

# THE OXFORD PLATINUM LECTURES 2020

Primary PGM supply – will history repeat itself?



Real Mining. Real People. Real Difference.

EXTERNAL

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# WILL HISTORY REPEAT ITSELF?



## **Are the palladium and rhodium price incentivising new production?**

- *But, what is the right commodity price*
- *Developing quality assets into sustainable demand*

## **We have seen this before and there is risk in trying to time the market**

- *Damaged company balance sheets*
- *Mine closures and reductions in capital expenditure*

## **This time, will it be different?**

- *Investors looking for return of capital in addition to return on capital*
- *Increasing demands for sustainable investment*
- *A modernised and technology/digitally enabled industry*

## **Supply will be disrupted in the short-term, stable in the medium-term**

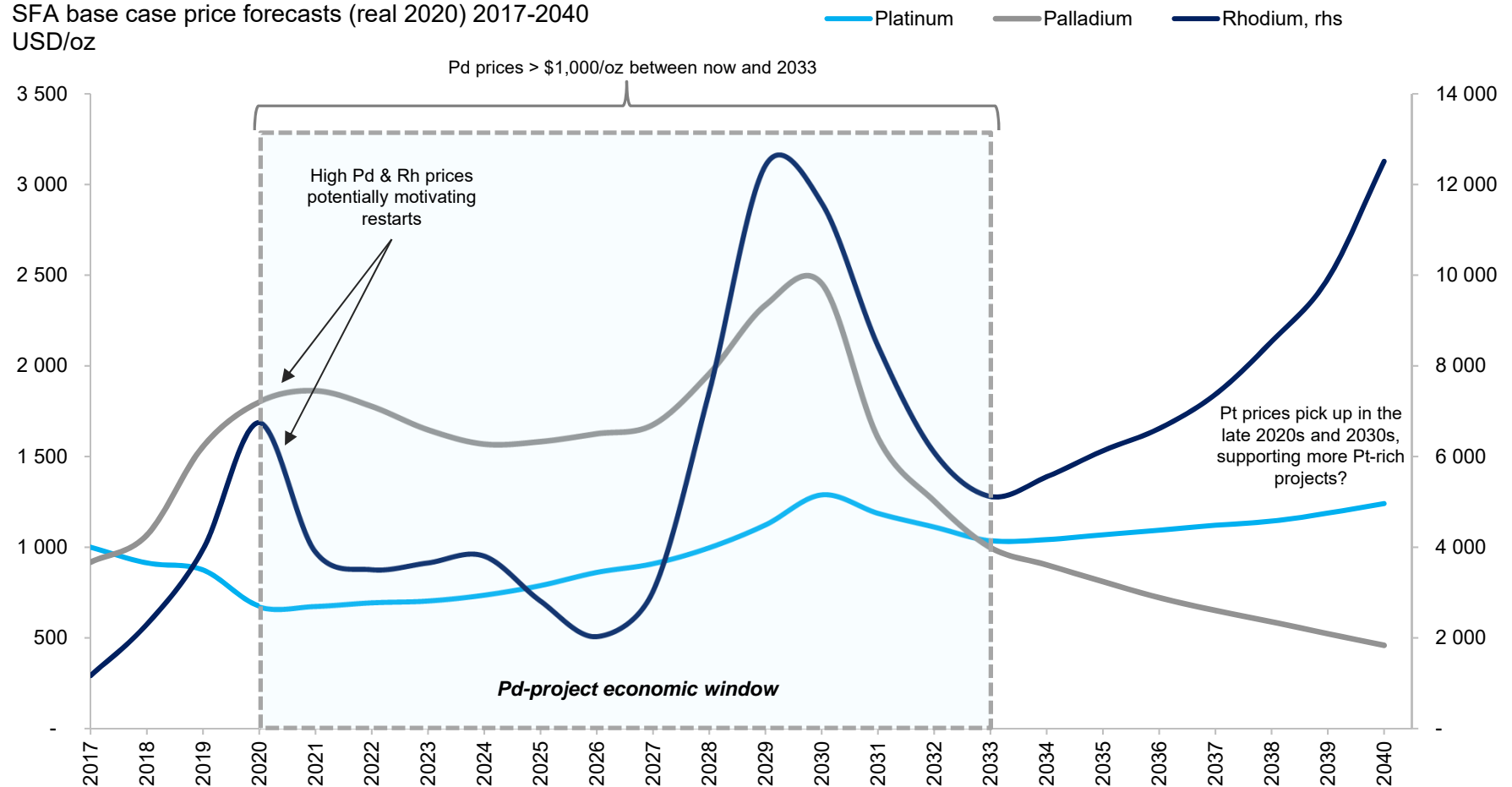
- *COVID-19 impact*
- *Projects to offset mine depletion*

## **Re-imagining mining to improve peoples lives**

- *Operating model, P101 and FutureSmart Mining™*
- *Attractive investment and growth options*

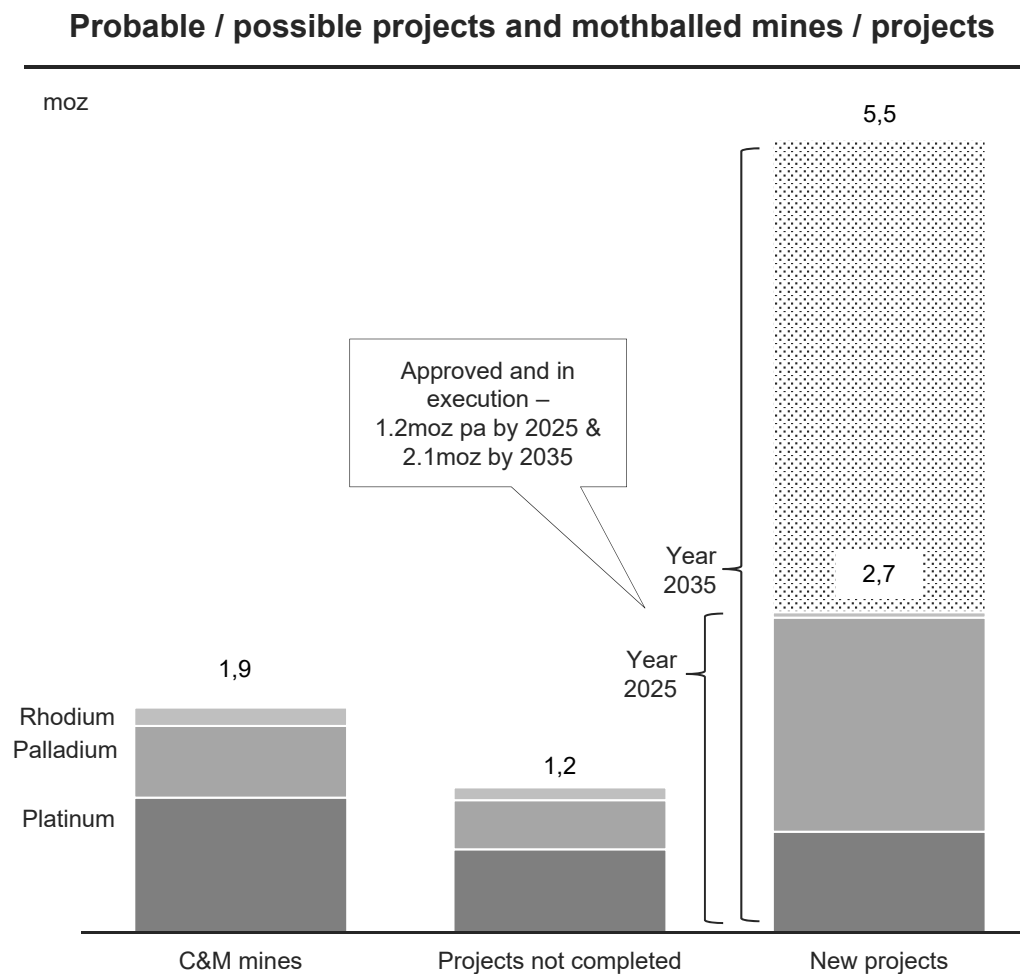
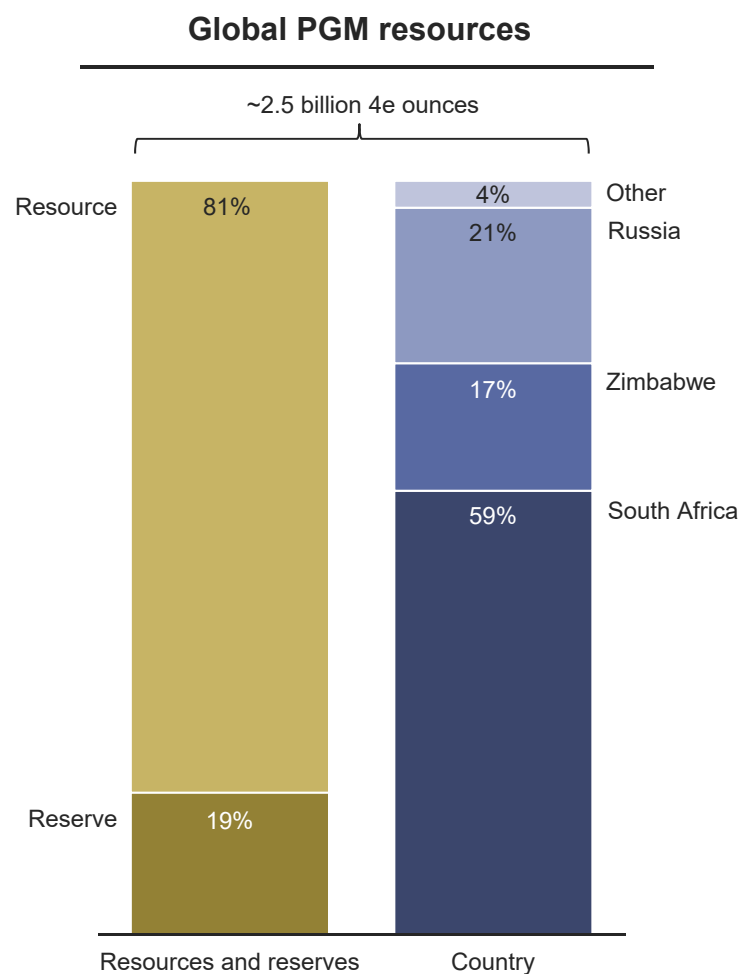
# PD AND RH PRICE, INCENTIVISING NEW PRODUCTION?

