

# Advancing the Next Great Palladium Mine

Waterberg Project – North Limb, South Africa Control of a 19.5M Ounce, Shallow, Mechanized PGM Reserve

November 6, 2020



## Disclosure

#### **Technical and Scientific Information**

This presentation has been prepared by Platinum Group Metals Ltd. ("Platinum Group" or the "Company"). Information included in this presentation regarding the Company's mineral properties has been compiled by R. Michael Jones, P.Eng, the President and Chief Executive Officer of the Company, and a non-independent Qualified Person for purposes of National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101"), based on independent information filed by the Company with the Canadian securities regulators and the U.S. Securities and Exchange Commission ("SEC"). R. Michael Jones, the QP who has compiled the technical info for the presentation, has approved the written disclosure regarding technical and scientific information in this presentation. For more detailed information regarding the Company and its mineral properties, you should refer to the Company's independent technical reports and other filings with the Canadian securities regulators and the SEC, which are available at www.sedar.com and www.sec.gov, respectively. Scientific and technical information contained herein is derived from the Company's technical reports. Information contained herein related to the Waterberg Definitive Feasibility Study and associated Reserve and Resource Update can be found in the October 4, 2019 technical report entitled, "Waterberg Project Definitive Feasibility Study and Mineral Resource Update." www.sedar.com and www.sec.gov. Reference is made to such reports for more detailed information with respect to the Company's properties, including details of quality and grade of each mineral resource estimate, details of the key assumptions, methods and parameters used in the mineral resource estimates and a general discussion of the extent to which the mineral resource estimates and the other estimates and projections included in the reports may be materially affected by any known environmental, permitting, legal, taxation, socio-political, marketing, or other relevant issues.

#### **Cautionary Note to United States Investors**

Estimates of mineralization and other technical information included or referenced in this presentation have been prepared in accordance with NI 43-101. The definitions of proven and probable reserves used in NI 43-101 differ from the definitions in SEC Industry Guide 7. Under SEC Industry Guide 7 standards, a "final" or "bankable" feasibility study is required to report reserves, the three-year historical average price is used in any reserve or cash-flow analysis to designate reserves and the primary environmental analysis or the report must be filed with the appropriate governmental authority. As a result, the reserves reported by the Company in accordance with NI 43-101 may not qualify as "reserves" under SEC standards. In addition, the terms "mineral resource". "measured mineral resource". "indicated mineral resource" and "inferred mineral resource" are defined in and required to be disclosed by NI 43-101: however, these terms are not defined terms under SEC Industry Guide 7 and normally are not permitted to be used in reports and registration statements filed with the SEC. Mineral resources that are not mineral reserves do not have demonstrated economic viability. Investors are cautioned not to assume that any part or all of the mineral deposits in these categories will ever be converted into reserves; "inferred mineral resources" have a great amount of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be

assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Under Canadian securities laws, estimates of inferred mineral resources may not form the basis of feasibility or pre-feasibility studies, except in rare cases. Additionally, disclosure of "contained ounces" in a resource is permitted disclosure under Canadian securities laws; however, the SEC normally only permits issuers to report mineralization that does not constitute "reserves" by SEC standards as in place tonnage and grade without reference to unit measurements. Accordingly, information contained or referenced in this presentation containing descriptions of the Company's mineral deposits may not be comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements of United States federal securities laws and the rules and regulations thereunder.

#### COVID 19

The recent COVID-19 pandemic and related measures taken by government create uncertainty and have had, and may continue to have, an adverse impact on many aspects of the Company's business, including employee health, workforce productivity and availability, travel restrictions, contractor availability, supply availability, the Company's ability to maintain its controls and procedures regarding financial and disclosure matters and the availability of insurance and the costs thereof, some of which, individually or when aggregated with other impacts, may be material to the Company.



# Forward Looking Statements

This presentation contains forward-looking information within the meaning of Canadian securities laws and forward-looking statements within the meaning of U.S. (collectively securities laws "forward-looking statements"). Forward-looking statements are typically identified by words such as: believe, expect, anticipate, intend, estimate, plans, postulate and similar expressions, or are those, which, by their nature, refer to future events. All statements that are not statements of historical fact are forward-looking statements. Forward-looking statements in this press release include, without limitation, statements regarding the projections and assumptions relating to the DFS, including, without limitation NPV, IRR, costs, mine life, payback periods, margins, exchange rates, inflation, recoveries, grades, potential production of the Waterberg Project and other operational and economic projections with respect to the Waterberg Project; Waterberg Project's potential to be a bulk mineable, low cost, dominantly palladium mine producing platinum and palladium based on a fully mechanized mine plan: the Waterberg Project's potential to be one of the largest and lowest cash cost underground platinum group metals mines globally; the projected receipt of the Mining Right in 2020, first production in late 2023 and steady state production by 2027: the expected creation of 1,100 new highly skilled jobs; the potential for future drilling to convert mineral resources into reserves, extending mine life; and the potential for underground mining of the North Mine to lower future capital costs. Mineral resource and reserve estimates are also forward-looking statements because such estimates involve estimates of mineralization that may be encountered in the future if a production decision is made, as well as estimates of future costs and values. Although the Company believes the forward-looking statements in this press release are reasonable, it can give no assurance that the expectations and assumptions in such statements will prove to be correct. The Company cautions investors that any forward-looking statements by the Company are not guarantees of future results or performance and that actual results may differ materially from those in

