The PGM market conundrum
16 November 2016
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Introducing Implats

Implats is one of the world’s foremost producers of platinum and associated metals (PGMs)

Our operations are located on the Bushveld Complex in South Africa and the Great Dyke in Zimbabwe, the two most significant PGM-bearing ore bodies in the world

Our Mission

is to safely mine, process, refine and market PGMs at the best possible cost, ensuring sustainable value creation for all our stakeholders
How we create value
Our strategy

- Our strategy enables optimal levels of production to be sustained, at the best possible cost, thereby positioning Implats:
  - in the lower cost quartile
  - to benefit from stronger future PGM prices
  - with significant future strategic optionality

Positive long term PGM fundamentals
LOWER for LONGER prices near term

- Investment through the cycle
- Maintain optionality and position for the future
- Improve efficiencies through operational excellence and safe production
- Wisely preserve cash
- Maintain social licence to operate

Key deliverables

- Restore Impala output to 830kozpa by 2020
  - Deliver on new 16 and 20 Shaft complexes
  - Recommission 14 Shaft bottom section
  - Optimise 1, 10, 11, 12 and 14 Shafts
- Maintain Zimplats at 260kozpa
  - Restore Bimha and initiate Portal 6
- Build and maintain Marula at 90kozpa
- Maintain production at Two Rivers and Mimosa
- Build on successful IRS model
- Optimise mining efficiencies
- Continue with cost optimisation
- Rationalise and prioritise capital allocation
  - Retain 17 Shaft and Leeuwkop optionality
- Maintain strong balance sheet
Reserves and resources

**MINERAL RESERVES VS REAL BASKET PRICE**

- Spot Prices
- Consensus Prices
- Business Plan

**ATTRIBUTABLE MINERAL RESOURCES OF 194MOZ PT (%)**
- Zimplats
- Impala
- Alplats
- Two Rivers
- Imbube and Inkosi
- Marula
- Mimoso

**ATTRIBUTABLE MINERAL RESERVES OF 21.6MOZ PT (%)**
- Impala
- Zimplats
- Marula
- Two Rivers
- Mimoso
Continuing to invest through the cycle

- Good progress on commissioning and ramp-up of 16 Shaft and 20 Shaft
  - These new shafts produced 82 900 platinum ounces in 2016
  - Capital expenditure of R1.3 billion in FY2016
  - A further R2.6 billion is required to complete 16 and 20 Shaft complexes

<table>
<thead>
<tr>
<th>Major capital projects</th>
<th>20 Shaft</th>
<th>16 Shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital spend for 2016*</td>
<td>R753 million</td>
<td>R544 million</td>
</tr>
<tr>
<td>Remaining capital spend*</td>
<td>R1 607 million</td>
<td>R968 million</td>
</tr>
<tr>
<td>Design capacity reached</td>
<td>2019/20</td>
<td>2020/21</td>
</tr>
<tr>
<td>Steady-state throughput</td>
<td>1.7mtpa</td>
<td>2.7mtpa</td>
</tr>
<tr>
<td>Steady-state platinum production</td>
<td>125kozpa</td>
<td>185kozpa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tonnes milled (000)</th>
<th>2015</th>
<th>2016</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>562</td>
<td>770</td>
<td>292</td>
<td>489</td>
</tr>
<tr>
<td></td>
<td>+37%</td>
<td>+68%</td>
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*Includes off-reef development until end 2018
Market overview

The global macro economic picture remains uncertain:
- Continued growth downgrades by the IMF
- Baseline projection of 3.1% global growth in 2016
- Brexit vote will impact further

Demand for PGMs remains healthy, while primary supply continues to be at risk as mining capital investment continues to be cut in a low price environment:
- Platinum and palladium markets remained in a fundamental deficit in 2015

PGM prices:
- Both platinum and palladium prices tracked macroeconomic factors rather than demonstrating the metals’ fundamentals
- The rand dollar exchange rate depreciated 23% over FY2016 providing some relief to cash constrained producers
# Vehicle sales

2015 was another positive year

- 1.8% growth

Global growth forecast of 2.4%

- Major Contributors include:
  - US, WE, China and India
- Minor Detractors to consider:
  - Japan, South America and Russia

Diesel sales remain robust

- Key aspect of automakers’ CO₂ strategy
- Issues around “cheat devices” have served to tighten emission test protocols potentially boosting PGM demand

<table>
<thead>
<tr>
<th>Region</th>
<th>2016 Forecast Growth (%)</th>
<th>2016 Forecast (millions)</th>
<th>2015 Actual (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>2</td>
<td>17.8</td>
<td>17.4</td>
</tr>
<tr>
<td>Western Europe</td>
<td>5</td>
<td>13.9</td>
<td>13.2</td>
</tr>
<tr>
<td>China</td>
<td>6</td>
<td>22.5</td>
<td>21.2</td>
</tr>
<tr>
<td>Japan</td>
<td>(10)</td>
<td>4.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Rest of the World</td>
<td>1</td>
<td>31.5</td>
<td>31.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2.4</strong></td>
<td><strong>90.2</strong></td>
</tr>
</tbody>
</table>
The Automotive Market

Electric Vehicles

- EV shares for most automakers are expected to increase over the next few years
- Significant differences according to automakers’ views on their best route to lower CO₂ emissions
- By 2023, global Electric Vehicles are estimated to account for 8.2% of sales, of which non-PGM loaded
  - Pure battery electric vehicles (BEV) will only be 1.5%

Barriers stand in the way of substantial BEV sales

- Consumers are not responding (only about 1 in 300 are currently buying BEVs)

