# GENERATIONPGM

October and November 2020 - UPDATE

# MARATHON PALLADIUM PROJECT



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# **AGENDA**

- Who is Generation PGM Inc.
- Need for the Project
- Project Description
- Schedule
- Environmental Assessment Through a Joint Review Panel
- Future Together



# INTRODUCTION

- Generation PGM Inc. (GenPGM) is a subsidiary of Generation Mining Limited
- Experienced management team with backgrounds in building, development and operations
- With interests in platinum group metals (PGM), specifically the Marathon Palladium Project
- Most advanced palladium project in North America





#### **NEED FOR THE MARATHON PALLADIUM PROJECT**

#### **GENERATION PGM**

Palladium: Ontario's Supply Advantage

Palladium's market value has greatly appreciated due to its critical role in auto manufacturing and vehicle exhaust systems, where it helps transform poisonous gases into less toxic and harmful outputs

- Insufficient global palladium supply exists
- Canada's platinum-group metals (including palladium) are concentrated Northern Ontario
- Expanding palladium production could revitalize Northern Ontario's economy

Marathon Project represents a vital strategic asset for a competitive Ontario economy and instrumental in the transition towards renewable energy and green technologies

**Copper: Essential to Vital Technology** 

Copper is a key metal for many innovative technologies and a necessary component in the production of electric vehicles



**Electric Vehicles** 

A reliable supply of copper will be vital to the success of the recently announced upgrade to Ford's Oakville EV plant



**Telecomm** 



**Industrial Tech** 



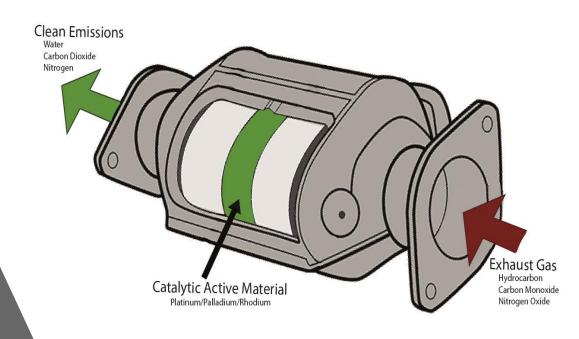
**LED lightbulbs** 



**Smart Grids** 

# PALLADIUM MARKET

- Palladium and Copper are considered "green metals"
- Palladium and Platinum are used in catalytic converters, which effectively clean exhaust gas into less hazardous substances such as carbon dioxide, water vapor, and nitrogen gas
- Copper used for plumbing, electrical wiring and significant use in batteries and continued electrification of the future
- Palladium, Platinum and Copper are also key components in computer hard drives, circuit boards and computer chips







#### **GENERATION PGM**

# PROJECT OVERVIEW



- The open pit ore will be processed (crushed, ground and concentrated) at an on-site processing facility.
- Final concentrates containing Palladium and Copper will be transported offsite via road and/or rail to a smelter and refinery for extraction and purification
- Site construction will take 18 to 24 months
- Construction workforce will require +900 workers with an average of approximately 450 to 500 people
- Production is estimated to begin late 2023
- Operating workforce estimated at +450 people
- The mine has been designed to ensure that the environment will be protected with specific attention to water and air

#### **Improved Water Management**

- Process Plant, primary crusher, truck shop, offices and fuel farm moved out of Pic River watershed
- Site access road realigned to cross fewer streams
- Storm Water Pond (SWP) added for risk management and protection of Pic River watershed
- SWP used to collect stormwater runoff and improve management of site water

#### **Reduce Greenhouse Gas and Understand the Carbon Footprint**

- Mine Operation design to minimize fuel usage with the location of the primary crusher
- Evaluating Trolley Assist (electrical assistance for haul trucks) for key haulage segments
- Power efficient equipment included in the Processing Plant design
- Evaluating CO<sub>2</sub> capture in construction concrete and possibly processed solids

#### Mine Rock Storage Area (MRSA)

- Includes storage of mine rock into pit(s)
- Similar footprint to past designs, less impact to sub-watersheds
- 85-90% of Mine Rock is Type 1 (not acid generating)
- Good quality waste rock can be used for aggregate business opportunity

