

Generation Completes Optimization Work for the Marathon Project with Improved Mine Plan and Reduced Capex

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Highlights:

- Mine plan optimized with reduced strip ratio bringing additional 78k ounces of palladium, 34k ounces of Platinum and 2M lb of Copper in the first 3 years
- Estimated \$190M in additional payable revenues¹ and operating cost benefits by the end of year 3 of operations
- Initial Capital estimate reduced by \$89M despite industry-wide inflationary cost pressures
- Improved Project Economics with a 26% after-tax IRR and 2.1 year after-tax payback period¹

[Generation Mining Ltd.](#) (TSX:GENM, OTCQB: GENMF) ("Gen Mining" or the "Company") is pleased to provide an update on the project optimization work (the "Optimization Work") previously announced on June 6, 2024² on the Marathon Palladium-Copper Project (the "Marathon Project") in Northwestern Ontario. The Optimization Work focused on two key aspects: (1) optimization of the mine plan to maximize metal production and defer waste stripping in the early years of operations in order to improve early cash flows and reduce the payback period ("Mine Plan Optimization"); and (2) review and optimization of the plant design and layout, including sizing of key equipment, plant footprint and foundations, in order to reduce the initial Project capital costs ("Initial Capital Optimization").

Jamie Levy, President and CEO, commenting on the Optimization Work, remarks:

"The optimized mine plan is a notable improvement to the existing plan, with \$190 million in additional payable metal revenues¹ and savings from a reduced strip ratio during the initial 3-years of mine operations.

The other meaningful improvement to the project is the optimized plant design and ancillary changes recommended by Ausenco, which represent a net savings in total project capital costs of over \$89 million, after taking into account the impact of inflation on certain construction materials and equipment, and other design change escalations since the end of 2022.

This optimization work by Ausenco and our team represents a meaningful improvement to the financeability, constructability and economics of our project following several years of significant inflation in many input costs, and validates the continued robustness of the Marathon Project."

The Mine Plan Optimization was carried out by the Company and the Initial Capital Optimization was performed by the Company in collaboration with Ausenco Engineering Canada ULC ("Ausenco"). All amounts are reported in Canadian dollars unless otherwise noted herein.

Mine Plan Optimization

The Company evaluated alternative pit sequencing options that exploit the benefit of the ore body's proximity to surface. The results of this work demonstrated the viability of focussing on a higher grade, lower strip ratio for the initial phase of mining operations. This results in the deferral of approximately 36 million tonnes of waste stripping during the first three years of operations while increasing the amount of recovered and payable metals during this period.

Highlights of the Mine Plan Optimization are as follows:

	Units	Optimization Work	Technical Report ³	Variance
LOM Throughput				
	tpd	27,700	27,700	Nil
Peak Process Plant Throughput	Mt/year	10.1	10.1	Nil
	tpd	157,000	115,000	42,000
Peak Mining Rate	Mt/year	57	42	+15
Production Data (to end of Y3 of Operations, Incl. Pre-Production)				
Total Mined	Mt	97	132	(35)
Total Waste Mined	Mt	62	98	(36)
Total Ore Mined	Mt	35	34	+1
Strip Ratio	waste:ore	1.8	2.9	(1.1)
Payable Metal (to end of Y3 of Operations, Incl. Pre-Production)				
Palladium	k oz	669	591	+78
Copper	M lbs	139	137	+2
Platinum	k oz	143	112	+31
Gold	k oz	43	36	+7
Silver	k oz	512	477	+35

The deferral of 36 million tonnes of waste material and increasing payable metal production up to the end of the third year of operations, including the pre-production period, is estimated to result in \$190 million in additional revenues and cost savings during this period.

As a result of this new sequencing the peak mining tonnage will increase to 57 Mtpa. The costs associated with this stripping are included in the life of mine operating costs, capital costs and project economics, discussed below.

Initial Capital Optimization

The Company engaged Ausenco to perform a review of the Marathon Project's capital and operating costs, with a primary focus on the Processing Plant and ancillary infrastructure. This work benefitted from Ausenco's extensive experience in plant design and construction of copper concentrators, most recently at Capstone Copper's Mantoverde Mine in Chile, as well as their recent experience working in Northern Ontario at Alamos Gold's Magino Mine. The goal of the work was to improve the designs for Project constructability and to decrease initial capital costs as compared to the estimates disclosed in the Technical Report.

The optimization work included changes to the plant layout and footprint, adjustment of equipment selections to ensure key equipment is 'fit for purpose', and review of the foundation and structural designs to take advantage of favourable site geotechnical conditions and minimal overburden across the site.