forward-looking statements as a result of various factors, including possible adverse impacts due the global outbreak of COVID-19, the Company's inability to generate sufficient cash flow or raise sufficient additional capital to make payment on its indebtedness. and to comply with the terms of such indebtedness: additional financing requirements; the Company's credit facility (the "Sprott Facility") with Sprott Resource Private Lending II (Collector), LP ("Sprott") and the other lenders party thereto is, and any new indebtedness may be, secured and the Company has pledged its shares of Platinum Group Metals (RSA) Proprietary Limited ("PTM RSA"), and PTM RSA has pledged its shares of Waterberg JV Resources (Pty) Limited ("Waterberg JV Co.") to Sprott, under the Sprott Facility, which potentially could result in the loss of the Company's interest in PTM RSA and the Waterberg Project in the event of a default under the Sprott Facility or any new secured indebtedness; the Company's history of losses and negative cash flow; the Company's ability to continue as a going concern; the Company's properties may not be brought into a state of commercial production; uncertainty of estimated production, development plans and cost estimates for the Waterberg Project; discrepancies between actual and estimated mineral reserves and mineral resources. between actual and estimated development and operating costs, between actual and estimated metallurgical recoveries and between estimated and actual production; fluctuations in the relative values of the U.S. Dollar, the Rand and the Canadian Dollar: volatility in metals prices; the failure of the Company or the other shareholders to fund their pro rata share of funding obligations for the Waterberg Project; any disputes or disagreements with the other shareholders of Waterberg JV Co., Mnombo Wethu Consultants (Pty) Ltd. or Maseve; the ability of the Company to retain its key management employees and skilled and experienced personnel; conflicts of interest; litigation or other administrative proceedings brought against the Company: actual or alleged breaches of governance processes or instances of fraud, bribery or corruption; the Company may become subject to the U.S. Investment Company Act: exploration, development and mining risks and the inherently dangerous nature of the mining industry, and the risk of inadequate insurance or inability to obtain insurance to cover these risks and other risks and uncertainties: property and mineral title risks including defective title to mineral claims or property; changes in national and local government legislation, taxation, controls, regulations and political or economic developments in Canada and South Africa; equipment shortages and the ability of the Company to acquire necessary access rights and infrastructure for its mineral properties; environmental regulations and the ability to obtain and maintain necessary permits, including environmental authorizations and water use licences; extreme competition in the mineral exploration industry: delays in obtaining, or a failure to obtain, permits necessary for current or future operations or failures to comply with the terms of such permits; risks of doing business in South Africa, including but not limited to, labour, economic and political instability and potential changes to and failures to comply with legislation; the Company's common shares may be delisted from the NYSE American or the TSX if it cannot maintain compliance with the applicable listing requirements; and other risk factors described in the Company's most recent Form 20-F annual report, annual information form and other filings with the U.S Securities and Exchange Commission ("SEC") and Canadian securities regulators, which may be viewed at www.sec.gov and www.sedar.com, respectively. Proposed changes in the mineral law in South Africa if implemented as proposed would have a material adverse effect on the Company's business and potential interest in projects. Any forward-looking statement speaks only as of the date on which it is made and, except as may be required by applicable securities laws, the Company disclaims any intent or obligation to update any forward- looking statement, whether as a result of new information, future events or results or otherwise.



## Overview of Platinum Group Metals Ltd.

In Joint Venture with Major PGM Producers



- Large-scale low cost mine development in South Africa. Feasibility completed.
- 19.5 Million ounces of PGMS in RESERVES
  - Rare Palladium dominant deposit with 45+ year Mine Life.
    - JV Partners: Implats, JOGMEC, Hanwa









- Patented research and development using PGMs in a cutting-edge lithium battery.
  - Supported by Anglo Platinum, world's largest PGM producer, partner Florida International University (FIU).
- Focused on Lithium Air and Lithium Sulfur chemistry with 5X to 10X the power to weight advantage.





# Where is Waterberg? North Limb - Bushveld Complex South Africa

South Africa produced 73% of platinum and 37% of palladium in 2019\*

The Waterberg Project is located in the Northern Limb of the Bushveld Complex.

ONLY REGION FOR BULK PGE MINES = MOST PROFITABLE

**Bushveld Complex** Waterberg Project SOUTH Northern Limb **AFRICA** Anglo American Mogalakwena Mine Polokwane Ivanhoe -Platreef Project Mokopane

\*Source: Johnson Matthey, PGM Market Report, May 2020



## Why Platinum Group Metals Ltd.?

### **PLG Controls 19.5M ounces of PGM Reserves**

#### **Milestones**

#### **Compelling Valuation**

Market Cap - \$140M USD

DFS Cash Flow After Tax: \$100M+ Annually on Waterberg Share

#### Well Backed with Senior Partners

HCI, Franklin Templeton, Liberty supportive shareholders

Impala and JOGMEC/Hanwa invested at the asset level

#### Palladium Market Remains Strong

Palladium price - \$2,000+ USD. Auto Market Stabilizing √ September 24, 2019

Waterberg DFS Completed

✓ December 5, 2019

Impala and JV DFS Approval

√ February 26, 2020

24M Rand implementation budget funded by Implats

- Q4 2020 Waterberg Mining Right
- Q4 2020 Partner, Offtake, Financing
- Q1 2021 Decline Establishment
- Q1 2024 Start of Production



## What is Waterberg?

Measured and Indicated Resource: 26.4M ounces Palladium, Platinum, Gold and Rhodium, (4E)

Proven and Probable Reserves of 19.5 M ounces

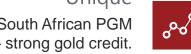
#### Thick

...

Amenable to **bulk mechanized mining** - higher skilled and educated work force. Safer to mine.