SFA base case price forecasts (real 2020) 2017-2040  
USD/oz



Source: SFA Oxford

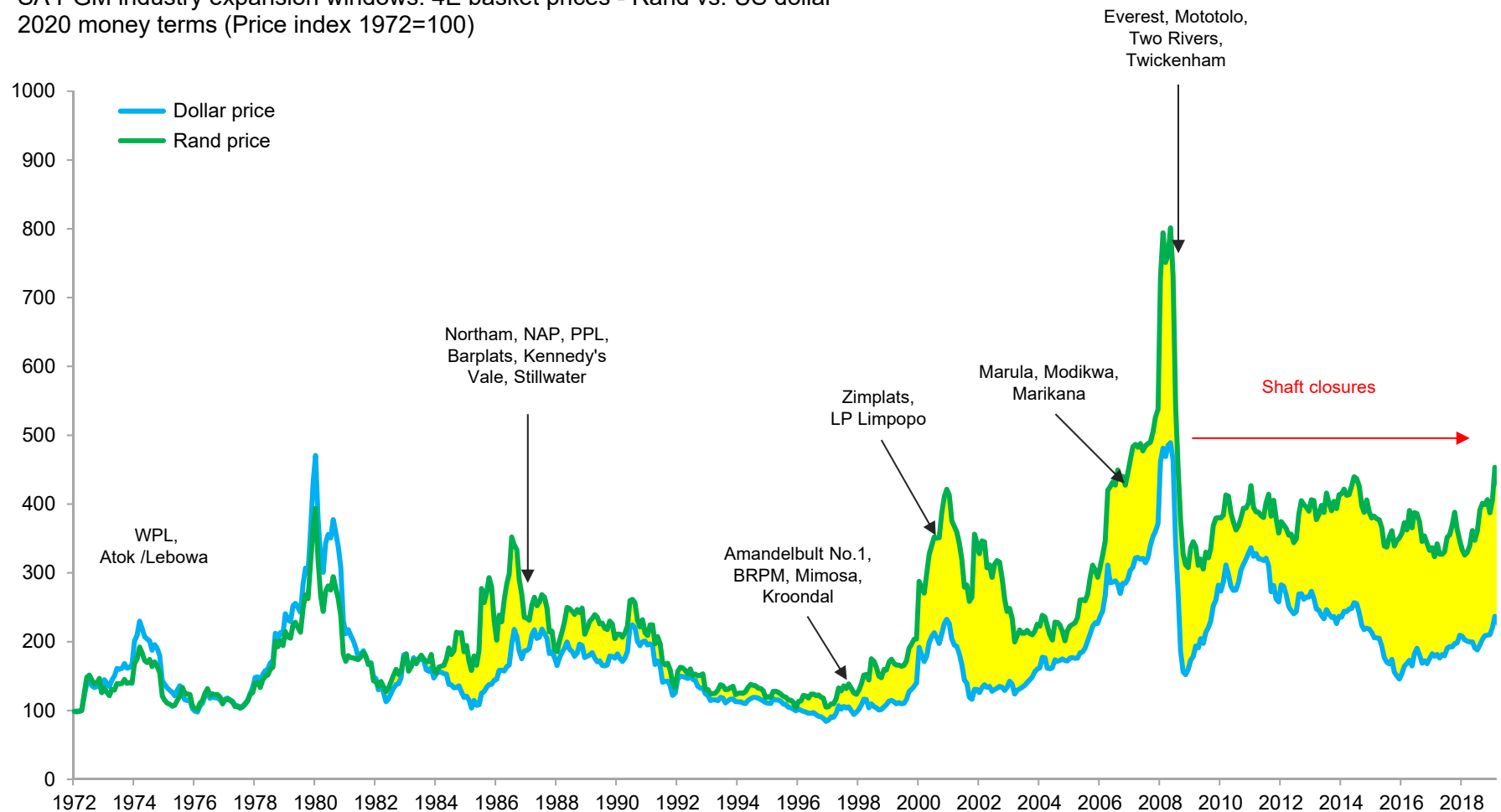
# THERE IS PLENTY RESOURCES AND A FLURRY OF ACTIVITY



Source: Company reports and SFA Oxford

# BUT WE HAVE SEEN THIS BEFORE

SA PGM industry expansion windows: 4E basket prices - Rand vs. US dollar  
2020 money terms (Price index 1972=100)



Source: SFA Oxford

# GROWTH EXPECTATIONS DID NOT MATERIALISE

Projects (1999 to 2009)



