

tharisa

● SHANGHAI PLATINUM WEEK

Where will the future supply of platinum come from?

6 September 2022

enriching lives through innovating the resources company of the future

WHO WE ARE

854.4 Mt & 152.1 Mt
IN MINERAL RESOURCE *

40.3 Moz & 10.0 Moz
IN CONTAINED 6E*

171.1 Mt
IN CONTAINED CR₂O₃ *

1

INTEGRATED

PGM and chrome
co-producer located in
prime geological areas

2

20 YEAR

LOM open pit
+40 YEAR
underground

3

GROWTH

pipeline to double
PGM output

4

R&D

developing innovative
end use products and
technologies

5

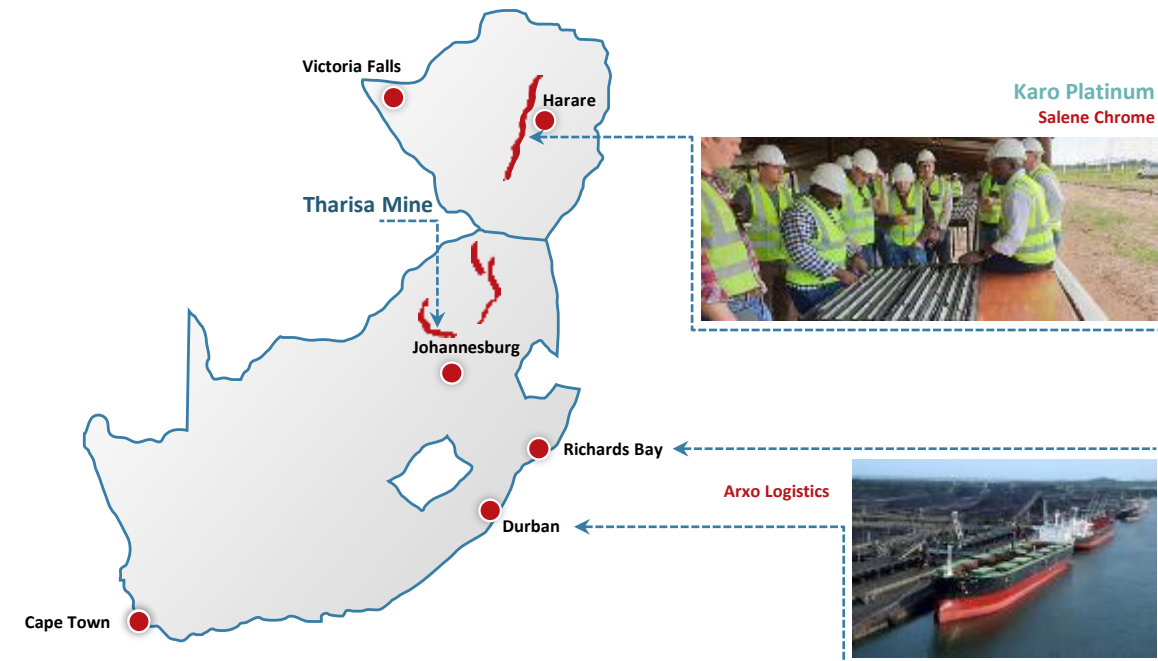
PROFITABLE

throughout
the cycle

6

CONSISTENT

dividend payer



*Mineral Resource and Mineral Reserve Statement in 2021 Annual Report

OUR POSITIVE IMPACT

JOB CREATION

- Creation of 3 000 new jobs (employees and permanent contractors)
 - ~700 people from immediate community
- Employees on full medical aid and provident fund
- Impact on +- 50 000 people daily using multiplier effect and suppliers
- Karo phase 1 will create ~1 000 new jobs in Zimbabwe

TAXES (FY2021)

- Direct taxes paid of US\$39.3 m
- Indirect taxes paid of US\$22.3 m

EDUCATION AND WELLNESS

- AET programs on site for employees and communities
 - 48 learners in 2022
- Math and Science programmes and Internship programmes
- Enterprise and Development Programme, Skills Development Programme
- Thusanang (Helping each other) wellness programme