ONE OF THE LOWEST COST LARGE PGM
MINES GLOBALLY

#### Unique



Metal balance versus traditional South African PGM reefs – **palladium dominant** – strong gold credit.

### STRAGETIC VALUE IN A TIGHT MARKET FOR PALLADIUM WITH RIGHT AUTO METAL MIX

#### Shallow



Deposit starts 140m from surface - allows for multi decline ramp access - lower capital costs compared to deep vertical shafts

### SHORT DEVELOPMENT TIME FOR PRODUCTION BY 2024

#### Desirable



**Desirable** low chrome **concentrate** with base metal content amenable to existing smelters.

### CONFIRMS INVESTMENT THESIS AND RECENT DFS APPROVAL

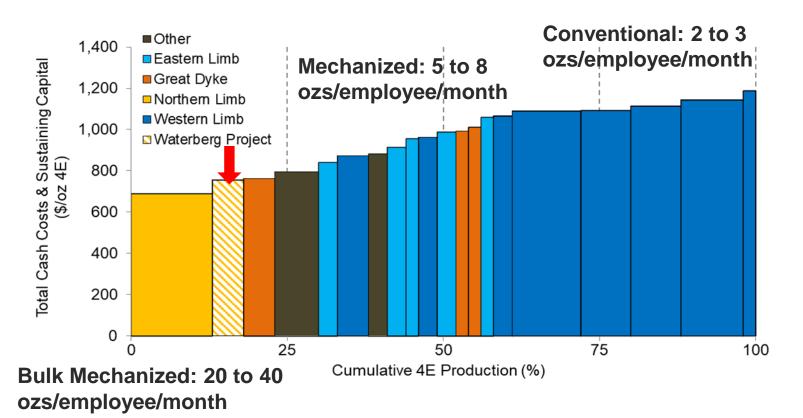


100% Waterberg Project See Appendix and October 4, 2019 technical report - www.sedar.com

# **PGM Industry Cost Curve**

Waterberg Total All-In Cost: \$767 USD/4E Ounce

Bottom of Curve and Low Sensitivity to Labour Costs



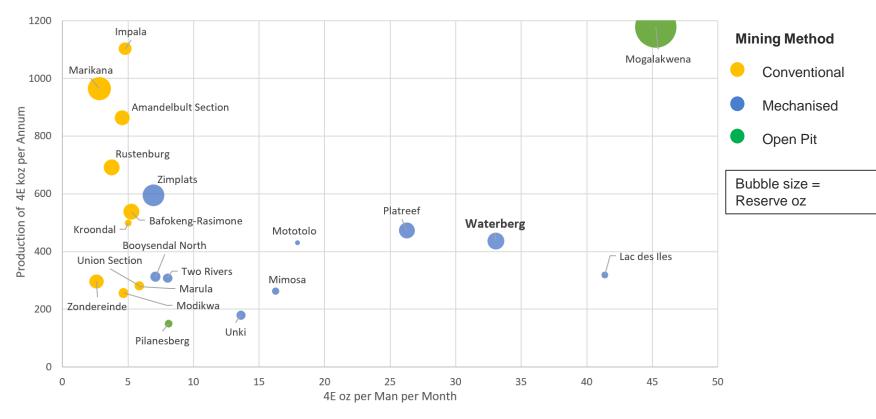
SOURCE: Metals Focus. Data for Waterberg is based on Platinum Group projections and is not representative of Metals Focus view.



PLG: NYSE AMERICAN | PTM: TSX

# Why Waterberg?

### Productivity, Production and Reserves



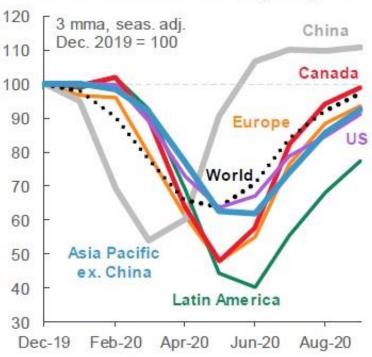
Source: S&P Global Market Intelligence; Fraser McGill Mining and Minerals Advisory



## **Automotive Markets**

### Global Auto Markets Are Showing Signs of Stabilization

### Global Vehicle Sales by Region



Sources: Scotiabank Economics, national automotive associations.



# Commodity Price

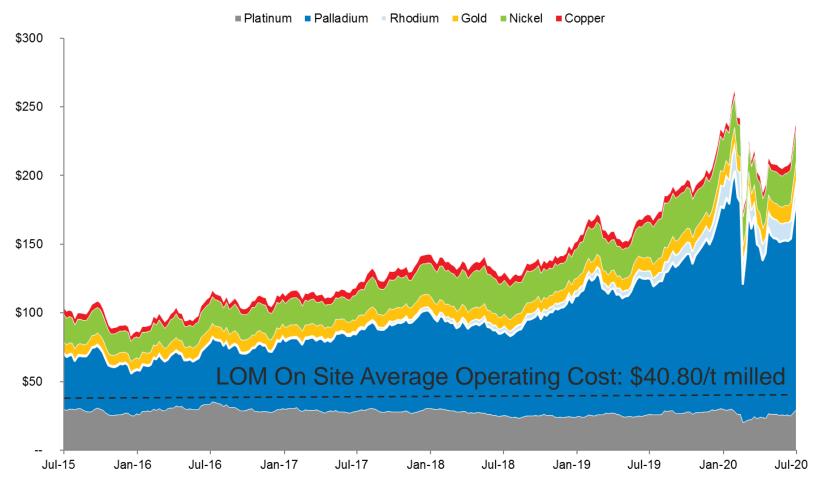
Waterberg Basket: Pd:63%, Pt:29%, Au:6%, Rh:2%





# Commodity Price

Revenue Per Tonne of Reserves (USD/tonne):





# Waterberg Project Strategic Investors Participated In and Approved the DFS



Implats is a member of the Waterberg JV technical committee. Implats is the world's third largest producer of platinum with a fully integrated operation including smelting, refining and marketing. Implats owns a 15% interest in the Waterberg project.