Projects announced

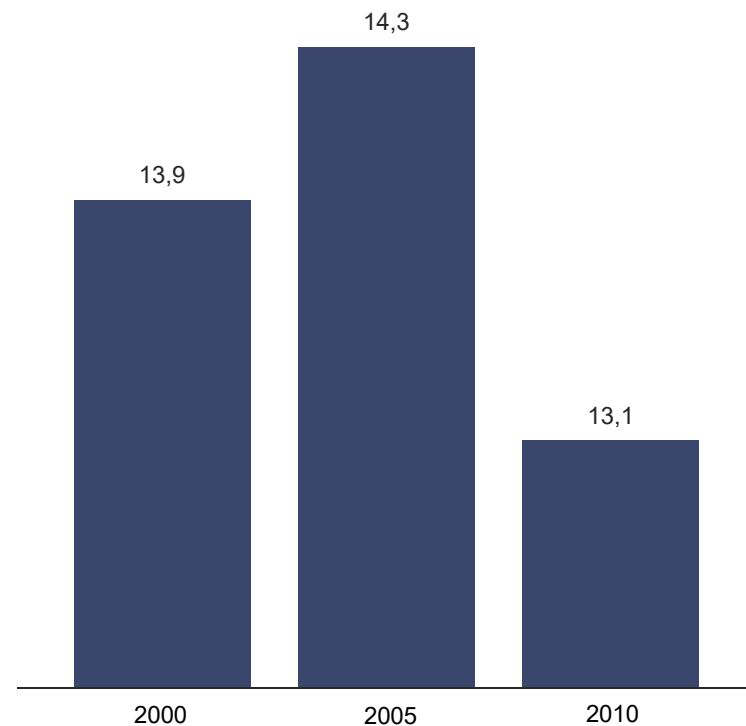
- 39 projects announced
- 3e production expected  
~10.6 moz pa

Production 2010

- 11 are producing in 2010
- 3e production delivered  
~1.2 moz

Primary PGM production

3e moz

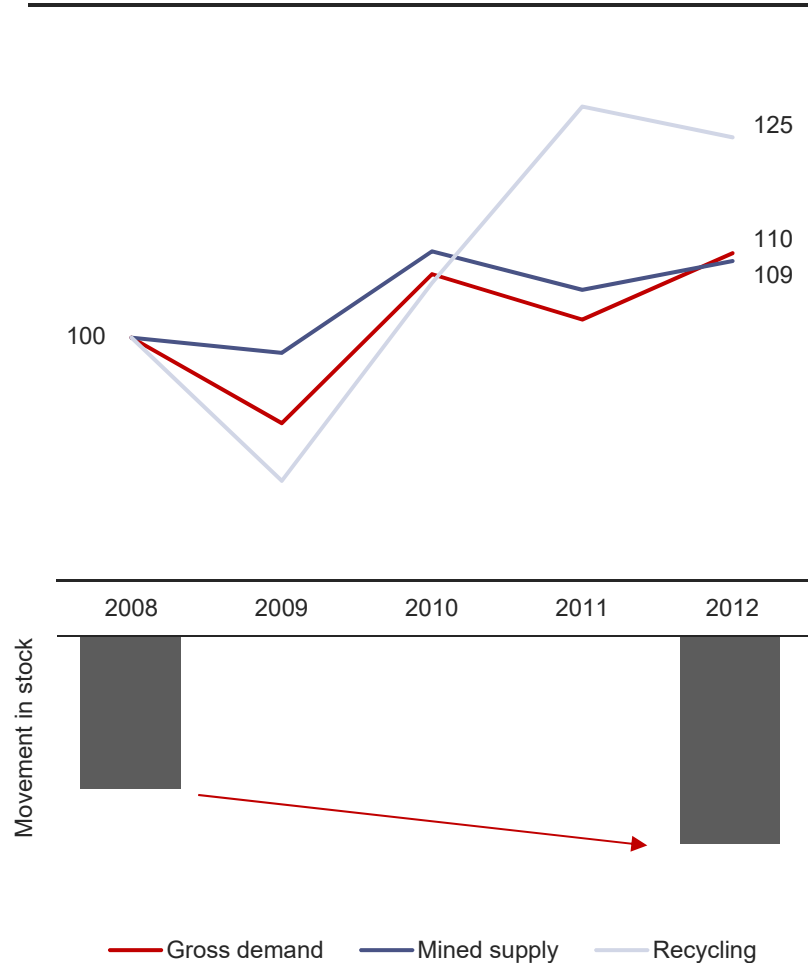


Source: SFA Oxford and Johnson Matthey



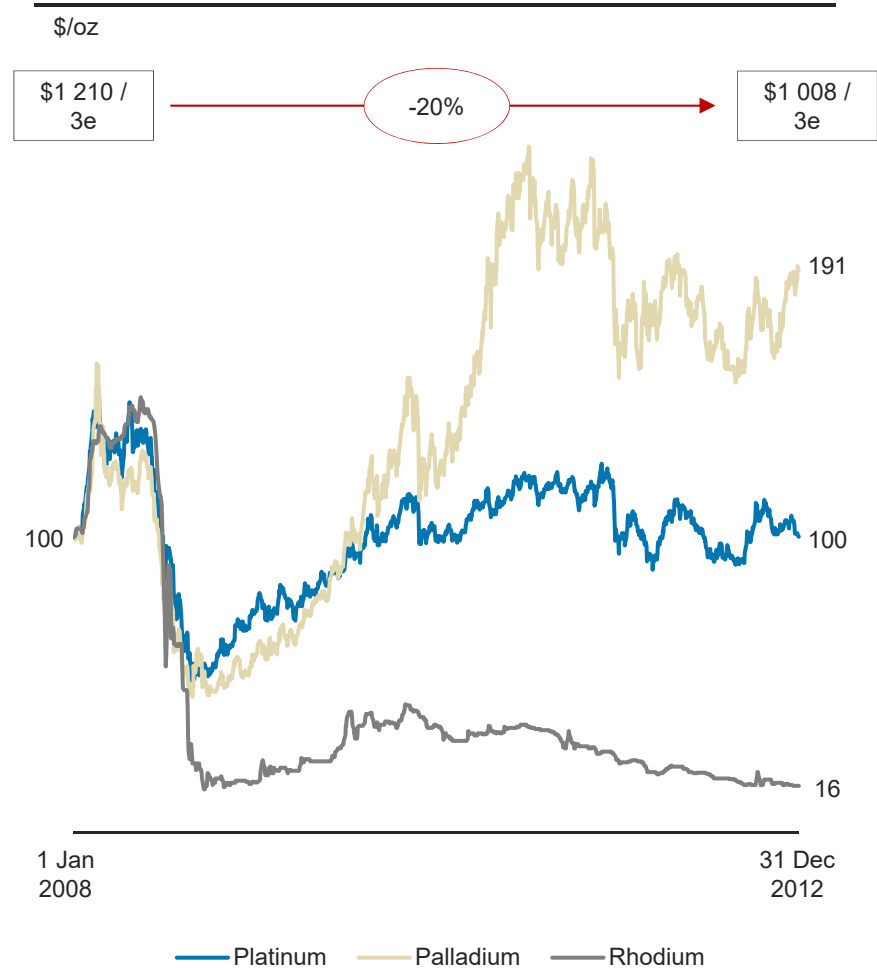
# THERE IS RISK IN TRYING TO TIME THE MARKET

**PGM demand, supply & industrial balance**  
(2008 to 2012)



Source: Johnson Matthey

**PGM prices**  
(2008 to 2012)



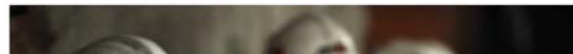


# NEEDED TO ADDRESS AN INDUSTRY IN CRISIS

## PTM to slash jobs, downscale output as clock ticks on Maseve

By David McKay - July 8, 2017

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## Amplats makes progress but Bokoni is unfinished business

By David McKay - November 30, 2016



Chris Griffiths, CEO, Anglo American Platinum

## Motsepe will shut mines rather than bow to misled communities

By Brendan Ryan - March 16, 2017

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## Impala Platinum plunges on \$400m bond refinance

The miner expects "some period of volatility" in the shares.