ENVIRONMENT

- Planned 30% reduction in carbon footprint by 2030
- Carbon net neutral by 2050

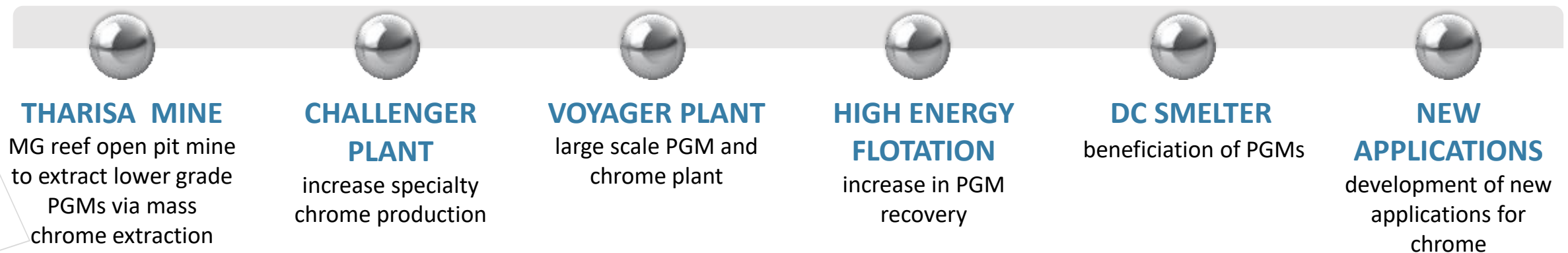


AN ETHOS OF INNOVATION

- Innovation is at the core of Tharisa's ethos
- Key strategic projects under R&D at AMBS
- Technology the key enabler for differentiation



MAJOR MILESTONE HISTORY



INNOVATION HAS CREATED NEW MARKETS FOR OUR PRODUCTS

● UNIQUE PROPERTIES OF PGMS

- Extremely rare
- Extremely resistant
- Yet soft and malleable
- 6 PGMs are interchangeable
- Yet each have unique uses and applications

● NEW MARKETS

- Catalytic converters
- Medical applications
- Hydrogen production
- Fuel Cells
- Energy storage & independence
- Investment
- Personal hygiene
- Jewellery
- Laboratory Equipment
- Computer equipment
- Glass manufacturing



