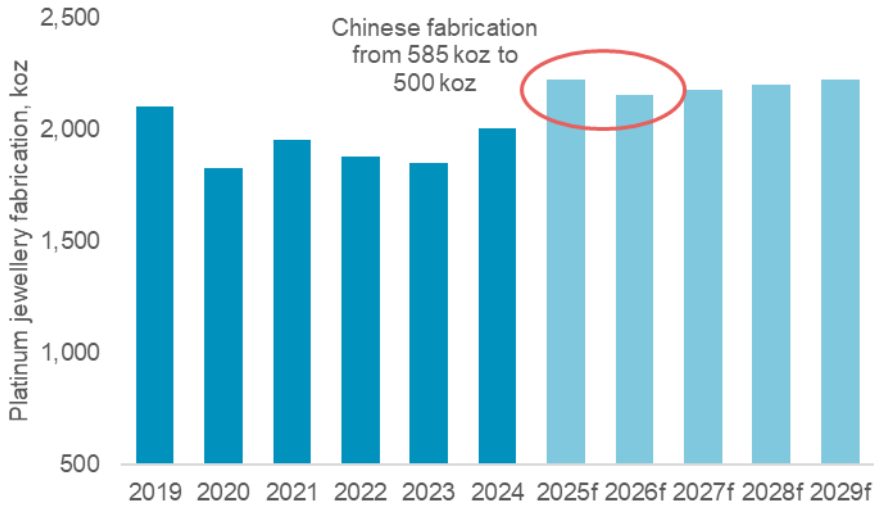
Source: Bloomberg, WPIC research

Given softening Chinese jewellery demand over Q3'25, we have prudently opted to only make a minor 4% upward revision to Chinese platinum jewellery forecasts from 2026f to 2029f (+21 koz pa on average). Although we have increased our expectations for China's platinum jewellery demand from 2026f to 2029f, our cautious revisions mean that annual demand over this period is projected to be below the 2025f level of 585 koz. This explains the reduction in total platinum jewellery demand from 2025f to 2026f.

Platinum jewellery demand is benefitting from relative price advantages to gold, increasing uptake in luxury goods and lower gemstone prices.

Our ex-China platinum jewellery forecasts have been left unchanged as platinum jewellery demand is benefitting from its low relative price to gold, increased use in luxury goods and lower prices of gemstones (including synthetics). In aggregate, we expect total platinum jewellery demand to increase by 2% CAGR from 2024 to 2029f. Although platinum jewellery demand is price elastic, we do not expect demand to be negatively impacted by rising prices since platinum remains a more affordable choice of metal compared to yellow and white gold.

Figure 10. Platinum jewellery demand is projected to continue its demand recovery after troughing through 2020 to 2023



Source: Metals Focus (2019 – 2025f), WPIC research

Investment demand

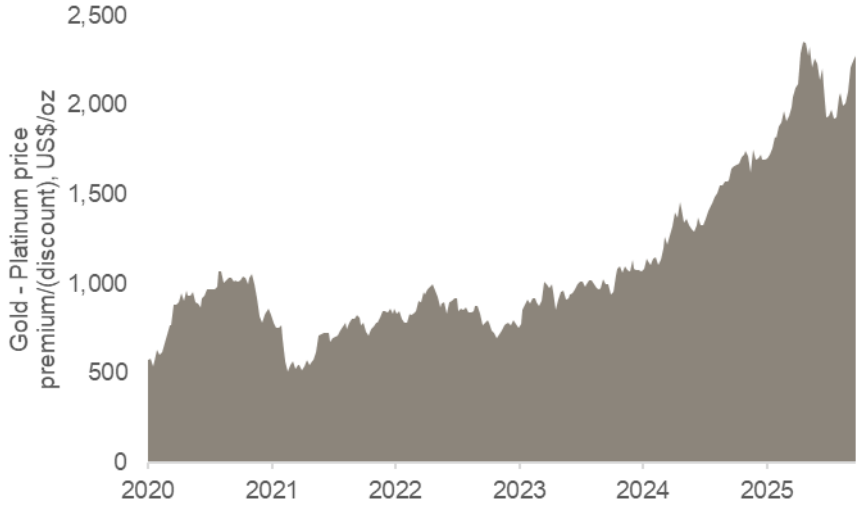
As noted, China's platinum bar and coin investment demand growth was exceptional in Q2 2025. Although Chinese investment demand has grown strongly since 2019, we believe the growth seen during Q2 2025 was also linked to platinum's record discount to gold prices (Fig. 11). For forecasting purposes, the WPIC will continue to use historic average platinum investment demand for future demand estimates. Accordingly, total platinum investment demand is expected to be 599 koz p.a. from 2026f to 2029f (+4 koz on avg. since our previous publication).