Japan Oil, Gas and Metals National Corporation (JOGMEC) owns a 12.95% interest in the Waterberg Project. Hanwa Co., a diversified Japanese trading company, acquired 9.75% of JOGMEC's interest and metal marketing rights.



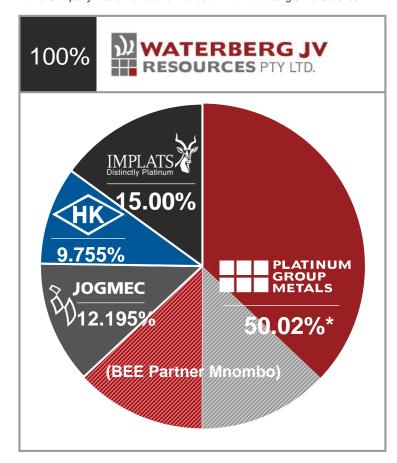
Hosken Consolidated Investments (HCI) is a South African black empowered holding company listed on the JSE. HCI owns 32% of PLG/PTM with Board representation.

## Ownership Structure

### Platinum Group Controls the Waterberg Project with a 50.02% Interest

- Implats purchased a 15% interest in operating company Waterberg JV Resources Pty Ltd. for \$30M USD.
- PTM sold 8.6% interest to Implats for US\$17.2M and retains a 37.05% direct interest.
- JOGMEC sold 6.4% interest to Implats for US\$12.8M and currently holds a 12.195% interest.
- BEE Partner Mnombo maintains 26% interest. PTM maintains 49.90% interest in Mnombo resulting in an aggregate 50.02% interest.\*
- Hanwa acquired a 9.755% interest from JOGMEC including all metal marketing rights in March 2019.
- Implats holds a right of first refusal for concentrate offtake.

\*As a result of Platinum Group's 49.9% ownership interest in Mnombo, the Company has an effective interest in the Waterberg JV of 50.02%.



# Waterberg DFS Highlights

- Completed by Stantec Consulting International, DRA Projects SA, Turnberry Projects and owners' team.
- Proven and probable reserves 187
  million tonnes at 3.24 g/t 4E or 19.5
  million ounces 4E. (2.5 g/t 4E cutoff)
- Annual steady state production rate of 420,000 ounces 4E.
- On site life-of-mine average cash cost US \$640 per 4E ounce with byproduct credits and including smelter discounts as a cost.



## Stantec and DRA

Principal DFS Consultants

## 19.5M Ounces 4E

Proven and Probable Reserves

420,000 Ounces

Annual Steady State Production 4E

\$640/4E Ounce

On site LOM average cash cost

# Waterberg DFS Highlights

- Post-tax NPV8 of US \$982 million at DFS spot prices. (September 4, 2019)
- Est. peak project funding of US\$617M.
- Post-tax internal rate of return (IRR)
   20.70% at DFS spot prices.
- 16.7M pounds of nickel and copper annually.

\$982M

Post Tax NPV8 at DFS Spot Prices

\$617M

**Estimated Peak Project Funding** 

20.70%

IRR Post Tax at DFS Spot Prices

16.7M Pounds

Annual Nickel and Copper Output



# Waterberg DFS Highlights

- Projected mine life of 45 years based on current reserves.
- Precious metals recovery rate of 78.90% life of mine.
- Mining right grant expected in Q4 2020.
- First production scheduled for 2023 with steady state in 2027.

## 45 Years

Mine Life Based on Reserves

78.90%

LOM 4E Concentrator Recovery

Q4 2020

Mining Right Expected

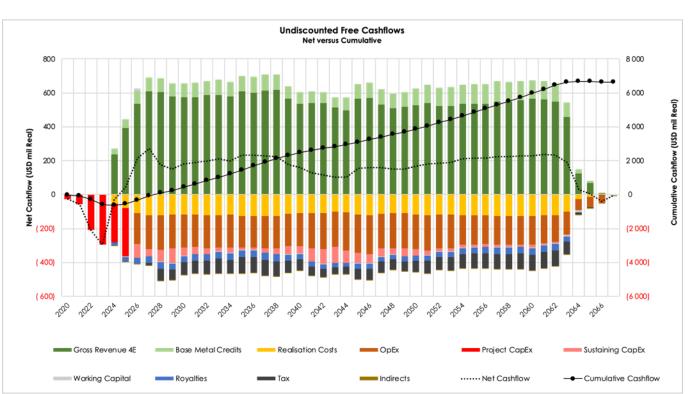
2023

First Production



## Financial Evaluation

\$6.6B+ USD Free Cash Flow After Tax Undiscounted Life of Mine 50.02% Held by PLG













# Price Sensitivity

Project value doubles from 2019 DFS at current spot metal prices.