Kevin Crowley, Bloomberg / 25 May 2017 12:36



Precipitous platinum price plunge putting industry at risk

Job losses loom at troubled Marula - Implats

2,651 jobs set to go at Bokoni

BUSINESS REPORT / 25 JULY 2017, 07:10AM / DINESH PANG



Atlatsha still feeling platinum price pinch

BY: MEGAN VAN LUYK / 14th November 2016  
Dual-listed Atlatsha Resources on Monday posted a 14.6% drop in revenue, for the three months ended September, to \$48.9-million quarter-on-quarter, owing to a 19.9% decrease in platinum group metals produced at its Bokoni mine, near Polokwane. The company also saw a slight narrowing of losses...

## IMPLATS SAYS LOW PRICES, UNREST MAY PROMPT MARULA MINE LAY-OFFS

Marula, on the eastern branch of South Africa's platinum belt, employs around 4,500 people including contractors.



## Critical to take platinum out of market, says Sibanye's Froneman

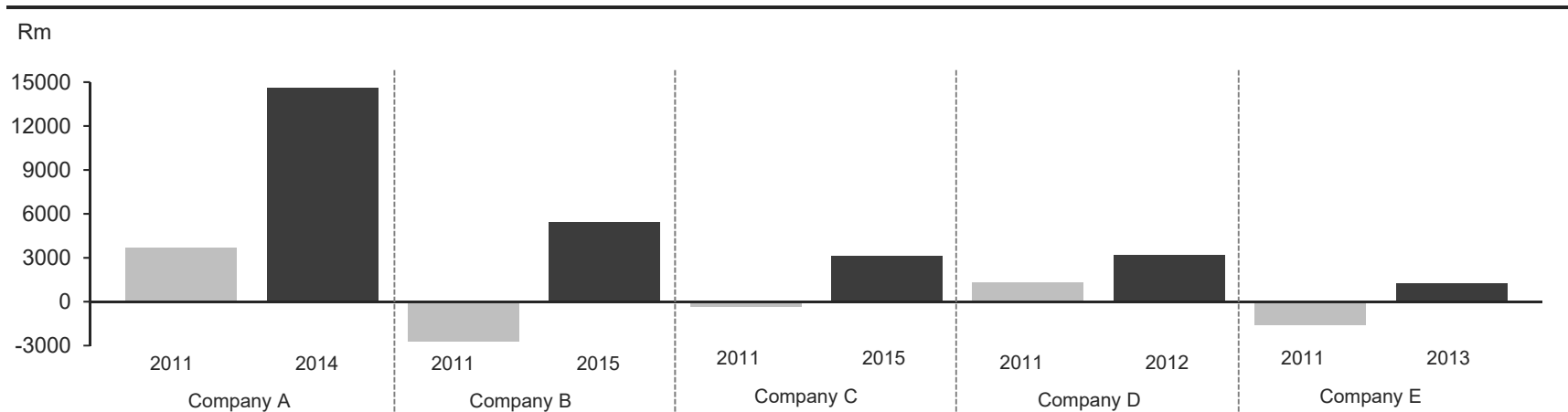
By David McKay - May 29, 2017

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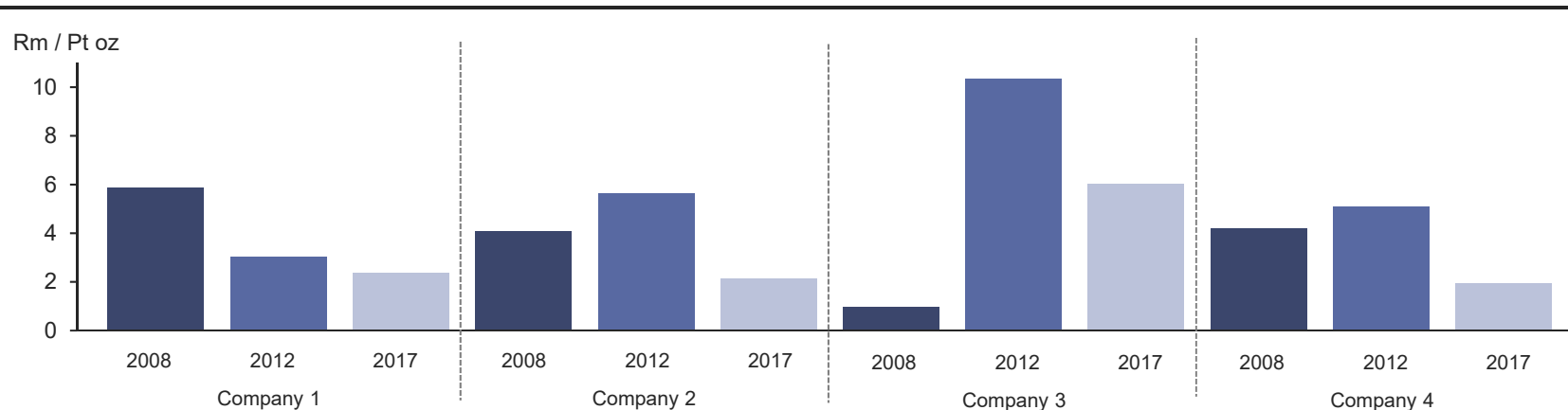


# CONSTRAINED BALANCE SHEETS AND REDUCED OF CAPITAL EXPENDITURE TO SUSTAIN FUTURE PRODUCTION

**South African producer debt / (cash)**  
(low & peak – 2011 to 2015)



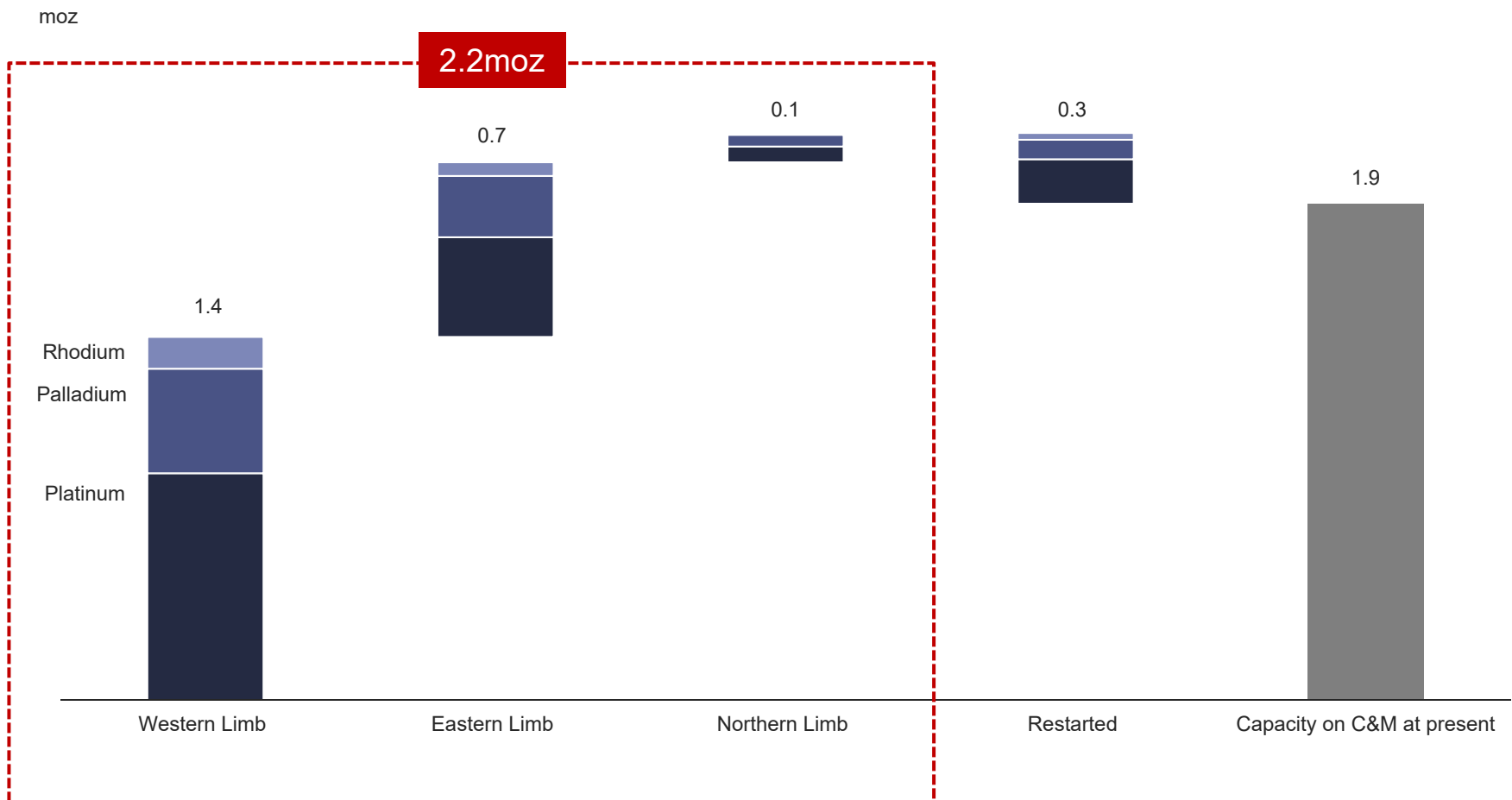
**South African producer annual capital expenditure per refined platinum ounce**