Chinese investors perceived platinum as having less downside risk to gold, when gold's premium to the platinum price reached a record high of US$2,450/oz in Q2 2025.

Industrial demand

We close out our demand discussion with industrial demand. We have revised our aggregate industrial platinum demand forecasts from 2026f to 2029f by an average of -22 koz p.a. Lower average industrial demand is due to historical revisions made "Other" industrial demand which have subsequently been rolled forward in future forecasts. The historical revisions to "Other" platinum demand pertain to reducing the estimated number of platinum-containing sensors used in cars and the sales volumes of aftermarket spark plugs.

Figure 11. Gold prices traded at a record premium of US2,450/oz to platinum prices in April 2025 which helped drive increased Chinese platinum jewellery demand and investment bar and coin demand during Q2 2025



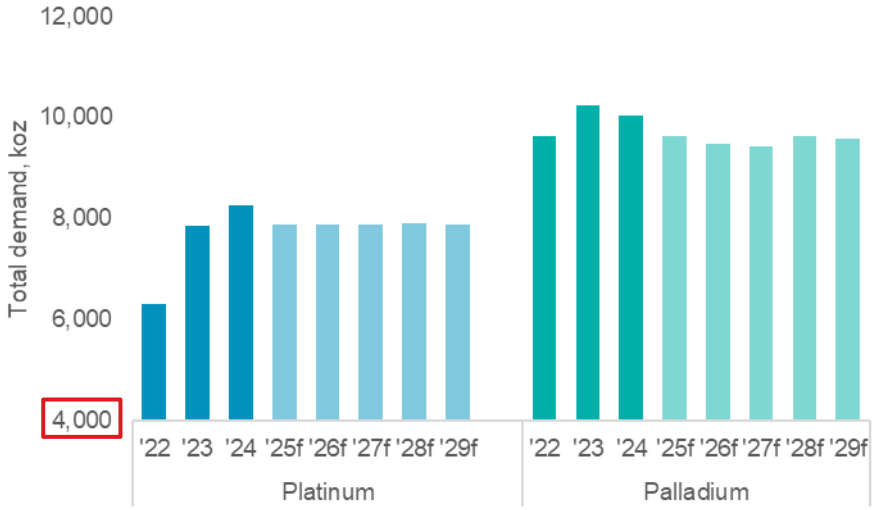
Source: Bloomberg, WPIC research

Total demand

Consolidating total demand for platinum and palladium, we highlight that both metals see a step change down from 2024 to 2025f (Fig. 12). In 2025, the -4.5% year-on-year decline in platinum demand is due to cyclically low glass demand while, the -4.0% year-on-year reduction in palladium demand is due to declining automotive and investment demand. Beyond 2025f, total platinum demand will be stable as automotive demand erosion is offset by recovering industrial demand while palladium demand stability is due to gains from reverse substitution and tighter emission legislation in the automotive sector.

Absolute demand for platinum and palladium should stabilise from 2025 to 2029f. For platinum, this is due to a recovery in industrial demand, while palladium automotive demand will benefit from reverse substitution.