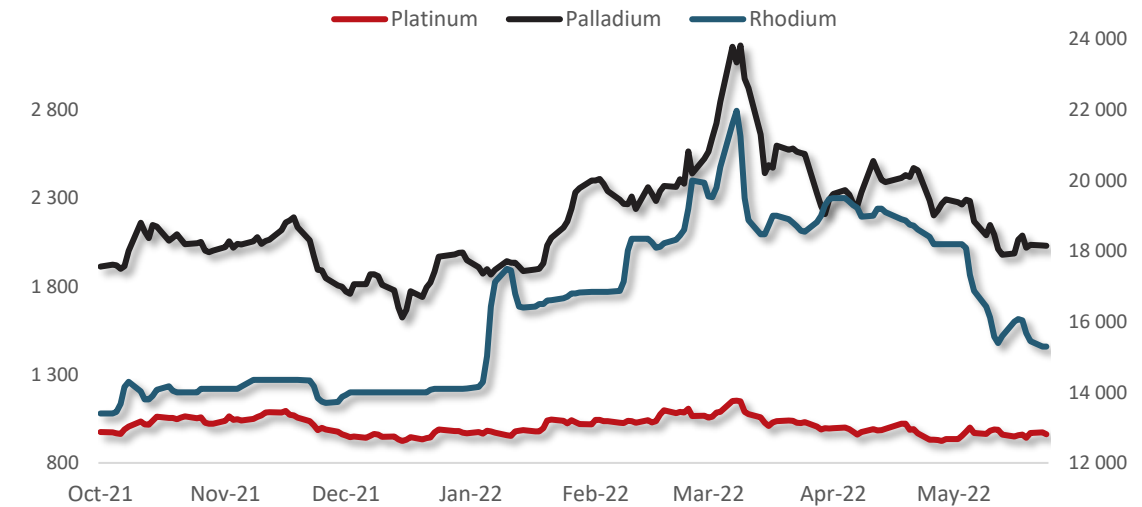
PLATINUM GROUP METALS

SPOT PGM BASKET*
US\$2 300/oz

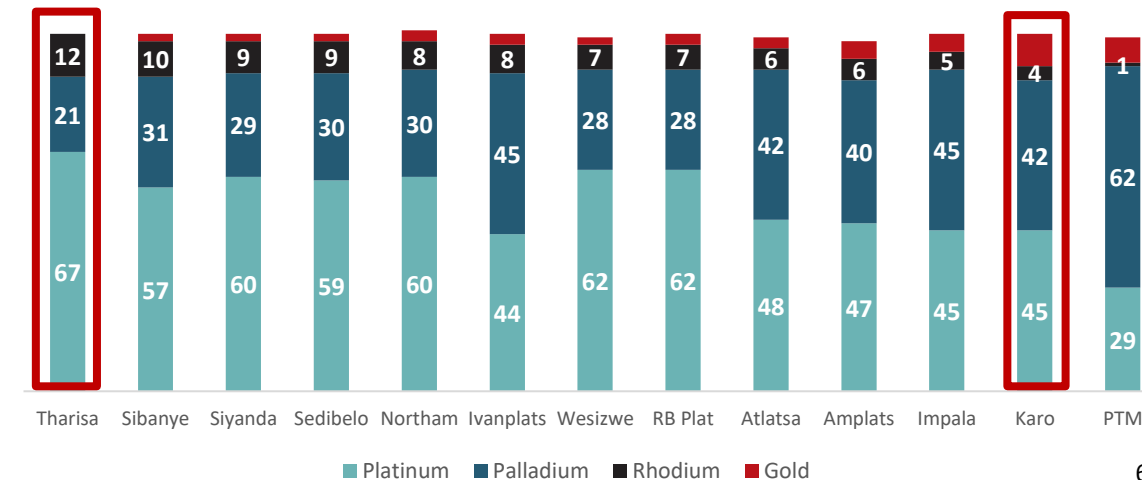
- Primary supply growth constraints
- Deficits in Rh, Pd to remain, Pt heading towards a deficit
- ICE remains a major demand driver despite EV development
- Hydrogen economy to supplement ICE demand



PGM PRICE CHART



RESOURCES PRILL SPLIT (%)