Source: Company reports and Bloomberg

# ~2.2MOZ OF CAPACITY PLACED ON C&M, PREDOMINANTLY ON THE WESTERN LIMB

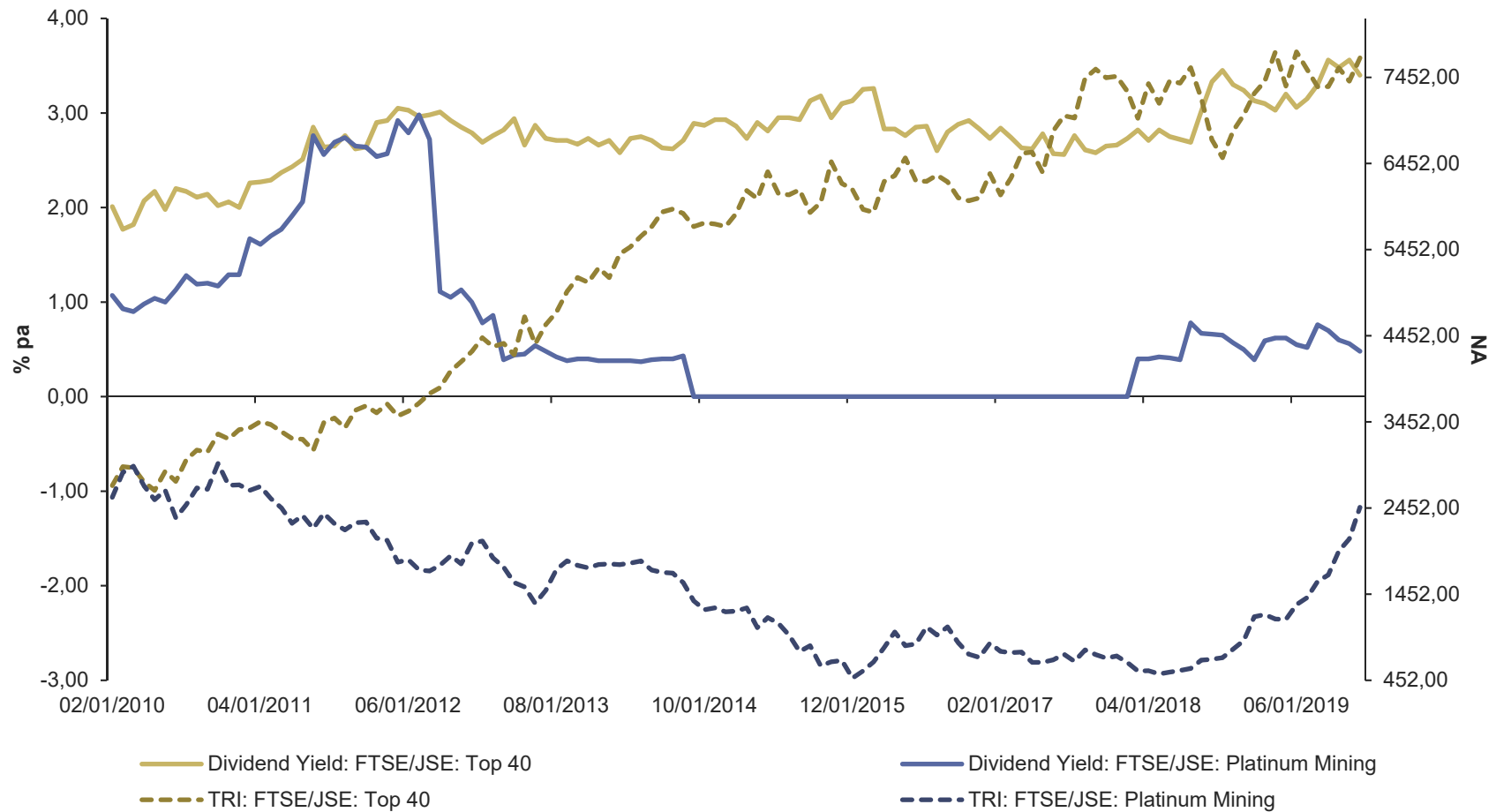
PGM production capacity – closures 2009 to 2017



Source: SFA Oxford

# RETURN OF CAPITAL AND RETURN ON CAPITAL

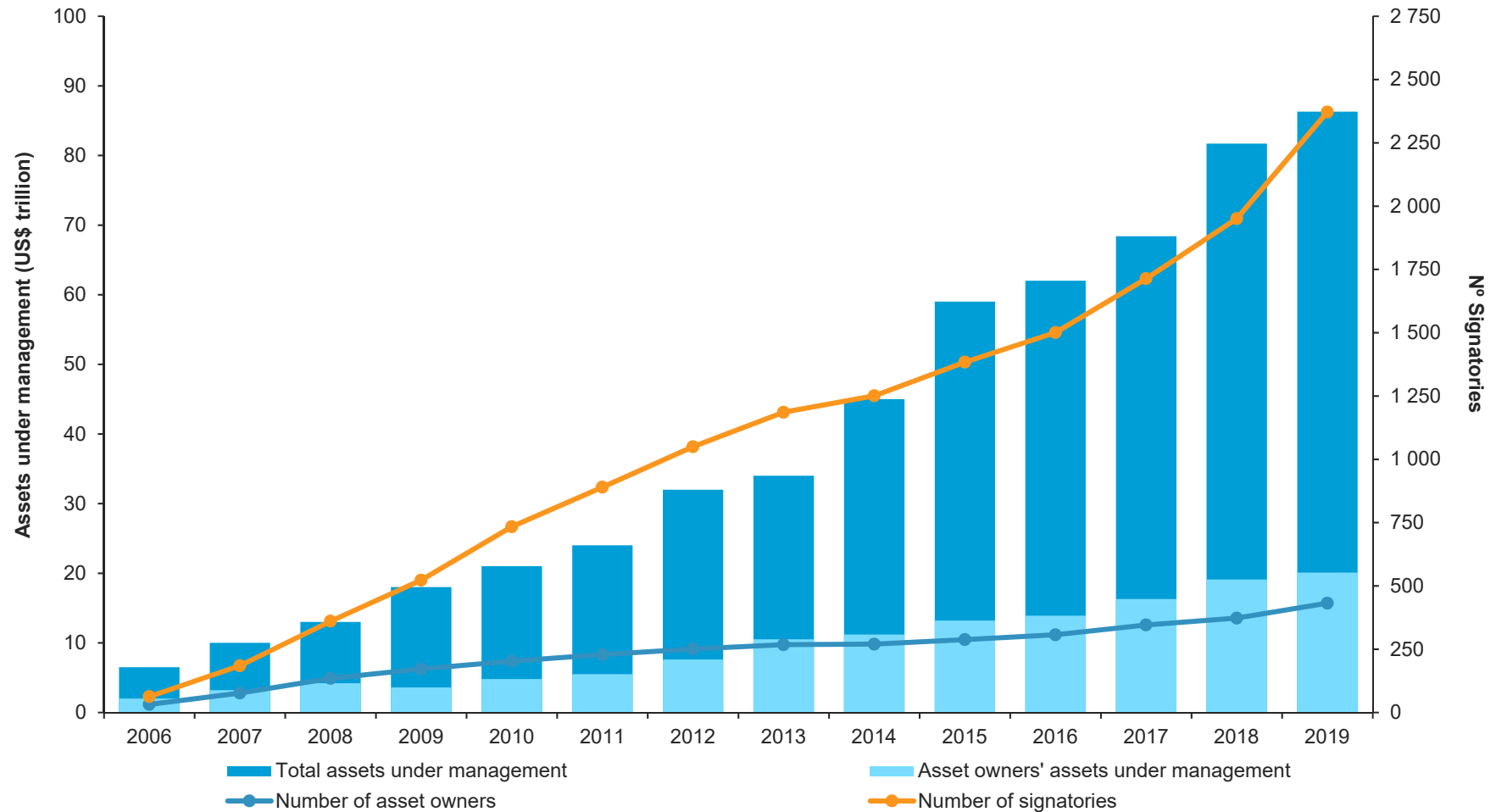
South African PGM miners have underperformed