Figure 12. Our outlook platinum and palladium are that demand should stabilise at around 2025f levels until 2029f



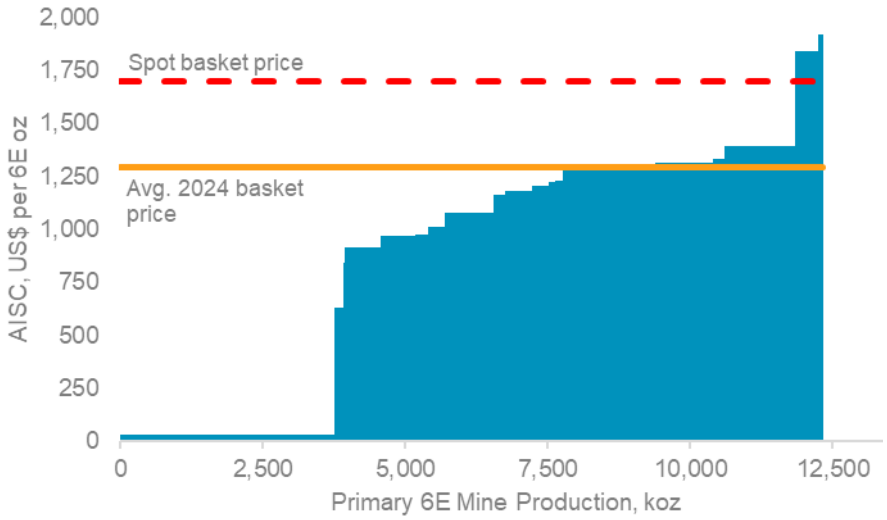
Source: Metals Focus (2022 to 2024 (Pd) and 2025f (Pt)), WPIC research thereafter

How will platinum supply respond to current price levels

Platinum supply, as a whole, is broadly price inelastic over a typical investment time horizon. While the 44% YTD increase in 6E PGM basket prices has undoubtedly improved both mining and recycling economics, there are structural challenges to quickly increasing mine supply, in particular.

Increasing mine supply faces significant execution risks. New mines are capex intensive and can take more than a decade from groundbreaking to reaching nameplate capacity. Accordingly, although the industry cost curve now shows that >90% of production capacity is profitable at spot PGM prices, if new projects are currently not in active construction, it is unlikely that incremental ounces reach the market within our forecast horizon to 2029f. In our modelling, which is based on public guidance provided by companies, the only greenfield mines are Platreef and Karo which are expected to be commissioned in 2025f and 2026f respectively but not yet ramp-up to full production by 2029f.

Figure 13. PGM mine supply economics have significantly improved during 2025 compared to 2024 prices

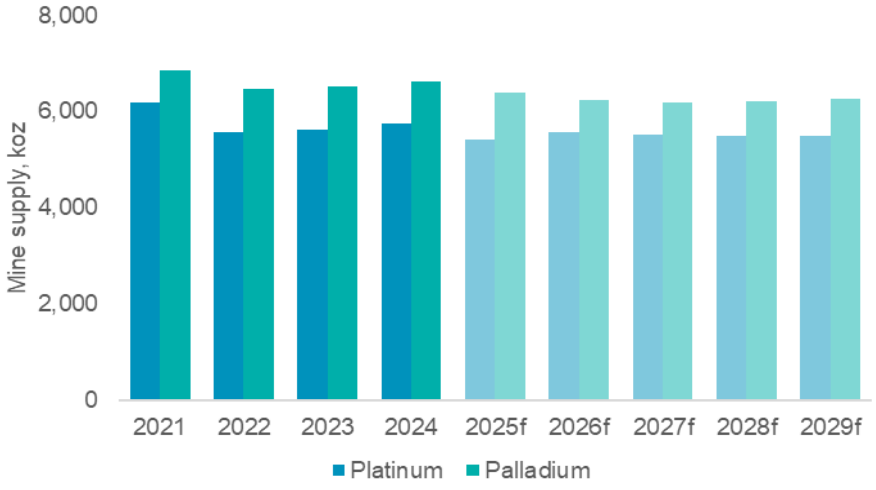


Source: Company data, WPIC research

PGM miners have, thus far, continued speaking of constrained production despite year-to-date price increases.