	Sept 4 <sup>th</sup> 2019 (DFS)	Recent Spot
NPV (8% Discount)	US\$982M	US\$1,986M
IRR	20.70%	34.30%
Project Payback	8 Years	7 Years
Peak Funding	US \$617M	US \$503M

	Sept 4 <sup>th</sup> 2019 (DFS)	Recent Spot
Palladium (USD/oz)	1,546	2,100
Platinum (USD/oz)	980	944
Rhodium (USD/oz)	5,036	9,300
Gold (USD/oz)	1,548	1,980
Basket Price (USD/oz)	1,425	1,901
ZAR/USD	15	17.50

Metal Ratios: Pd 63%, Pt 29.1% Rh 1.5%, Au 6.4%

See Appendix and October 4, 2019 technical report - www.sedar.com



## Optimization and Implementation

Implats Funded 100% of ZAR 24M Program

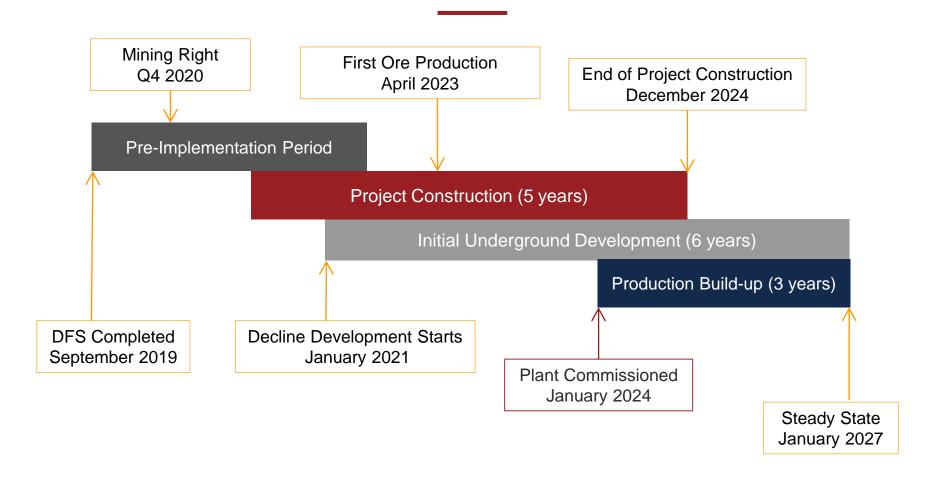
An optimisation study to evaluate potential benefits to the project is near completion:

- ✓ Dry-stacking of tailings.
- ✓ Confirmation of portal positions and detailed designs.
- ✓ Detailed advanced simulation of initial underground mining and surface systems
- ✓ Battery Electric Vehicle Fleet (reduced vent/cooling & power, lower opex)
- ✓ Mobile Tunnel Borer Access (Master Drilling Technology)
- ✓ Water demand & supply studies and drilling for additional sources.
- Permitting & community agreements IN PROGRESS
- Execution planning involving early-works engineering & project controls IN PROGRESS
- Partner and Offtake Discussions IN PROGRESS





# **Project Timeline**





# Lion Battery Technologies

Research
on PGMs
in Lithium Batteries



# Research on PGMs in Lithium Batteries

Scientific research with a patented innovation using PGMs in a lithium battery







Anglo Platinum, the leading PGM company in the world, and Platinum Group Metals Ltd. have jointly founded Lion Battery Technologies Inc., to research the use of PGMs in a lithium battery.

A partnership has been signed to support dedicated research at Florida International University (the 4<sup>th</sup> largest USA university by enrollment)

Lion Battery Technologies Inc. is supported by Anglo Platinum and Platinum Group Metals Ltd. for up to US \$4M with exclusive rights to all technology developed.



## Lithium + PGMs Potential

Comparison to Tesla Model 3 Battery Modules

	Tesla Model 3	Li-	Air	Li	Li-S		
	Model 3	Maximum	Target	Maximum	Target		
Energy	75 kWh¹	75 k	кWh	75 k	кWh		
Weight	371 kg <sup>1</sup>	43 kg	144 kg	125 kg	188 kg		
Cell (2170)	4,416 cells <sup>1</sup>	1,000 cells	3,400 cells	1,490 cells	2,235 cells		
Configuration	3.7 V/cell	2.7 V/cell	2.7 V/cell	2.2 V/cell	2.2 V/cell		
Chemistry	NCA	Li-	Li-O <sub>2</sub>		Li-Sulfur		
Specific energy / cell	202 Wh/kg	1,700 Wh/kg	500 Wh/kg	600 Wh/kg	400 Wh/kg		
Cost per kWh	\$150 per kWh <sup>2</sup>	\$18.5 per kWh	\$63 per kWh	\$47 per kWh	\$71 per kWh		
Cost per kg	\$31 per kg	\$33 per kg	\$33 per kg	\$28 per kg	\$28 per kg		
Cost of 75kWh module	\$7,000 – 11,250²,³	\$1,390	\$4,736	\$3,500	\$5,264		
Grams of Pd	\$0	8.1 g	27.4 g	10.5 g	15.8 g		
Cost of Pd	\$0	\$590	\$2,000	\$766	\$1,150		
% Cost of Pd	0%	42.3%		21.	8%		
Cycle life	500+ cycles	500 cycles (target)	500 cycles (target)	500 cycles (target)	500 cycles (target)		

<sup>1</sup> https://evannex.com/blogs/news/tesla-s-battery-pack-is-both-mysterious-and-alluring-work-in-progress



<sup>&</sup>lt;sup>2</sup> https://www.bloomberg.com/news/articles/2019-06-05/gm-plans-to-sell-electric-cars-to-joe-sixpack-and-make-money

<sup>3</sup> https://interestingengineering.com/tesla-puts-price-on-model-3-battery-module-replacement-around-5000-7000