# VALUE ADDED IMPROVEMENTS Cont.

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### **Process Solids Management Facility (PSMF)**

- We heard from communities → limited desire to have final discharge from PSMF to: Pic River,
   Bamoos Lake, Lake Superior and Angler Creek/Stream 6 as such... these have been <u>excluded</u>
- Hare Lake was selected as the preferred discharge location, based on feedback from communities
- Improved water management onsite and in PSMF
- +90% of water will be recycled in the process plant
- Excess water will be treated as required and discharged
- Discharge effluent will achieve required water quality objectives at end of pipe
- Discharge will be protective of fish and fish habitat

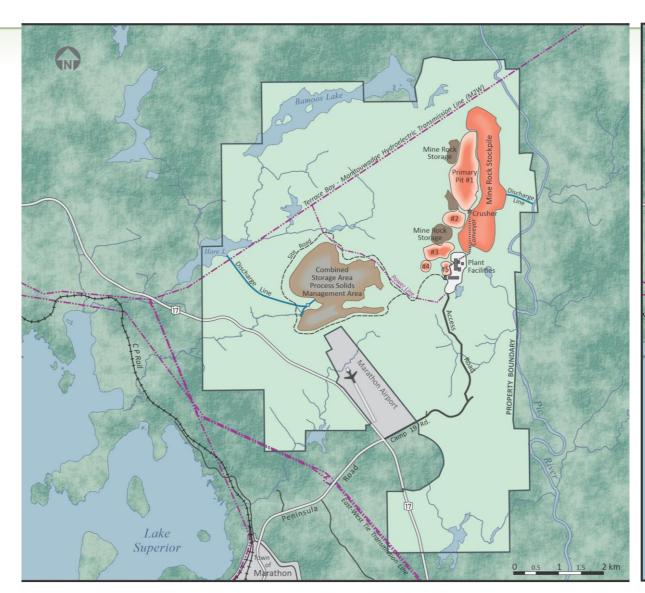


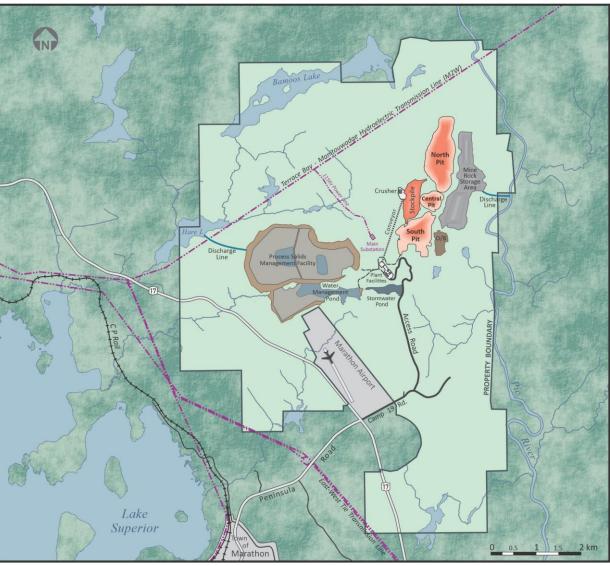


Topic	2014	2020	
Average Process Rate	22,000 tonnes per day	~25,200 tonnes per day	
Open Pit	One primary and four satellite pits	Three Pits: North, Central and South	
Mine Life	11.5 years	~12.6 years	
Process Solids Management Facility (PSMF)	Located west of open pits, final elevation to 375 m above sea level (asl)	Similar footprint west of pits, elevation 380 m asl	
Mine Rock Storage Area (MRSA)	East of open pits	Slightly smaller footprint, using mined-out pits for storage of mine rock	
Process Plant and Primary Crusher	Southeast of open pits	West of open pits, now centrally located away from Pic River	

# 2014 PROJECT VERSUS 2020 OPTIMIZED DESIGN

## **GENERATION PGM**





2014 Project Design 2020 Project Design

# PROJECT STATUS

 In September 2019, confirmed the Project would continue Environmental Assessment under Canadian Environmental Assessment Act (CEA Act 2012)

 A Preliminary Economic Assessment (PEA) was completed in January 2020 – the Project is Feasible.