Emphasizing the challenges of increasing mine supply (despite recent price increases), African Rainbow Minerals has halted mine development at Bokoni. The Bokoni mine has stopped development of a 240ktpm mine and is now undertaking a feasibility study assessing the viability of a smaller 120ktpm mine. Accordingly, Bokoni is not included in the published guidance used in our mine supply modelling. Elsewhere, we have adjusted mine supply forecasts for an earlier than previously guided closure of Lac des Iles in Canada and later than expected commissioning of Karo in Zimbabwe.

Figure 14. Based upon aggregated public company guidance, platinum and palladium mine supply is expected to decline at -1.5% and -1.1% CAGR respectively from 2024 to 2029f



Source: Metals Focus (2021 to 2024 (Pd) and 2025f (Pt)), Company data, WPIC research

In aggregate, our platinum and palladium mine supply forecasts have been reduced by -0.7% and -0.9% on average from 2026f to 2029f respectively. Incorporating revised forecasts, we expect platinum's mine supply to decrease by 1.5% CAGR from 2024 to 2029f and palladium mine to decrease by 1.1% over the same period.

Recycling supply

PGM recycling is more price elastic than mine supply. The YTD increase in PGM prices have supported increased recycled supply forecasts for 2025f for platinum (+28 koz, per latest *Platinum Quarterly*) and palladium (+69 koz). Over the medium-term, we have upgraded our recycling supply forecasts by 1.0% and 0.1% on average from 2026f to 2029f for platinum and palladium respectively.

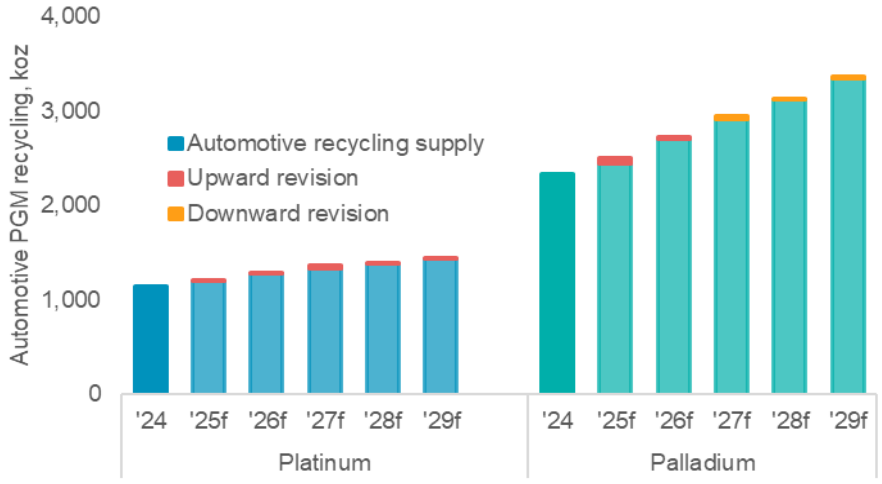
Recycling supply is more price elastic than mine supply and this should support an increase in scrap volume recovered.

In a recent *Platinum Essentials* (*link*), WPIC discussed the economic drivers underpinning the automotive industry's PGM recycling value chain. It was shown that automotive PGM recycling is price elastic and that the economics rely mostly on palladium and rhodium prices which are the largest component of revenue from spent autocatalysts. Considering that we expect palladium to enter a period of sustained market surpluses from 2027f, palladium prices may limit the economic rationale to increase automotive recycling supply.