# Share Structure and Capital Markets

As of November 6, 2020

Stock Symbol	PLG:NYSE.A PTM:TSX
Share Price	USD \$1.90
52 week high/low	USD \$2.98 / \$0.85
Issued and Outstanding	67,771,564
Options	3,182,500
Restricted Share Units	425,741
Fully Diluted	71,379,805
Market Capitalization	USD \$130M

#### Debt

\$20M USD Secured Debt (Sprott Lending)
August 2021 + Option to Extend One Year

\$20M USD 6 7/8% Convertible Senior Subordinated Notes, 2022

#### Major Shareholders

Hosken Consolidated Investments Ltd.
(HCI:JSE), Franklin Templeton, Liberty Metals

Member of S&P/TSX SmallCap Index



## Conclusions

- Important milestones have recently been completed including DFS approval and 100% funding of the implementation budget and work program by Implats.
- 50.02% of the Project and 19.5M ounces of reserves controlled by PLG.
- Compelling valuation currently trading less than one year steady state post tax cash flow based on DFS and current spot prices. (45 year mine life).
- Upcoming milestones include approval for the Mining Right.
- The Waterberg project has the potential to be one of the lowest cost, large PGM mines in the world at a strong time for palladium.





# Appendix

Waterberg Definitive Feasibility Study September 2019

## Resources

T-Zone and F-Zone Mineral Resource Estimate 2.5 g/t 4E Cut-Off

T Zone at 2.5 g/t (4E) Cut-off												
	Cut-off	Tonnogo				Grade				Me	tal	
Mineral Resource Category	4E	Tonnage	Pt	Pd	Rh	Au	4E	Cu	Ni	41		
	g/t	t	g/t	g/t	g/t	g/t	g/t	%	%	kg	Moz	
Measured	2.5	4,443,483	1.17	2.12	0.05	0.87	4.20	0.150	0.080	18,663	0.600	
Indicated	2.5	17,026,142	1.37	2.34	0.03	0.88	4.61	0.200	0.094	78,491	2.524	
M+I	2.5	21,469 ,625	1.34	2.29	0.03	0.88	4.53	0.189	0.091	97,154	3.124	
Inferred	2.5	21,829,698	1.15	1.92	0.03	0.76	3.86	0.198	0.098	84,263	2.709	
				F Zo	ne at 2.5	g/t (4E) C	ut-off					
	Cut-off	Tonnage				Grade				Metal		
Mineral Resource Category	4E	Torinage	Pt	Pd	Rh	Au	4E	Cu	Ni	41	Ē	
	g/t	t	g/t	g/t	g/t	g/t	g/t	%	%	kg	Moz	
Measured	2.5	54,072,600	0.95	2.20	0.05	0.16	3.36	0.087	0.202	181,704	5.842	
Indicated	2.5	166,895,635	0.95	2.09	0.05	0.15	3.24	0.090	0.186	540,691	17.384	
M+I	2.5	220,968,235	0.95	2.12	0.05	0.15	3.27	0.089	0.190	722,395	23.226	
Inferred	2.5	44,836,851	0.87	1.92	0.05	0.14	2.98	0.064	0.169	133,705	4.299	

## Resources

Total Mineral Resource Estimate 2.5 g/t Cut-Off

Waterberg Aggregate Total 2.5 g/t Cut-off											
Mineral	Cut-off	Tannana				Grade				Met	al
Resourc e	4E	Tonnage	Pt	Pd	Rh	Au	4E	Cu	Ni	4E	
Category	g/t	t	g/t	g/t	g/t	g/t	g/t	%	%	kg	Moz
Measured	2.5	58,516,083	0.97	2.19	0.05	0.21	3.42	0.092	0.193	200,367	6.442
Indicated	2.5	183,921,777	0.99	2.11	0.05	0.22	3.37	0.100	0.177	619,182	19.908
M+I	2.5	242,437,860	0.98	2.13	0.05	0.22	3.38	0.098	0.181	819,549	26.350
Inferred	2.5	66,666,549	0.96	1.92	0.04	0.34	3.27	0.108	0.146	217,968	7.008

# **Prill Splits**

Prill Split Waterberg Project Aggregate									
Mineral Resource Category	Pt	Pd	Rh	Au					
Milleral Resource Gategory	%	%	%	%					
Measured	28.2	64.4	1.5	5.9					
Indicated	29.4	62.6	1.5	6.5					
M+I	29.1	63.0	1.5	6.4					
Inferred	29.5	58.9	1.2	10.4					

- 1. 4E elements are platinum, palladium, rhodium and gold.
- 2. Cut-offs for Mineral Resources were established by a QP after a review of potential operating costs and other factors.
- 3. Conversion factor used for kilograms ("kg") to ounces ("oz") is 32.15076
- 4. A 5% and 7% geological loss was applied to the Measured/Indicated and Inferred Mineral Resources categories, respectively.
- 5. The Mineral Resources are classified in accordance with the National Instrument for the Standards of Disclosure for Mineral projects within Canada, 2011 ("NI 43-101"). Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability and Inferred Mineral Resources have a high degree of uncertainty.
- 6. The Mineral Resources are provided on a 100% Project basis, Inferred and Indicated categories are separate and the estimates have an effective date of 4 September 2019.
- 7. Mineral Resources were completed by Mr. CJ Muller of CJM Consulting.
- 8. Mineral Resources were estimated using kriging methods for geological domains created in Datamine from 441 mother holes and 583 deflections.