Palladium demand is unsustainable

- The continued and growing preference for palladium over platinum in gasoline catalysts and the substitution of platinum with palladium in diesel catalyst systems remains a concern
  - Some gasoline emissions systems – palladium to platinum ratio of 7:1 and higher
  - Global supply is at a ratio of around 1.2: 1 palladium to platinum
- Absent a reversion to higher platinum loadings, this is clearly not sustainable
Platinum jewellery

Global platinum jewellery sales accounted for 3.025 million ounces in 2015

- China: -4%
- India: +24%
- Japan: +2.7%
- USA: +10%
- PGI’s strategic partners significantly outperform the market

We continue to support PGI’s marketing efforts with the aim of:

- Arresting market declines in China and stimulating renewed growth
- Grow the Indian (24%), Japanese (1 to 2%) and USA (5 to 7%) markets
Investment

H1 2016 Global ETFs - relatively small moves

- Platinum  -40 koz
- Palladium  -130 koz

Divergent Investor Views on Platinum and Palladium

H1 2016 Speculative market (NYMEX, TOCOM)

- Platinum  +140 koz
- Palladium  -375 koz
Investment

Japanese small Pt bars sales continued to perform well in H1 2016

- Platinum +325 koz

We continue to support the World Platinum Investment Council (WPIC) efforts in:-

- Stimulating investor demand for physical platinum
- Market development with JV partners
  - Rand Merchant Bank - Bullion Coin Custodial Certificate
  - Valcambi - bar and coin availability
  - BullionVault - addition of platinum to their on-line global exchange
- Mitsubishi - platinum ETF
- Bullion Merchants Association (BMA) (Singapore) - expand Asian markets
Supply and demand

Fundamental demand demonstrates continued growth

2016 platinum to remain in fundamental deficit
- Automotive and Industrial
- Jewellery
- Marginal planned supply increases may well not be realised
- Recycling rebound will not be sufficient to cover deficits

2016 palladium to remain in fundamental deficit
- Automotive
- Supply (ex Russia)

2016 rhodium to remain in fundamental surplus
- Automotive
- Supply
## The challenge of new production

<table>
<thead>
<tr>
<th></th>
<th>Western Limb</th>
<th>Zimbabwe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average depth</strong></td>
<td>1 000 to 1 500 metres</td>
<td>200 metres</td>
</tr>
<tr>
<td><strong>Expected production per annum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throughput</td>
<td>2.7mtpa</td>
<td>2.0mtpa</td>
</tr>
<tr>
<td>Platinum</td>
<td>180 000ozpa</td>
<td>90 000ozpa</td>
</tr>
<tr>
<td>Nickel</td>
<td>1 300tpa</td>
<td>1 700tpa</td>
</tr>
<tr>
<td>Copper</td>
<td>750tpa</td>
<td>1 300tpa</td>
</tr>
<tr>
<td><strong>Expected time to bring into production</strong></td>
<td>10 to 12 years</td>
<td>6 years</td>
</tr>
<tr>
<td><strong>Expected capital investment</strong></td>
<td>R12 billion</td>
<td>US$300 million</td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>6 000</td>
<td>1 000</td>
</tr>
</tbody>
</table>
Key industry defining developments

- Capital investments made from 2000 to 2008, driven by higher prices and new minerals legislation, will mature in the next 10 years and are being mined out.
- Reduced capital investment as a result of:
  - Financial market collapse in 2008
  - Slow and fragile global economic recovery
  - Persistent low dollar PGM prices
  - Operating cost inflation outpacing revenue increases
  - Changing socio-political environment/uncertainty
  - Growing policy uncertainty

In order to mitigate the effect of these factors and to conserve cash and protect balance sheets, major producers have ceased further investment.

Source: Venmyn Deloitte, WPIC Research
Southern African supply (Implats’ view)

- Western Limb supply will reduce drastically in the near future and cannot be replaced by growth from other areas.
- Typically 12 years to complete a project on the Western Limb, so even if we start today, we will still be too late to arrest this projected drop in output.
Secondary supply

- Slow growth accelerated from 2010
  - Increased jewellery recycling particularly from China
  - Auto scrappage schemes on the back of higher steel prices
  - Autocatalyst fabricators securing supply through financial incentives
  - Pent up supply from older vehicles
  - De-risking from South African supply
- The PGM recycling market has matured with lower growth expected in future
**Conclusion**

- Liquid surface stocks will continue to cover fundamental deficits for the remainder of 2016, but are being eroded
  - Expectation for “lower-for-longer” rand basket prices remains
- Increasing automotive demand supported by ever-tightening emissions regulations around the globe
- Delayed capital investment decisions will significantly impact supply in the longer term
- Capital investments made from 2000 to 2008 will mature in the next 10 years and are being mined out
  - Currently, approximately 50% of SA production is sourced from pre-2000 infrastructure
  - The bulk of SA supply is sourced from platinum dominant UG2 and Merensky orebodies in the Western Limb
    - In 2015 this production accounted for approximately 3 million ounces of platinum (2/3 of SA's 4.4 million ounces)
    - New projects being deferred in low price environment
  - Current replacement projects (16 & 20 Shafts, Stylodrift, Maseve, Bakubung) will only produce around 930 000 platinum ounces
- Eastern Limb UG2 operations are exposed to low rhodium prices
- Northern Limb and Zimbabwean operations are base metal dominant with lower platinum yields and requiring additional processing infrastructure
- SA platinum supply will remain at around 4.4 million ounces
- Secondary supply will not offset declining primary production

**Demand growth, combined with faltering supply, will drive higher rand PGM basket prices in the longer-term**