Given palladium's transition into a surplus market, we have not materially revised our medium-term automotive recycling supply forecasts on current price levels. Nevertheless, we still expect automotive palladium recycling to increase significantly, from 2,329 koz in 2024 to 3,336 koz in 2029f (previously: 3,372 koz). We note that automotive palladium recycling supply is likely to continue to undershoot relative to theoretical supply availability from an End-of-Life Vehicle scrappage curve. Elsewhere, we have aligned our platinum automotive recycling rates to palladium (since palladium is a larger economic driver of recycling), which has led to a minor upgrade to our platinum automotive supply forecasts (+15 koz on average from 2026f to 2029f).

The rate of growth in automotive palladium recycling could be capped if the market transitions to a surplus and prices no longer enable an economic return.

Figure 15. Current price levels drive a modest increase in platinum and palladium recycling expectations before being capped by palladium moving into oversupply



Source: Metals Focus (2021 to 2024 (Pd) and 2025f (Pt)), Company data, WPIC research

Aggregating mine supply and recycling, we expect total platinum supply to increase by a marginal 0.3% CAGR from 2024 to 2029f, underpinned by rising recycling. Platinum supply will average 7,322 koz over our forecast period, which is well-below average total supply of >8,000 koz in the years preceding

COVID. While WPIC uses rolled guidance to forecast mine supply we reiterate that there is limited scope to increase mine supply within our 2029 time horizon given the structural inflexibility of deep-level underground mining operations and the lack of investment in in large scale growth projects. Accordingly, we remain of the view that platinum supply is constrained.

Total palladium supply will increase from 9,414 koz in 2024 to 9,997 koz in 2029f as recycling volume growth more than offsets lower mine supply.

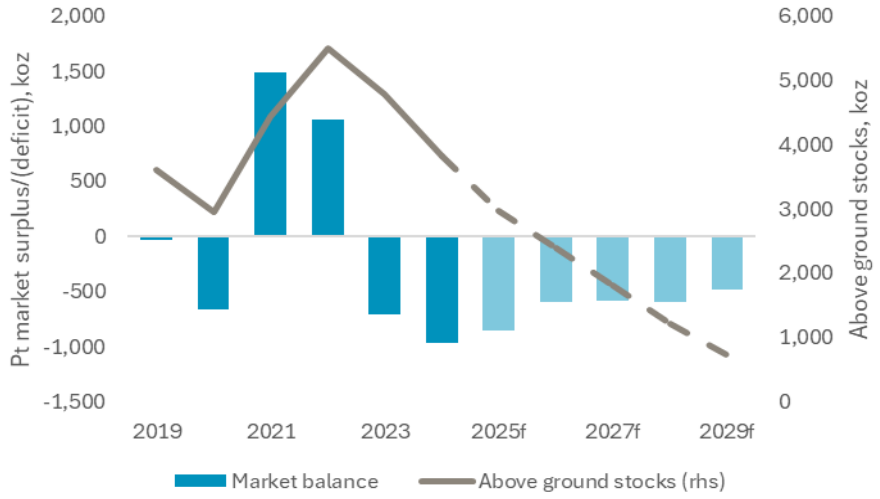
Consecutive platinum market deficits continue to erode above ground stocks, forecast to fall below 1.0 Moz by 2029f.

Conclusion

The platinum investment case is compelling. The platinum price has increased by 52% YTD, yet, we do not expect the current price level to materially change the medium-term outlook for platinum. We have decreased our platinum supply expectations by -0.3% on average from 2026f to 2029f, primarily due to downward revisions to mine supply. Our demand forecasts were reduced by 1.6% on average as our view on future FCEV adoption is slower than we previously expected.

Our aggregated platinum supply and demand view indicates the platinum market remaining in deficit throughout our forecast period to 2029f. We expect market deficits to average 620 koz per annum from 2025f to 2029f. Supply shortfalls will need to be meet by continued drawing down from above ground stocks which we forecast will fall from 3,828 koz in 2024 to 731 koz by 2029f (Fig. 16).

Figure 16. Platinum market deficits will rapidly deplete above ground stocks to below 1,000 koz during 2029f



Source: Metals Focus (2019-2025), WPIC Research

Although we expect palladium demand to moderate by 5% from 2024 to 2029f (similar to platinum), supply is forecast to increase 7% over the same period due to automotive recycling growth. Accordingly, palladium market deficits are expected to transition to surpluses by 2027f, becoming material only by 2029f.