  A process of geological modelling and creation of grade shells using indicating kriging was completed in the estimation process.
- 9. The Mineral Resources may be materially affected by metal prices, exchange rates, labour costs, electricity supply issues or many other factors detailed in the Company's 2018 Annual Information Form.
- 10. The data that formed the basis of the Mineral Resources estimate are the drill holes drilled by Platinum Group as project operator, which consist of geological logs, drill hole collars surveys, downhole surveys and assay data. The area where each layer was present was delineated after examination of the intersections in the various drill holes.
- 11. Numbers may not add due to rounding.

## Reserves

Proven Mineral Reserve Estimate 2.5 g/t 4E Cut-Off

	Proven Mineral Reserve Estimate at 2.5 g/t 4E cut-off									
		Pt	Pd	Rh	Au	4E	Cu	Ni	4E Me	tal
Zone	Tonnes	(g/t)	(g/t)	(g/t)	(g/t)	(g/t)	(%)	(%)	Kg	Moz
T Zone	3,963,694	1.02	1.84	0.04	0.73	3.63	0.13	0.07	14,404	0.463
F Central	17,411,606	0.94	2.18	0.05	0.14	3.31	0.07	0.18	57,738	1.856
F South	-	-	-	-	-	-	-	-	-	-
F North	16,637,670	0.85	2.03	0.05	0.16	3.09	0.10	0.20	51,378	1.652
F Boundary North	4,975,853	0.97	2.00	0.05	0.16	3.18	0.10	0.22	15,847	0.509
F Boundary South	5,294,116	1.04	2.32	0.05	0.18	3.59	0.08	0.19	19,020	0.611
F Zone Total	44,319,244	0.92	2.12	0.05	0.16	3.25	0.09	0.20	143,982	4.629
Waterberg Total	48,282,938	0.93	2.10	0.05	0.20	3.28	0.09	0.19	158,387	5.092

- 1. The estimated Mineral Reserves have an effective date of 04 September 2019.
- 2. A 2.5 g/t 4E stope cut-off grade was used for mine planning for the T Zone and the F Zone Mineral Reserves estimate. The cut-off grade considered April 2018 metal spot prices.
- 3. Tonnes and grade estimates include planned dilution, geological losses, external overbreak dilution, and mining losses.
- 4. 4E elements are platinum, palladium, rhodium and gold.
- 5. Numbers may not add due to rounding.
- 6. Based on 100% Project Basis

## Reserves

#### Probable Mineral Reserve Estimate

#### 2.5 g/t 4E Cut-Off

	Probable Mineral Reserve Estimate at 2.5 g/t 4E cut-off									
		Pt	Pd	Rh	Au	4E	Cu	Ni	4E Me	etal
Zone	Tonnes	(g/t)	(g/t)	(g/t)	(g/t)	(g/t)	(%)	(%)	Kg	Moz
T Zone	12 936 870	1.23	2.10	0.02	0.82	4.17	0.19	0.09	53,987	1.736
F Central	52 719 731	0.86	1.97	0.05	0.14	3.02	0.07	0.18	158,611	5.099
F South	15 653 961	1.06	2.03	0.05	0.15	3.29	0.04	0.13	51,411	1.653
F North	36 984 230	0.90	2.12	0.05	0.16	3.23	0.09	0.20	119,450	3.840
F Boundary North	13 312 581	0.98	1.91	0.05	0.17	3.11	0.10	0.23	41,369	1.330
F Boundary South	7 616 744	0.92	1.89	0.04	0.13	2.98	0.06	0.18	22,737	0.731
F Zone Total	126 287 248	0.91	2.01	0.05	0.15	3.12	80.0	0.18	393,578	12.654
Waterberg Total	139 224 118	0.94	2.02	0.05	0.21	3.22	0.09	0.18	447,564	14.390

- 1. The estimated Mineral Reserves have an effective date of 04 September 2019.
- 2. A 2.5 g/t 4E stope cut-off grade was used for mine planning for the T Zone and the F Zone Mineral Reserves estimate. The cut-off grade considered April 2018 metal spot prices.
- 3. Tonnes and grade estimates include planned dilution, geological losses, external overbreak dilution, and mining losses.
- 4. 4E elements are platinum, palladium, rhodium and gold.
- 5. Numbers may not add due to rounding.
- 6. Based on 100% Project Basis.

## Reserves

Proven & Probable Mineral Reserve

Estimate at 2.5 g/t 4E cut-off

	Total Estimated Mineral Reserve at 2.5 g/t 4E cut-off									
		Pt	Pd	Rh	Au	4E	Cu	Ni	4E M	etal
Zone	Tonnes	(g/t)	(g/t)	(g/t)	(g/t)	(g/t)	(%)	(%)	Kg	Moz
T Zone	16 900 564	1.18	2.04	0.03	0.80	4.05	0.18	0.09	68,391	2.199
F Central	70 131 337	0.88	2.02	0.05	0.14	3.09	0.07	0.18	216,349	6.956
F South	15 653 961	1.06	2.03	0.05	0.15	3.29	0.04	0.13	51,411	1.653
F North	53 621 900	0.88	2.09	0.05	0.16	3.18	0.10	0.20	170,828	5.492
F Boundary North	18 288 434	0.98	1.93	0.05	0.17	3.13	0.10	0.23	57,216	1.840
F Boundary South	12 910 859	0.97	2.06	0.05	0.15	3.23	0.07	0.19	41,756	1.342
F Zone Total	170 606 492	0.91	2.04	0.05	0.15	3.15	80.0	0.19	537,560	17.283
Waterberg Total	187 507 056	0.94	2.04	0.05	0.21	3.24	0.09	0.18	605,951	19.482

- 1. The estimated Mineral Reserves have an effective date of September 4, 2019.
- 2. A 2.5 g/t 4E stope cut-off grade was used for mine planning for the T Zone and the F Zone Mineral Reserves estimate. The cut-off grade considered April 2018 metal spot prices.
- 3. Tonnes and grade estimates include planned dilution, geological losses, external overbreak dilution, and mining losses.
- 4. 4E elements are platinum, palladium, rhodium and gold.
- 5. Numbers may not add due to rounding.