Total initial capex is now expected to be \$961 million⁴ ("Initial Capital"), or a reduction of \$89 million from the amounts previously estimated in the Technical Report, and reflects updated costing for inflation since the effective date of the Technical Report. The key changes from the Optimization Work are summarized below:

Capital Costs	Impact \$M ^(a)	Explanation of Cost and Variance
Equipment and Building Layout	(71)	Reduced plant pad footprint (-22%) Reduced plant volume (-20%) Reduced concrete (-46%) Reduced Structural Steel (-30%) Improved Electrical layout and e-rooms
Equipment Sizing	(29)	Reduced mill sizing (SAG, Ball, Regrind) Reduced electrical redundancy
Equipment Deferrals	(35)	Pebble crusher and tailings thickener deferred to sustaining capital Reduced tailings thickener size
Market Escalation Impacts	+50	Inflation in construction labour rates Inflation in mechanical parts costs
Earthworks and Site Infrastructure	+6	Escalation on Earthworks Offset by optimization of site infrastructure
Mobile Equipment Leases ^(b)	+4	Escalation on mobile equipment costs
Project Indirects	(14)	Re-estimation of EPCM and some reallocation to direct costs
Total	(89)	Overall reduction as compared to Technical Report

Notes:

^(a) (negative) numbers represent a reduction from the Technical Report values.

^(b) Includes additional leasing deposits and payments during the construction and pre-production phase only.

As part of the initial capital cost review, the processing plant costs were estimated at a Class 3 AACE standard. In addition, the mining fleet was retendered to obtain current market pricing and the earthworks scope was partially retendered and adjusted for inflation.

Operating Costs

The Project operating costs have been updated and are reflected in the below table.

Unit Operating Costs (Average LOM)

	Units	Optimization Work	Technical Report
Mining	\$/t mined	3.43	3.25
	\$/t milled	12.32	11.45
Processing	\$/t milled	8.27	8.70
G&A	\$/t milled	2.53	2.67
Transport & Refining Charges	\$/t milled	4.22	4.13
Royalty	\$/t milled	0.10	0.09
Total Unit Operating Cost	\$/t milled	27.44	27.04

Project operating costs per tonne of ore milled have increased primarily as a result of changes in mining

costs, with an offset from reduced processing costs. Mining costs have been impacted by escalation in equipment maintenance parts (per manufacturer's guidance), updated fuel pricing, mining operating labour rates, and adjustment to truck cycle times under the optimized mining plan. Processing costs have been updated to reflect consumable pricing and labour cost estimates. Consumption rates for consumables are largely unchanged.

Capital Costs

The initial capital costs for construction and ramp-up, together with expected sustaining capital and closure costs, are presented in the table below:

Capital Area	Units	Optimization Work	Technical Report	Variance
Mining Equipment for Construction ^(a)	\$M	61	57 ^(b)	4
Processing Plant	\$M	280	345	(65)
Infrastructure	\$M	86	72	14
TSF, Water Management and Earthworks	\$M	80	95	(15)
EPCM, General and Owners Cost	\$M	210	228	(18)
Preproduction, Startup, Commissioning	\$M	153	157	(4)
Contingency	\$M	92	97	(5)
Initial Capital	\$M	961	1,050 ^(b)	(89)
Preproduction revenue ^(c)	\$M	(173)	(156)	(17)
Total	\$M	788	894	(106)
Sustaining Capital	\$M	502	424	78
Closure and Reclamation Costs	\$M	72	72	Nil

Notes:

^(a) Mining Equipment acquired for Construction is presented as the cost of equipment deposits and lease payments during the construction and pre-production period. The remainder of the equipment leasing costs are incurred during operations and are included in the financial analysis.

^(b) The Technical Report presented the capital costs for mining and surface equipment as \$117M, the initial capital sub-total as \$1,112M, and a \$58M Equipment Financing adjustment. For consistency of presentation, the net cost of leased mining equipment during the construction and pre-production period, including working capital adjustments, is presented above.

^(c) See Economic Analysis, below, for additional information on the different metal price assumptions used in the Optimization Work and the Technical Report.

Economic Analysis

In order to quantify and assess the value of the Optimization Work to the economics of the Marathon Project, the Company completed an economic analysis using the following key assumptions:

Key Assumptions ^(a)	Units	Optimization Work	Technical Report
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Palladium Price	US\$/oz	1,525	1,800
Copper Price	US\$/lb	4.00	3.70
Platinum Price	US\$/oz	950	1,000
Gold Price	US\$/oz	2,000	1,800
Silver Price	US\$/oz	24.00	22.50
Foreign Exchange	\$/US\$	1.35	1.35
Diesel Price	\$/litre	1.10	1.17
Electricity	\$/kWhr	0.07	0.07

Note:

(a) Metal price assumptions are based on the adjusted 3-year historical trailing averages as of November 1, 2024 for each of the metals. The 3-year averages are as follows: Palladium - US\$1,523/oz, Copper at US\$4.02/lb, Platinum at US\$964/oz, Gold at US\$1,995/oz and Silver at US\$24.02/oz.