Notably, the forecast of palladium going into surplus is entirely contingent on recycling supply growth. If this does not materialise then palladium could remain in a deficit for the foreseeable future, which could materially alter palladium value expectations. Similarly, this could reinforce platinum's supply risks since PGMs are sourced in a basket whether from primary mining or autocatalyst recycling. Hence the spectre of supply side risks remains

prominent despite the current platinum price, materially higher than in May 2025.

WPIC aims to increase investment in platinum

World Platinum Investment Council - WPIC- was established by the leading South African PGM miners in 2014 to increase investment ownership in platinum. This is done through both actionable insights and targeted development. We provide investors with information to support informed decisions e.g. through *Platinum Quarterly, Platinum Perspectives* (monthly) and *Platinum Essentials* (now monthly). We also analyse the platinum investment value chain by investor, product, channel and geography and work with partners to enhance market efficiency and increase the range of cost-effective products available to investors of all types.

WPIC is not regulated to provide investment advice: see *Notice and Disclaimer*.

Appendix I – Risks to forecasts

- Small changes can have significant impacts on supply/demand balances. For example, a 5% change in total mine supply moves the supply/demand balance by an average of 275 koz p.a. over the years 2026-2029.
- The most significant risks to our outlook derive from macroeconomic factors which would similarly impact the demand for all commodities. Principally the risks that the combination of slowing economic growth and inflation bring to bear on consumer demand for goods that either contain platinum or for which the manufacturing process uses platinum.
- The evolution of the drivetrain in transport remains uncertain. Accelerating battery vehicle market share gains would negatively impact platinum demand. We think battery vehicle market share gains will decelerate versus the period between 2020 to 2024 given base effects and headwinds such as costs, slow charging infrastructure rollouts and a lack of feature parity (e.g. range).
- The impact of a recessionary environment on industrial and jewellery demand could be more severe than we have allowed for.
- Investment demand is potentially where the greatest risks lie. We are most confident in our projections for bar and coin demand and exchange stocks, but the risk of a return to ETF disinvestment is potentially significant US policies drive a return to inflation and result in a sustained higher interest rate environment.

Appendix II – WPIC outlook methodologies

Preamble

The WPIC's platinum supply and demand model is intended to complement the one year out forecast published in our *Platinum Quarterly*, but to look further into the future to provide the basis for longer-term scenario analysis of particular aspects of supply and demand. The *Platinum Quarterly* report and data are prepared independently for the WPIC by Metals Focus.

The WPIC's palladium supply and demand model is a standalone piece of research, using WPIC's own data assessment to drive forecasts for the current year forwards. Historical data is sourced from Metals Focus.

WPIC's research is predominantly desk based and not focussed on developing extensive in-country and in-industry relationships to obtain fresh/incremental data. The information and sources used to develop our supply/demand model are all typically in the public domain.

Despite us having granular views of each demand segment, we have chosen, to use a simplified and conservative approach to forecasting. This provides us with our best current base case to allow scenario analysis while we increase modelling detail and publish more granular results in future reports.

Different methodologies in different segments

The WPIC's platinum supply/demand methodology is built up as follows for the years 2025-2029f:

Refined mining supply: Our refined mining supply outlook is strictly based on each company's public guidance for future production. This applies for WPIC members and non-members alike.

Companies typically only change longer-term guidance once a year, usually with their financial year end, or during annual investors days (often in December). We use the aggregate of the mid-point of public published company guidance for setting our supply outlook, however, the infrequency with which longer-term guidance is updated means that the longer-term outlook may not reflect more recent events.