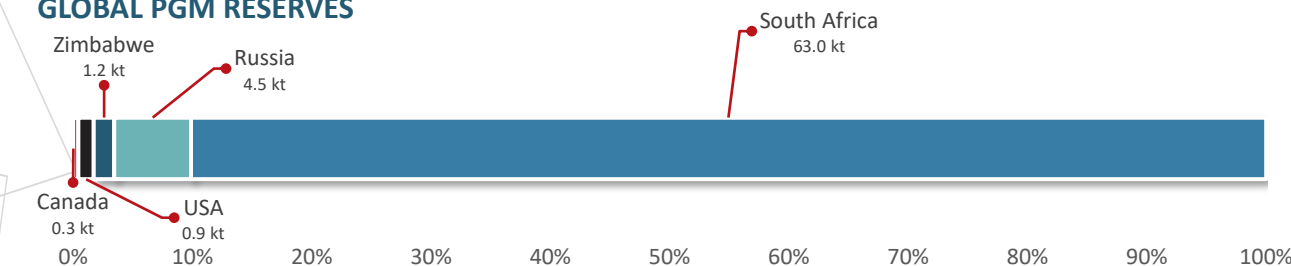


*as at 3 September 2022

PGM OUTPUT HAS NOT INCREASED

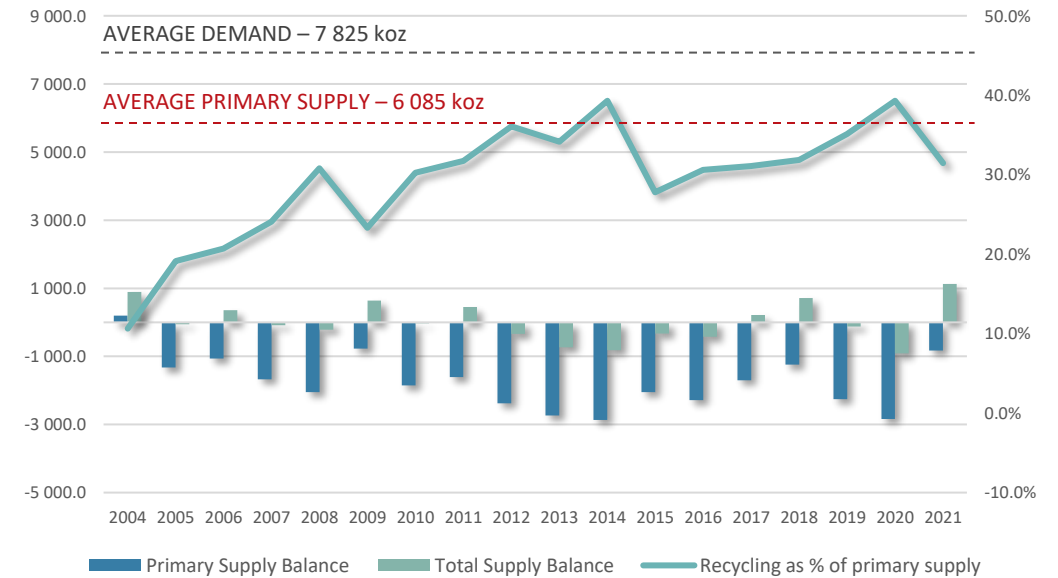
- Primary platinum supply has not kept up with platinum demand over last 17 years
 - Output peaked at 6 830 koz in 2006
 - 17 year average output of 6 085 koz
- Demand over last 17 years has averaged at 7 825 koz
- Shortfall made up from recycling and above ground stocks
- Recycling is now equivalent to 30% of primary supply
- Platinum supply has been affected by the following
 - Changing grade mix between Merensky and UG2
 - Depth and cost of existing mines
 - Lack of capital spend in times of low commodity prices

GLOBAL PGM RESERVES



Source: USGS

PLATINUM SUPPLY AND DEMAND



“I am of the view that South African Platinum mine supply will continue to decline at a CAGR of c.-1.4%, at least over the long term. This will tighten the supply market and put upward pressure on the price”