# Project Capital Breakdown

Cost Area	ZAR Total (ZAR million Real)	USD Total (US\$ million Real)
Underground Mining	6,097	406
Concentrator	2,580	172
Shared Services and Infrastructure	682	45
Regional Infrastructure	1,229	82
Site Support Services	234	16
Project Delivery Management	654	44
Other Capitalised Costs	331	22
Provisions	1,298	87
Total Project Capital (excl. Capitalised OpEx)	13,105	874
Capitalised Operating Costs	3,453	230
Total Project Capital (incl. Capitalised OpEx)	16,559	1,104
Peak Funding (Spot Prices)	9,255	617

- 1. Project Capital is defined as all required capital expenditure until the Project achieves 70% of planned steady-state production. This is projected to occur from January 2020 to December 2025.
- 2. A US\$/ZAR exchange rate of 15.00 is used in all cost conversions.
- 3. Post December 2025, the DFS estimates stay-in-business or sustaining capital for the LOM at US\$ 1.44 billion (ZAR 21.6 billion).
- 4. The DFS estimates peak funding at US\$ 617 million (ZAR 9.26 billion) at Spot Prices, and US\$ 667 million (ZAR 10.26 billion) at Three Year Trailing Prices. This includes all spend offset by revenue.

# Price Deck Assumptions

Parameter	Unit	Spot Prices (Sept 4, 2019)	Three Year Trailing Prices (Sept 4, 2019)
US\$ / ZAR (Long-term Real)	US\$/ZAR (Real July 2019)	15.00	15.95
Platinum	US\$/oz (Real July 2019)	980	931
Palladium	US\$/oz (Real July 2019)	1,546	1,055
Gold	US\$/oz (Real July 2019)	1,548	1,318
Rhodium	US\$/oz (Real July 2019)	5,036	1,930
Basket Price (4E)	US\$/oz (Real July 2019)	1,425	1,045
Copper	US\$/lb (Real July 2019)	2.56	2.87
Nickel	US\$/lb (Real July 2019)	8.10	5.56
Smelter Payability: 4E Metal	% Gross Sale Value	85%	85%
Smelter Payability: Copper	% Gross Sale Value	73%	73%
Smelter Payability: Nickel	% Gross Sale Value	68%	68%

# **Operating Costs**

On-Site Operating Cost Rates per Area in ZAR and USD

Area	Average LOM (ZAR/t milled)	Average LOM (US\$/t milled)	
Mining	345	23.01	
Milling & Processing	132	8.79	
Engineering & Infrastructure	116	7.76	
General & Admin	19	1.25	
Total OPEX Cost	612	40.80	

# Operating Costs

Total Cash Cost Rates in USD/4E Ounce

Cost Area	Spot Prices (US\$/4E oz Real)	3-Year Trailing Average Prices (US\$/4E oz Real)	
On-Site Costs	487	457	
Smelting, Refining and Transport Costs	302	457	
Royalties & Production Taxes	88	54	
less By-Product Credits	(236)	(184)	
Total Project Operating Costs	640	554	

# Sensitivity Analysis

NPV - Discount Rate

Metric	Discount Rate	Unit of Measure	Spot Prices	Three Year Trailing Prices
Net Present Value US\$ (Post-Tax)	Undiscounted	US\$ million	6,613	3,489
	4%	US\$ million	2,390	1,106
	6%	US\$ million	1,516	623
	8%	US\$ million	982	333
	10%	US\$ million	641	152
	12%	US\$ million	415	35
Net Present Value ZAR (Post-Tax)	Undiscounted	ZAR million	99,201	56,021
	4%	ZAR million	35,857	17,979
	6%	ZAR million	22,747	10,259
	8%	ZAR million	14,736	5,616
	10%	ZAR million	9,618	2,710
	12%	ZAR million	6,220	829

# Sensitivity Analysis

Scenario 1 (Spot Prices)

Parameters	Increase/ (Decrease)	NPV @ 8% (US\$ million)	NPV @ 8% (ZAR million)	IRR (% Real)	Payback Period <sup>(1)</sup> (years)
	(20%)	408	6,122	13.7	11.0
	(10%)	695	10,423	17.3	9.4
Metal Prices	-	982	14,736	20.7	8.4
	10%	1,272	19,079	23.9	7.8
	20%	1,564	23,458	27.0	7.4
4E Head Grade	(20%)	437	6,550	14.1	10.8
	(10%)	709	10,630	17.5	9.3
	-	982	14,736	20.7	8.4
	10%	1,257	18,857	23.7	7.8
	20%	1,533	22,991	26.6	7.5
Project CapEx	(20%)	1,141	17,114	26.4	7.4
	(10%)	1,062	15,925	23.3	7.8
	-	982	14,736	20.7	8.4
	10%	903	13,547	18.6	9.0
	20%	824	12,358	16.9	9.7
OpEx	(20%)	1,273	19,098	23.3	7.9
	(10%)	1,128	16,917	22.1	8.1
	-	982	14,736	20.7	8.4
	10%	837	12,555	19.3	8.7
	20%	692	10,374	17.8	9.1

NOTE: 1From the date of first construction.



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Thank you