The guidance published by the PGM mining companies is usually provided for the combination of PGMs contained in the ore bodies mined by the respective companies, and expressed on a six-, four-, or two-element basis (6E, 4E or 2E respectively) including either: platinum, palladium, rhodium, ruthenium, iridium and gold; platinum, palladium, rhodium and gold; or platinum and palladium. Where guidance excludes specific reference to platinum or palladium, we have calculated refined platinum or palladium guidance by using the historical production ratios of these metals as published by the specific company. Where individual PGM mining companies do not provide refined mine supply guidance or where such guidance does not cover the period to 2029, we forecast that platinum mining supply remains at the level of the final year for which guidance, or production, is available. We have remained impartial to: the extent of mineral reserves and resources, the ability to extend mine lives, any potential smelter, precious or base metal refinery capacity constraints, the technical hurdles or timelines to complete capital projects, and the impact a change in PGM prices might have on mined supply.

Recycling supply: Automotive recycling can be determined by purchasing consecutive annual global vehicle registration data and determining detailed regional scrappage rates to apply to average vehicle platinum loadings, when manufactured, per region. We have not chosen to fund this high-cost exercise and have used a simplified approach using the published average vehicle life across all regions and determining the portion of annual platinum demand in the year of manufacture that reflects as recycled supply at the end of that average life. We use the average of this ratio over the past 20 years to calculate our forecast. Jewellery and industrial recycling rates are projections based upon historical ten-year trends, modified with by regional economic projections.

Automotive demand: Automotive demand projections are a function of the WPIC's drivetrain outlook in combination with estimated autocatalyst platinum loadings and engine sizes for different vehicle categories in different geographies. Automotive production and the drivetrain estimates are based upon historical production numbers and trends as well as announced future regulations and WPIC's view of the pace of electrification and the phasing out of internal combustion engines. Future platinum loadings in autocatalysts are based upon historical loadings that are available in the public domain or can be calculated from published data, adjusted for WPIC's estimates of the impact of regulatory changes in different geographies, such as tightening emissions standards, as well as the rate of substitution of platinum for palladium in gasoline engines. FCEV demand for platinum is included in the automotive demand outlook as a separate demand component.

Jewellery demand: Jewellery demand is the purchase of new metal by the fabricator to manufacture jewellery. The outlook for jewellery is predicated on recent historical trends by geography, projected into the future.

Industrial demand: Industrial demand projections are based upon a combination of sub-sector research, historical trends and macroeconomic

expectations. This results in relatively steady trend projections, whereas in practice industrial demand is more volatile, depending upon the timing of capacity additions. While industrial demand can be volatile, the multi-year trends have been very consistent offering a good guide to the future, added to which the annual volatility seen within each industrial sub-category tends to even each other out when totalled up. Platinum industrial demand is the demand segment most closely correlated to global economic growth over the long term. Despite the compound annual growth of platinum industrial demand over the past 30 years significantly exceeding global growth, our forecast, is for medium-term demand stability given recent demand growth.

Investment demand: While we have granular insight into investment demand due to the views of our many product partners around the world and our regular interaction with investors, we have chosen to use a ten-year historic average of investment demand as the basis for our forecasts. This is to reduce the dramatic positive impact of extremely strong global ETF demand in 2019 and 2020 and similarly strong bar and coin demand in 2020 and 2021.

We do on occasion make exceptions to this methodology. For example where recent growth in investment demand in certain categories would derive projected growth numbers that might appear excessive, or in the case of palladium where year to date investment flows are running above or below the historical average.

Elsewhere, we have not included the likely impact on investment demand of any material changes in price. For example, if the market is expected to have successive deficits, as we are projecting, then it is likely that investors might expect the platinum price to move higher to reflect the shortage of metal available to the market and consequently increase their exposure by purchasing platinum metal or ETFs. This would in turn accentuate future deficits. We do not attempt to capture this iterative process and rather choose to maintain future investment demand at a level based on a ten-year historic average. We have assumed a net change in stocks held by exchanges of zero each year over the forecast period as those flows are typically short-term in nature to address atypical developments in the physical market and furthermore, primarily reflect the movement of metal between visible and non-visible inventories.

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