Dr David Davis

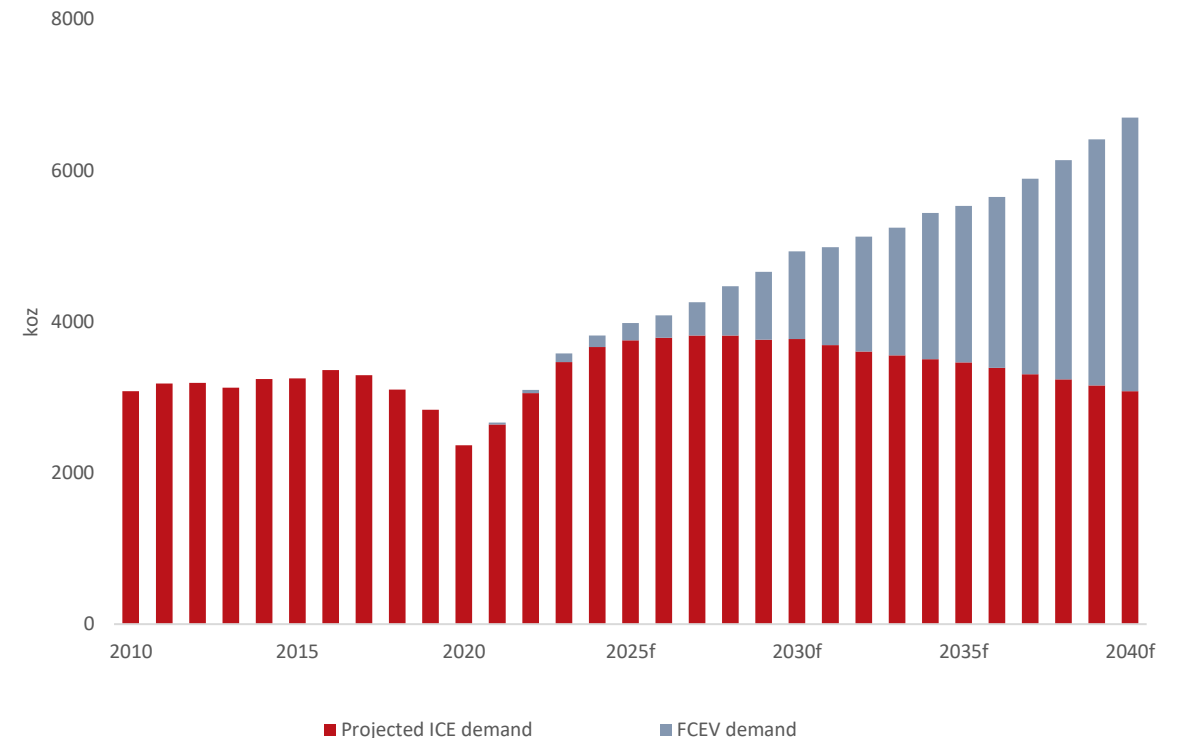
South African Platinum Mine Supply in Decline as Demand Gains Significant Traction
January 2022

Source: WPIC, Auctus Metals Portfolio

WHAT WILL DEMAND LOOK LIKE

- PGMs are crucial in existing net zero requirements and future demands
- This applies to both vehicle, other transport and industrial sectors
- The market has thus far not digested the demand for Fuel Cell Electric Vehicles (FCEV)
- WPIC estimates that Policy driven FCEV demand could see platinum demand reach the level of **2022 automotive demand by 2039**
- While Broad-based commercial FCEV adoption could see platinum demand reach the **2022 level by 2033**
- Hydrogen generation provides solution for green energy independent from traditional tied supply chains
- China pioneering early adoption of the hydrogen economy
- Major investments in new hydrogen projects globally