 The Environmental Assessment (EA) for the Project was restarted in July 2020, picking up from the point at which it was paused in 2014

 Field studies conducted end of May to August: result of new regulatory requirements and to build on previous baseline studies

 Some studies carried on continuously since 2014: terrestrial, water quality and flows.

 The Joint Review Panel is being facilitated through the Harmonization Order, integrating both provincial and federal EA requirements.

 Submission of updated EA documents will be completed in a staggered submission before the Panel is appoint to give public and communities time to complete their review.



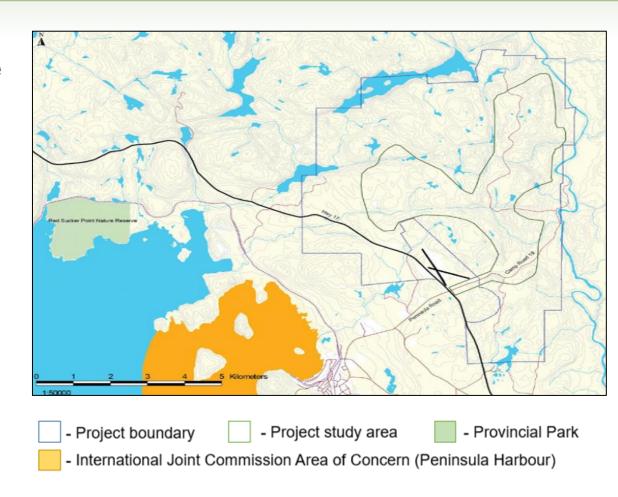
# MARATHON PALLADIUM PROJECT TIMELINE

	2019	2020	2021	2022	2023
Asset Acquisition					
Update Resource					
PEA Study					
Feasibility Study					
EA / Permitting / Social Approvals					
Construction					
Production					

<sup>\*</sup> Important note: Construction and production are subject to favorable results in the feasibility study, permitting and financing of the project.

## **ENVIRONMENTAL ASSESSMENT**

- The importance of this process is to consider the effects on ecosystem, and mitigate and/or eliminate any negative effects on the environment and communities
- Gen PGM is dedicated to protecting the Valued Ecosystem Components (VECs)
- Key elements include: management of water, protecting wildlife, vegetation, species at risk, and Indigenous and Community considerations
- Surveys conducted within the Project footprint to analyze possible effects
  - Birds, mammals, insects, plants
  - Groundwater and surface water
  - Air quality monitoring
  - Aquatic life



**FUTURE TOGETHER** 

- Gen PGM will continue to play an active role in supporting local community initiatives and services.
- The Project will bring economic benefits to local and regional communities and Indigenous communities along the north shore of Lake Superior, including:
  - Increased economic and business opportunities
  - Increased direct and indirect and induced employment during all phase of the Project
  - Increase labour incomes in local communities
  - Increased government revenues for all levels of government



#### **Local Jobs and Youth Retention**

350 - 400

Full time, permanent jobs generated, with most of these roles held by residents and community partners



3.75 Estimated employment multiplier.\* Every mining job created spurs nearly four downstream jobs in nearby industries



 Significant financial benefits, business and employment opportunities for Indigenous communities through agreements



Years in expected life of the palladium mine, sustaining jobs, retaining local youth, and spurring residual economic activity

The Marathon palladium mine will be a vital investment in the recovery of the Northern Ontario economy following the COVID-19 economic crisis.

This project will create good-paying jobs, while stimulating local industries and promoting the retention of local youth and talent.

# **GENERATIONPGM**

More Information on the Project can be found at <a href="https://iaac-aeic.gc.ca/050/evaluations/proj/54755?culture=en-CA">www.genmining.com</a> and the Impact Assessment Registry at <a href="https://iaac-aeic.gc.ca/050/evaluations/proj/54755?culture=en-CA">https://iaac-aeic.gc.ca/050/evaluations/proj/54755?culture=en-CA</a>

If you have additional questions, please email us at <a href="mailto:comments@genpgm.com">comments@genpgm.com</a>