The economic analysis of the Optimization Work is based on the same economic model used for the economic analysis in the Technical Report. The model inputs principally consist of metal production volumes and metal prices, unit operating costs, capital costs, sustaining capital expenditures, treatment charges ("TCs") and refining charges ("RCs"), royalty terms, closure and reclamation costs, and taxation rates. The economic analysis of the Optimization Work also includes the impact of the sale of gold and platinum metal under the Precious Metal Purchase Agreement with [Wheaton Precious Metals Corp.](#) ("PMPA"), excluding any delay ounces. Although current market TCs and RCs are lower, the TCs and RCs in the economic analysis are unchanged from the Technical Report. The economic analysis does not consider any potential economic benefits which the Marathon Project may qualify for under any government incentive programs for critical mineral production.

The following table presents the key outputs of the economic analysis for the Optimization Work, as compared to the economic analysis contained in the Technical Report, and the economic analysis contained in the technical report adjusted for the metal price assumptions used in the Optimization Work.

Financial Evaluation ^(a)	Units	Optimization Work	Technical Report (using Optimization Metal Prices)	Technical Report
Pre-Tax Cash Flow (undiscounted)	\$M	2,877	2,859	3,387
Pre-Tax NPV _{6%}	\$M	1,555	1,464	1,798
Pre-Tax IRR	%	32.8	22.2	31.9
Pre-Tax Payback	years	1.9	2.5	2
After-Tax Cash Flow (undiscounted)	\$M	1,923	1,929	2,285
After-Tax NPV _{6%}	\$M	998	935	1,164
After-Tax IRR	%	26.3	22.2	25.8
After-Tax Payback	years	2.1	2.9	2.3

Note:

(a) The economic analysis was carried out in real terms (i.e., without inflation factors) in Q4 2024 Canadian dollars, assuming no project construction financing but inclusive of mining equipment leasing.

Project Cash Flows

The table below highlights the estimated cumulative cash flows to the end of year 3 which result from the Mine Plan Optimization, the Initial Capital Optimization, and the Optimization Work on sustaining capital and operating cost estimates. This analysis is presented in comparison to the same analysis performed for (a) the Technical Report, and (b) the Technical Report using the same metal prices as the Optimization Work.

Cash flows from the project's start to the end of year 3 of operations are approximately \$247 million greater than the Technical Report cash flows and \$129 million greater by the end of year 5 at the same metal prices. These cumulative cash flows include the initial capital cost used to construct the project, including the impact of the PMPA, and therefore the positive cash flow results support the short payback period.

Financial Evaluation	Units	Optimization Work	Technical Report (adjusted for Optimization Metal Prices)	Technical Report
Cumulative After-Tax Cash Flow to End of Y3 \$M	232	(15.3)	91	
Cumulative After-Tax Cash Flow to End of Y5 \$M	470	341	523	

Sensitivities

The Project has significant leverage to palladium and copper prices. The after-tax valuation sensitivities for the key metrics are shown below.

Palladium Price US\$/oz 1,000 1,250 1,500 1,525 1,750 2,000

NPV6% (\$M) 394 682 969 998 1,257 1,543

Payback (yrs) 4.5 2.5 2.1 2.1 1.9 1.5

IRR (%) 14.8% 20.5% 25.8% 26.3% 30.7% 35.2%

Copper Price US\$/lb 3.00 3.50 4.00 4.50 5.00

NPV6% (\$M) 726 863 998 1,135 1,270

Payback (yrs) 2.4 2.2 2.1 2.0 1.9

IRR (%) 21.7% 24.1% 26.3% 28.5% 30.5%

After-Tax NPV 6% Palladium Price Sensitivity (US\$/oz)

Results 1,000 1,250 1,500 1,525 1,750 2,000

3 112 410 697 726 984 1,274

Copper Price Sensitivity (US\$/lb) 3.5 255 546 834 863 1,122 1,408

4 394 682 969 998 1,257 1,543

4.5 531 819 1,106 1,135 1,393 1,678

5 666 954 1,242 1,270 1,528 1,812

After-Tax Results OPEX Sensitivity

+30% +15% 0% -15% -30%

NPV 6% (\$M) 620 810 998 1,188 1,376

Payback (yrs)	2.4	2.2	2.1	1.9	1.9
IRR (%)	19.9%	23.2%	26.3%	29.2%	31.9%
CAPEX Sensitivity					
After-Tax Results	+30%	+15%	0%	-15%	-30%
NPV 6% (\$M)	779	889	998	1,109	1,218
Payback (yrs)	3.0	2.4	2.1	1.5	1.2
IRR (%)	18.2%	21.7%	26.3%	32.8%	42.8%

Further Opportunities and Next Steps

As part of the Optimization Work, Ausenco identified approximately \$75 million of further optimization opportunities that require additional analysis. The opportunities relate to additional layout optimizations, adjustments that would require additional processing and metallurgical testwork, and market re-tendering. Additional work will be required to validate some of the concepts and to determine if these opportunities can be realized.