AUTOMOTIVE DEMAND OUTLOOK

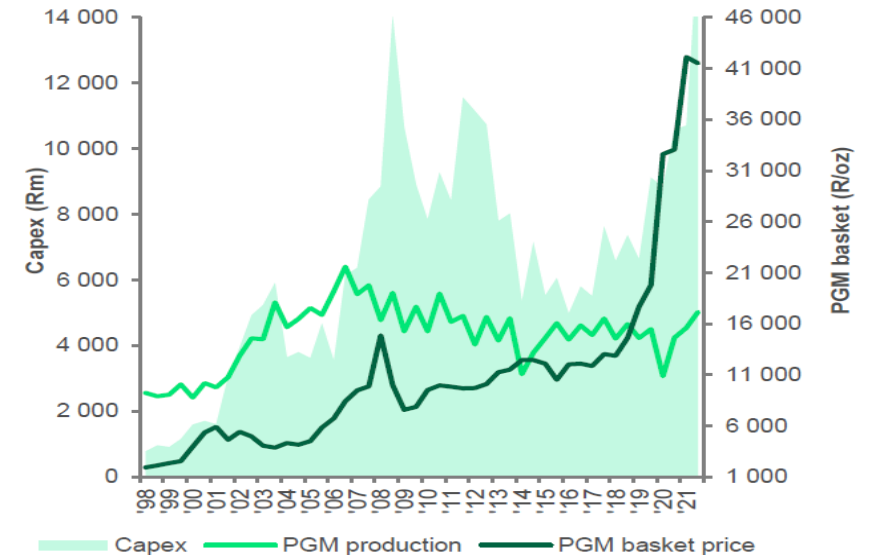


Source: WPIC

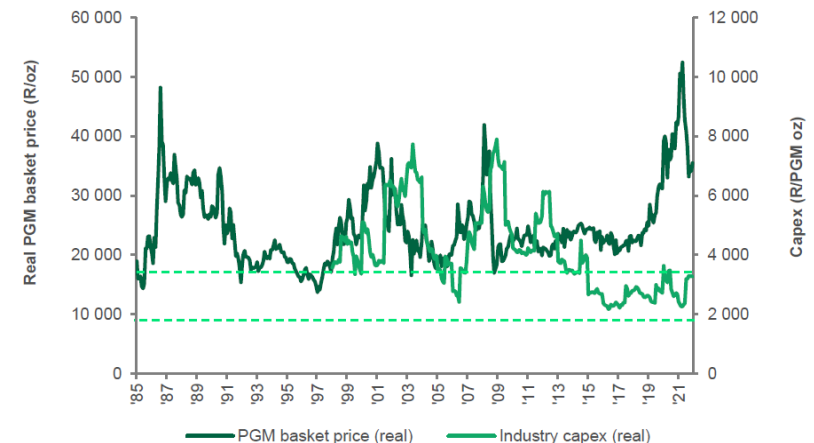
CAPITAL SPENDING NOT ENOUGH TO MEET DEMAND

- Real capex levels have been falling sharply since 2008 and remain extremely low relative to historical levels, despite the sharp increase in nominal capex in recent years
- Capex spend post past boom has sustained the industry for a decade – this is coming to an end
- Nedbank view
 - “We believe a large element of catchup capex needs to be spent to replace reserves, in the absence of which production could decline sharply over the next 5 to 10 years”
- Capex spend has shifted as companies look to replace deep level mines, which influences PGM prill splits in the future
- Capex needs to increase materially to maintain output
- Social challenges, deep resources and prolonged legislative approvals will hamper development of new projects in platinum rich areas
- Capital will need to be more patient, or willing to explore new regions

CAPEX VS PRODUCTION



REAL CAPEX PER PGM OUNCE



Source: Nedbank

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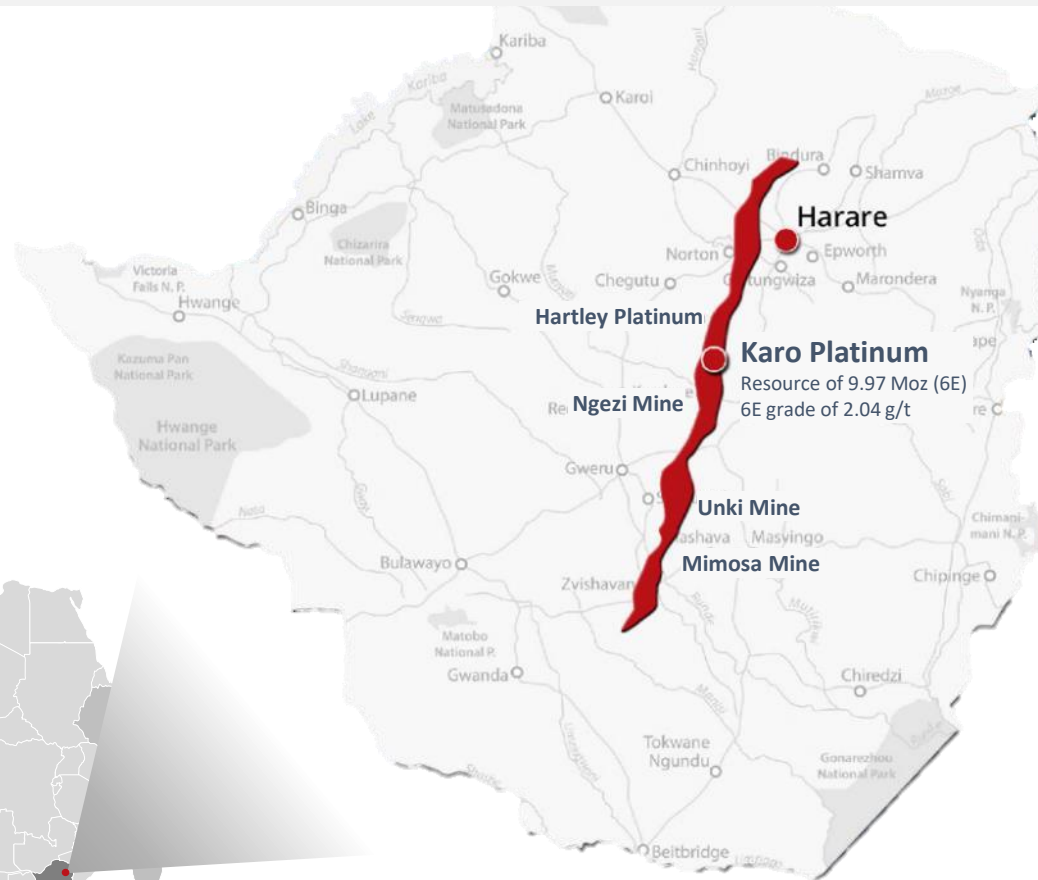