Source: Bloomberg

# INCREASING DEMANDS FOR SUSTAINABLE INVESTMENT

## United Nations Principles for Responsible Investment signatory growth



# SHAREHOLDERS VS STAKEHOLDERS

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# COVID-19 WILL IMPACT SHORT-TERM SUPPLY

## RUSSIA

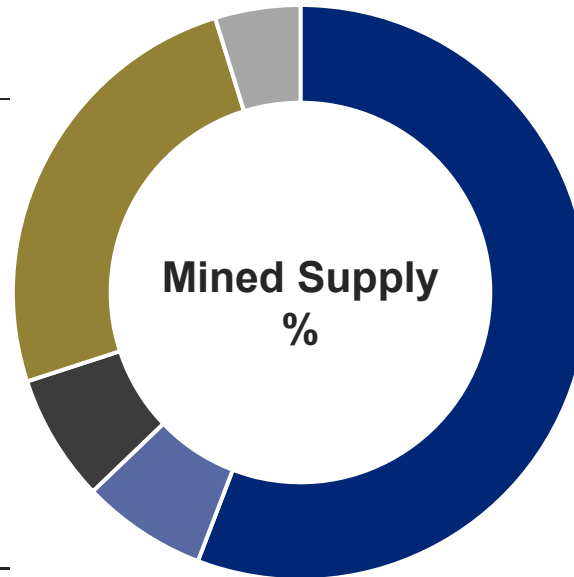
~25% of primary supply

- Government enforced lockdown from 28 March 2020 to 11 May 2020
- Nor Nickel continues to operate with additional measures to mitigate the impact of Covid-19

## NORTH AMERICA

~7% of primary supply

- Canada taking a staggered approach to lifting restrictions from 27 April 2020
  - PGM mining classified as essential business, Covid-19 infections resulted in self-enforced C&M
- Various US states have begun lifting lockdown orders. No nationwide lockdown was enforced
  - Major PGM mines continue to operate with a reduced workforce



## ZIMBABWE

~7% of primary supply

- Government enforced lockdown from 30 March 2020 to 3 May 2020, mines and processing facilities placed on C&M
- Permissions for restart of operations granted – steps to be taken to reduce risk

## SOUTH AFRICA

~55% of primary supply

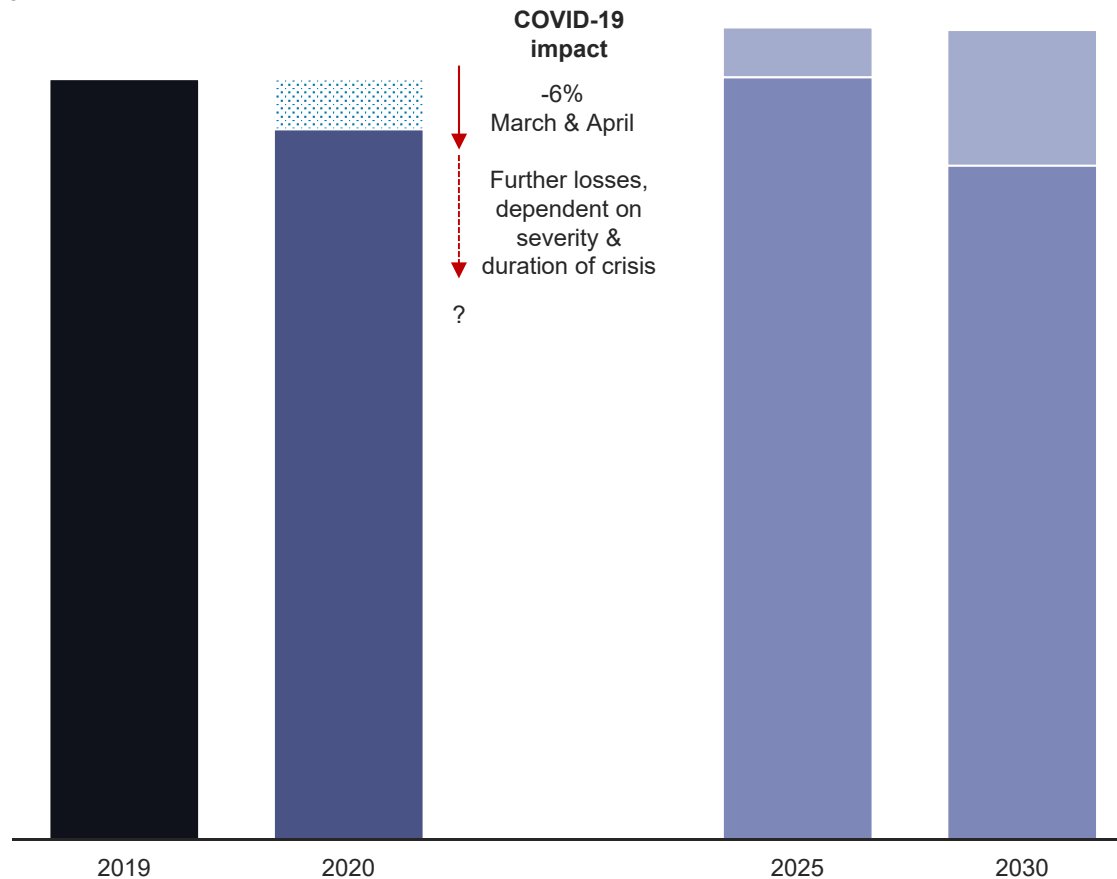
- Government enforced lockdown from 26 March 2020 to 30 April 2020, mines and processing facilities placed on C&M
- Exemptions for limited scaled down surface and mechanised operations granted during this period
- Regulations permitting production of 50% (100% open pit) of employment effective 1 May 2020, under strict regulations
  - Rigorous screening of all employees and contractors before they access operations
  - Testing where workers are symptomatic
  - Implementing and enforcing social distancing
  - Provision of quarantine facilities
  - Provision of appropriate PPE, including face masks
  - Establishment and maintenance of a personal hygiene programme
- Next level of restriction allows 100% of employment under strict regulations – timing unknown