The Company anticipates integrating the Optimization work into the Project designs and will continue to investigate additional construction efficiencies and opportunities, including working with contractors to incorporate new earthworks details and cost estimates.

The Optimized Mine Plan discussed herein does not result in any material change to mineral resource and reserve estimates. Future work will determine if any of the 2024 drilling (see July 31, 2024 press release)⁵ will be incorporated into an updated mineral resource estimate.

The Company is continuing to finalize the provincial construction permits and pursue project financing opportunities in order to bring the Marathon Project into production.

Footnotes:

¹ See "Economic Analysis" in this release for additional information on the metal price assumptions used in the Optimization Work and the Technical Report.

² See <https://genmining.com/news/2024/generation-mining-continues-with-project-optimizat-8979/>.

³ All references herein to the "Technical Report" refer to the Company's NI 43-101 technical report for the Marathon Project entitled, "Amended Feasibility Study Update Marathon Palladium & Copper Project Ontario, Canada" dated May 31, 2024 with an effective date of December 31, 2022.

⁴ Initial capital is the total project capital, inclusive of 10% deposits and lease payments for mobile equipment during the construction and pre-production phase. The balance of this mobile equipment cost is amortized during the operations phase.

⁵ See <https://genmining.com/news/2024/generation-mining-receives-key-approval-from-the-f-9207/>.

Qualified Person

The scientific and technical content of this news release was reviewed, verified, and approved by Drew Anwyll, P.Eng., M.Eng, Chief Operating Officer of the Company, and a Qualified Person as defined by Canadian Securities Administrators' National Instrument 43-101 - Standards of Disclosure for Mineral

Projects.

Forward-Looking Information

This news release contains certain forward-looking information and forward-looking statements, as defined in applicable securities laws (collectively referred to herein as "forward-looking statements"). Forward-looking statements reflect current expectations or beliefs regarding future events or the Company's future performance. All statements other than statements of historical fact are forward-looking statements. Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects", "is expected", "budget", "scheduled", "estimates", "continues", "forecasts", "projects", "predicts", "intends", "anticipates", "targets" or "believes", or variations of, or the negatives of, such words and phrases or state that certain actions, events or results "may", "could", "would", "should", "might" or "will" be taken, occur or be achieved, including statements relating to mine planning and pit designs; the timing and amount of estimated future revenues, the timing and volume of payable mineral production, the payback period, and financial returns from the Marathon Project.

Although the Company believes that the expectations expressed in such forward-looking statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in the statements. There are certain factors that could cause actual results to differ materially from those in the forward-looking information. These include the timing for a construction decision; the progress of development at the Marathon Project, including progress of project expenditures and contracting processes, the Company's plans and expectations with respect to liquidity management, continued availability of capital and financing, the future prices of palladium, copper and other commodities, permitting timelines, exchange rates and currency fluctuations, increases in costs, requirements for additional capital, and the Company's decisions with respect to capital allocation, and the impact of COVID-19, inflation, global supply chain disruptions, global conflicts, including the wars in Ukraine and Israel, the project schedule for the Marathon Project, key inputs, staffing and contractors, continued availability of capital and financing, uncertainties involved in interpreting geological data and the accuracy of mineral reserve and resource estimates, environmental compliance and changes in environmental legislation and regulation, the Company's relationships with Indigenous communities, results from planned exploration and drilling activities, local access conditions for drilling, and general economic, market or business conditions, as well as those risk factors set out in the Company's annual information form for the year ended December 31, 2023, and in the continuous disclosure documents filed by the Company on SEDAR+ at www.sedarplus.ca.

Readers are cautioned that the foregoing list of factors is not exhaustive of the factors that may affect forward-looking statements. Accordingly, readers should not place undue reliance on forward-looking statements. The forward-looking statements in this news release speak only as of the date of this news release or as of the date or dates specified in such statements. The Company disclaims any intention or obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, other than as required by law. For more information on the Company, investors are encouraged to review the Company's public filings on SEDAR+ at www.sedarplus.ca.

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Contact

For further information please contact:

Jamie Levy
President and Chief Executive Officer
(416) 640-2934 (O)
(416) 567-2440 (M)
jlevy@genmining.com

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