KARO PLATINUM

LOCALITY & GEOLOGY

PHASED DEVELOPMENT

EXECUTION OF PHASE 1 - NEXT PHASES WILL SCALE TO EXTRACT ADDITIONAL RESOURCES



● PROPERTY LOCATION

- Located in the Mashonaland West district of Zimbabwe, approximately 80 km southwest of Harare and 35 km southeast of Chegutu
- The project area covers 23 903 ha located on the Great Dyke

● POSITION ON THE GREAT DYKE

- The project is located south of the Zimplats Selous Metallurgical Plant and north of the Zimplats Ngezi operations

● GREAT DYKE GEOLOGY

- Hosts the Main Sulphide Zone (MSZ)
- Typically, between 2 and 3 m thick – Karo targeting up to 5 m cut
- Runs from a northerly to a southerly direction
- Approximately 550 km in length and up to 11 km wide

● HISTORIC ZIMPLATS RESOURCE DECLARATION

- June 2017 – 85% of North of Portal 10
- Indicated: 60 Mt at 3.44 g/t (4E) – 6.6 Moz
- Inferred: 868 Mt at 3.22 g/t (4E) – 89.8 Moz
- Total of **96.4 Moz (4E)**
- *Zimplats Annual Report 2017*

PHASE ONE - KEY HIGHLIGHTS

WORLD CLASS PGM ASSET

Tier 1

LOM OPEN PIT

20 years

ANNUAL PGM PRODUCTION (6E)

150 koz + 0.10% Cu
+ 0.12% Ni

MINING LEASE FOR LOM

Licenced

OPEN PIT, SCALABLE, LOW COST, PHASED

Low risk

DEVELOPMENT TIMELINE

24 months

AVAILABLE IN COUNTRY

Skills

TECHNOLOGY AND PROCESS

Proven

PROJECT DEVELOPMENT AND TEAM

Successful record

KARO + THARISA = KEY FUTURE SUPPLY

LOM OPEN PIT FROM EACH OPERATION

20 years

REEF MINED PER ANNUM

+7 Mt

PGMS PRODUCED PER ANNUM

+350 koz

CHROME PRODUCED PER ANNUM

+2.0 Mt

LOCATION

**BUSHVELD COMPLEX +
GREAT DYKE**

COMPARISON	UNIT	KARO PHASE 1*	THARISA OPEN PIT**
Open pit LOM	years	20	20
Reserve [#]	Mt	35.5	94.2
Reserve grade [#]	4E g/t	2.18	1.08
Reserve ounces	4E Moz	2.5	3.3
PGM production [^]	kozpa	150	200

COST POSITION

(On mine cash cost (ZAR/t milled))



*Phase 1 – 20 year open pit LOM **2021 declaration – open pit only

[#]Karo Reserve to be updated [^]Tharisa FY2023 production

谢谢你
THANK YOU

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