# PRIMARY SUPPLY LIKELY TO REMAIN STABLE IN THE MEDIUM TERM, WITH DISRUPTION IN THE NEAR TERM

Primary PGM production

3e koz



## Current production outlook

**Full impact of Covid-19 shutdown and social distancing protocols is uncertain**

## Probable projects

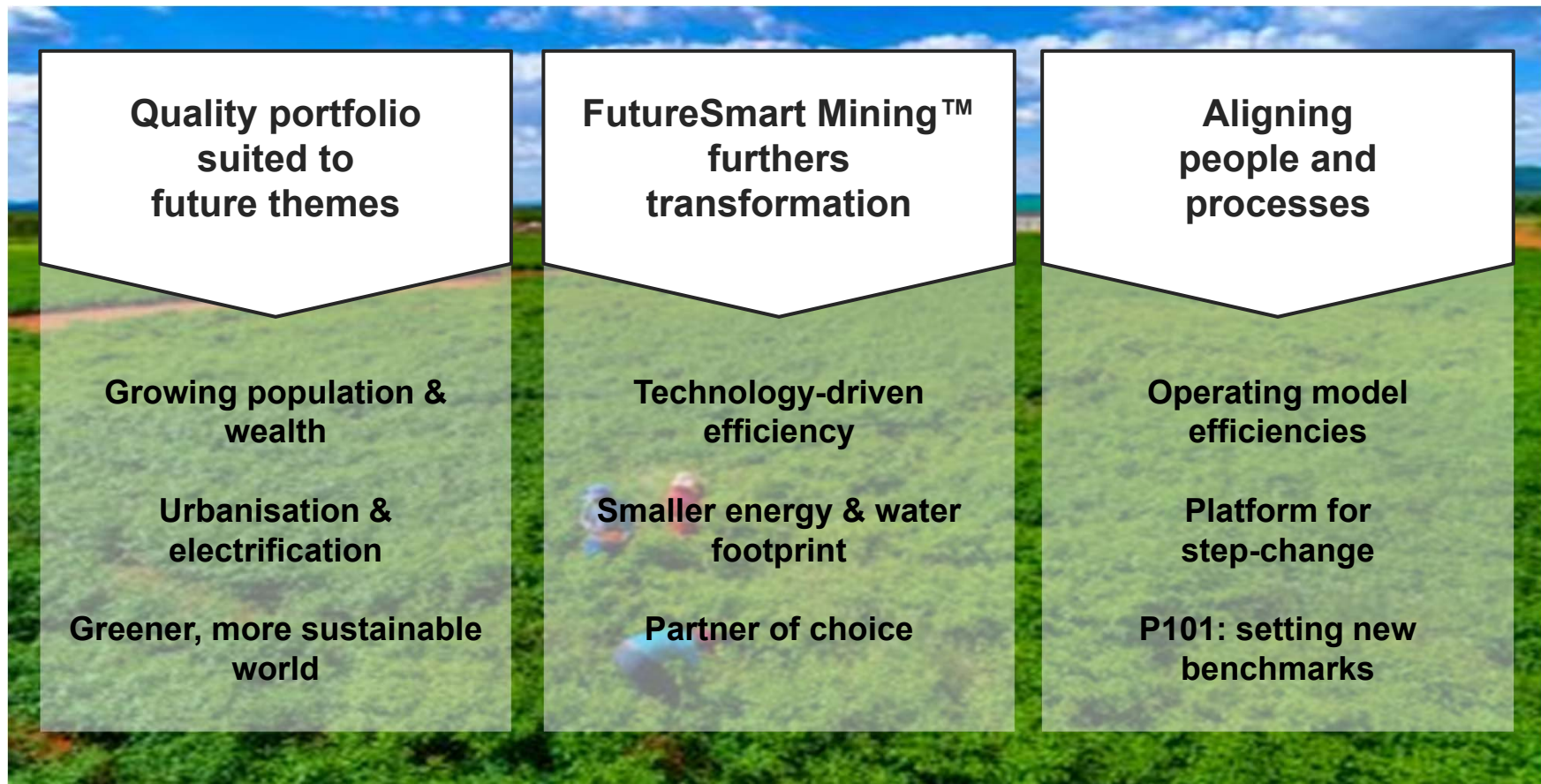
**replace depletion from existing operations**

Processing capacity, water and financing likely to

**constrain expansions**

# RE-IMAGINING MINING TO IMPROVE PEOPLE'S LIVES

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# DELIVERING ON OUR SUSTAINABILITY COMMITMENTS

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*One of 325 global companies included in the index*



# ALIGNING PEOPLE AND PROCESSES

## Double benching at Mogalakwena

- From 2020 - pit slope design based on double benching
- Moving from 30m to 60m stack height
- Digitalisation enhances slope stability control
- Significant reduction in incremental strip ratio
- Reduces waste tonnes mined



## Rope shovel efficiency

- Digitalisation improves control systems
- Improved utilisation through double side loading
- Better truck positioning reduces shovel hang time
- Rope shovel bucket fill-factor increased
- Fill trucks with fewer loads - efficiency gains from increased truck utilisation



## Modernisation at Amandelbult

- Tumela 15E mechanisation
- Dishaba ramp-up
- Modernisation and digitalisation
- Cycle mining
- PGM recovery improvements
- Asset reliability and maintenance enhancements





# FUTURESMART MINING™ – TECHNOLOGY & DIGITALISATION

## Concentrating the Mine™ Bulk ore sorter

- Sensors determine ore content prior to processing allowing waste material to be removed

### Benefits

- Immediate grade testing
- Unlocks production capacity by rejecting waste early
- Allows for lower cut off grades
- Reduces mining cost & complexity



## Water-less Mine Coarse particle rejection

- Rejection of coarse gangue ahead of the primary flotation

### Benefits:

- Unlocks downstream capacity for increased throughput
- Reduced energy consumption
- Reduced water consumption
- Reduced operating cost



## Modern Mine XLP at Tumela 15E

- Extra-low profile mechanised equipment

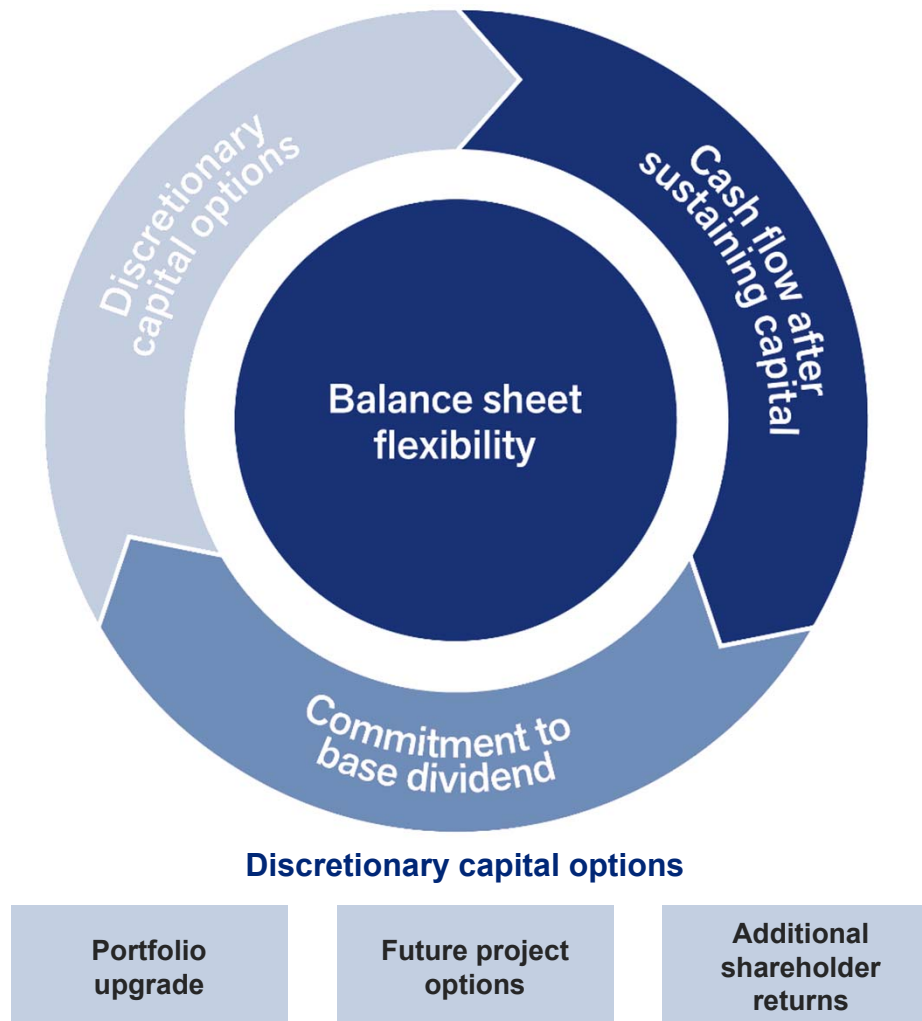
### Benefits

- Safety – remote controlled equipment away from mine face
- Lower panel heights result in less dilution of ore with waste
- Faster extraction & improved labour efficiencies
- Higher level of skilled employees



# DISCIPLINED AND VALUE FOCUSSED CAPITAL ALLOCATION

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# PROJECT STUDIES ON VALUE ACCRETIVE GROWTH OPTIONS

## Mogalakwena expansion

- Feasibility project study on track to complete in 2021, assessing:
  - Construction of third concentrator with breakthrough technology
  - Upgrading and debottlenecking existing concentrators
  - Concurrently studying underground mining options

## Der Brochen / Mototolo replacement and growth

- Replacement of Mototolo in feasibility - maintain current production
- Requires establishment of Der Brochen South Shaft to replace Lebowa shaft
- Shaft infrastructure designed such to allow future expansion
  - Breakthrough technology to increase throughput and improve grade into the concentrator

## Project studies for value-accretive growth underway

Der Brochen / Mototolo - replacement

Feasibility

Replacement of Mototolo

Mogalakwena expansion

Pre-feasibility B

Significant expansion potential - studies under way

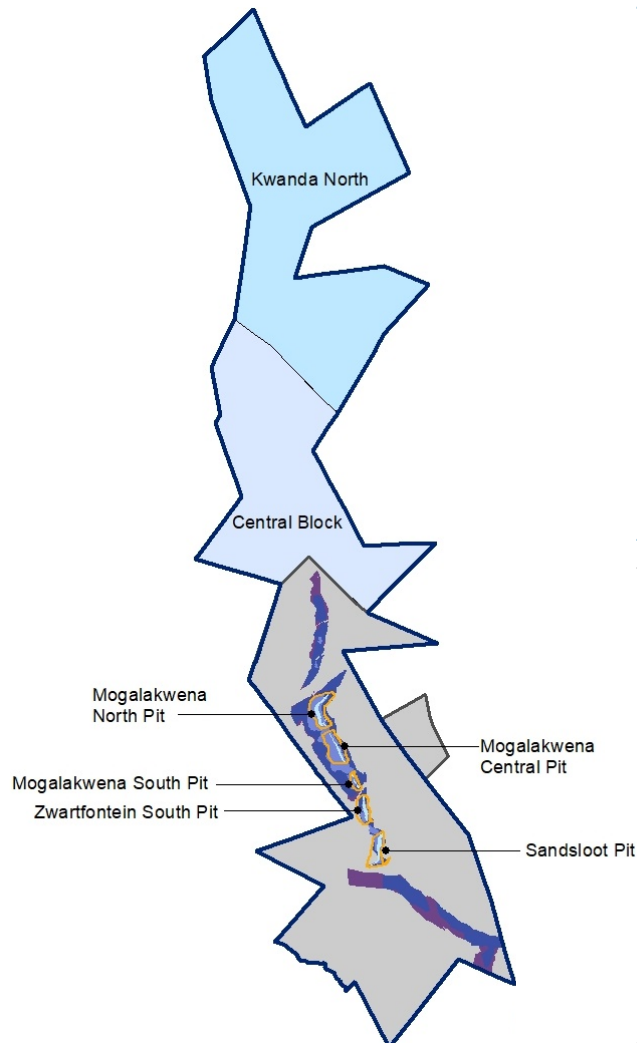
Der Brochen / Mototolo – replacement & expansion

Pre-feasibility B

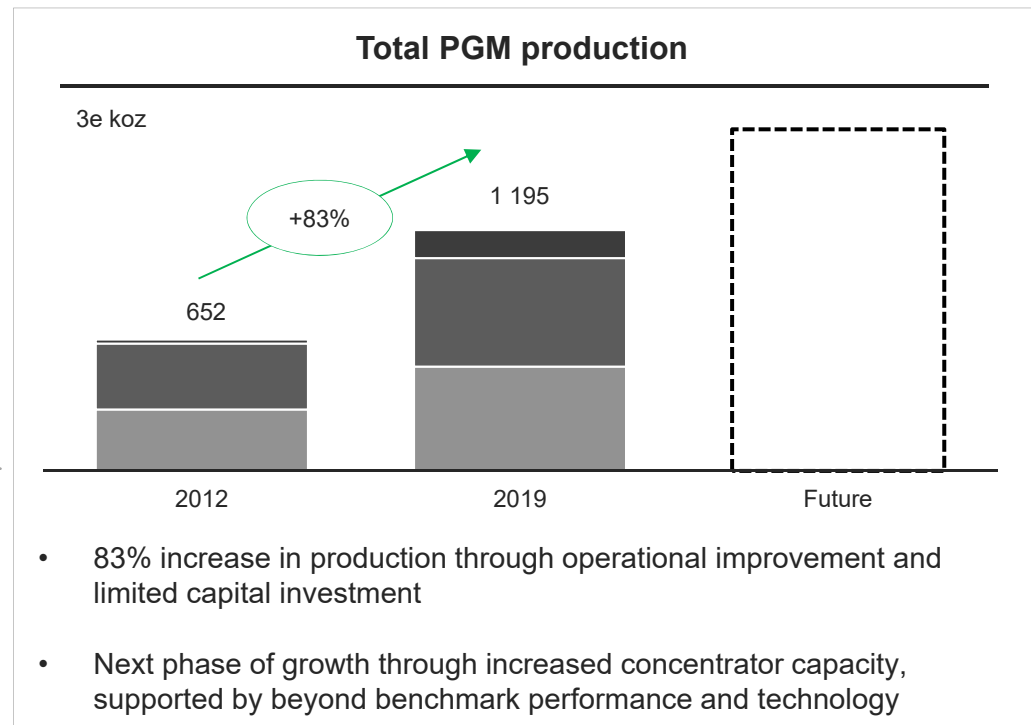
Expansion potential - studies under way



# MOGALAKWENA – WORLD CLASS ASSET



- Doubling the area of Mogalakwena's mining right on the Northern Limb
  - Acquisition of Kwanda North and Central Block prospecting rights on 27 August 2019
  - Prospecting rights incorporated into the Mogalakwena mining right
  - Further exploration and evaluation work required



# HISTORY WILL REPEAT ITSELF

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- The industry has been reshaped by previous crises, with most industry players having adapted
- We are in the midst of another crisis and supply will be disrupted in the short-term
- A sustainable PGM industry, requires miners to:
  - Proactively address Environmental, Social and Governance responsibilities
  - Invest in modernisation and technology/digitally enabled industry
  - Develop quality assets that deliver required returns through the cycle
  - Appropriately balance the allocation of capital, ensuring the we return capital in addition to generating return on capital
- At Anglo American Platinum we are “re-imagining mining to improve people’s lives”
  - Operating model, P101 and FutureSmart Mining™
  - Attractive investment and growth options
  - Developing the market for PGMs

**THANK YOU**