

# Giyani Announces K.Hill Project PEA with Base Case Post-Tax NPV(8%) of US\$983 million for a 57-Year Project Life and Upside Case NPV(8%) of US\$1.6 billion

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TORONTO, July 31, 2023 - [Giyani Metals Corp.](#) (TSXV:EMM, GR:A2DUU8) ("Giyani" or the "Company"), developer of the K.Hill battery-grade manganese project in Botswana ("K.Hill" or the "Project"), is pleased to announce a new Preliminary Economic Assessment ("PEA") for K.Hill following the release of the significantly increased Mineral Resource Estimate ("MRE"), announced on July 13, 2023.

The PEA has a base case scenario ("Base Case") considering a single production line to process K.Hill manganese oxide ("MnO") material on-site to produce high-purity manganese sulphate monohydrate ("HPMSM"), with feed capacity of 200,000 tonnes per annum ("tpa") over a 57-year life-of-project ("LOP"). An upside case scenario ("Upside Case") is also evaluated, assuming an additional production line from Year 5 of operations taking total feed capacity to 400,000 tpa.

The PEA was prepared by CSA Global South Africa, an ERM Group company ("CSA Global") in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101").

## Highlights

- Base Case post-tax net present value using an 8% discount rate ("NPV<sub>8%</sub>") of US\$983 million (C\$1.3 billion) and post-tax internal rate of return ("IRR") of 29.4%.
- Updated MRE allows for high-grade mine scheduling and an average plant feed grade of 19.1% MnO in the first 5 years of production, with an average grade of 17.3% for the first 25 years of production.
- Base Case LOP is 57 years with total production of 3.6 million tonnes ("Mt") of HPMSM.
- Upside Case post-tax NPV<sub>8%</sub> of US\$1.6 billion (C\$2.1 billion) and post-tax IRR of 33.5% over a 25-year LOP.
- Total initial capital expenditure of US\$284 million, with an additional US\$208 million of expansion capital required in Year 4 of the Upside Case.

Danny Keating, *President and CEO of the Company*, commented:

*"The recently updated MRE and PEA redefine K.Hill as an exceptionally high value, long-life project capable of supplying high quality, low carbon HPMSM to lithium-ion battery customers for more than 50 years."*

*"With the operating parameters of the process plant already defined, the PEA demonstrates the economic value of the larger project life offered by the updated MRE and potential upside scale of operations. These are material improvements and provide the solid basis to commence a new and optimized feasibility study ("Optimized Feasibility Study") to be completed in 2024, capturing all the learnings and results from the demonstration plant ("Demo Plant") and the results and feedback from off-taker analysis of the HPMSM production. We believe K.Hill has the capacity to move materially down the cost curve as we refine our operating and procurement strategy, including possible over-the-fence production of key reagents by third parties."*

*"In parallel with our activities on the PEA, we remain focused on our core objectives. The construction of the Demo Plant continues in Johannesburg, and we remain in regular contact with the Botswana Department of Environmental Affairs ("DEA") for approval of our Environmental Impact Statement ("EIS") submission, which is required for the Mining Licence application."*

*The PEA is an important step forward to demonstrate K.Hill's strategic importance to off-takers. It prepares a solid platform for commencing our Optimized Feasibility Study and reflects the Company's value potential to our shareholders and investors."*

## PEA Operational and Economic Highlights

The PEA has been prepared in accordance with NI 43-101 for the disclosure of material information to meet the requirements of a PEA level of study and disclosure as defined in the regulations and supporting reference documents. The effective date of the report is July 13, 2023.

A summary of the key parameters of the Base Case is presented below. Unless otherwise stated, all financial figures are quoted in US dollars.

Metrics	Units	Base Case		
Project Economics				
NPV at 8% discount rate	US\$M	983		
IRR	%	29.4%		
Cumulative cash flow, undiscounted	US\$M	5,257		
Project Production				
		Year 1-5	Year 1-25	LOP
Total mineralized material mined	Mt	2.3	5.8	11.1
Average plant throughput rate	ktpa	170	194	195
Average plant feed grade	% MnO	19.1%	17.3%	15.2%
Total HPMSM produced	kt	340	1,766	3,560
LOP	Years	57		
Net Pricing Assumptions				
Average realized HPMSM price (Yr 1 - 5)	US\$/t	3,553		
Average realized HPMSM price (Yr 6 onwards)	US\$/t	3,780		
Capital Expenditure				
Total initial capital expenditure (incl. contingency)	US\$M	284		
Total sustaining capital	US\$M	18	142	288
Project Cash Flows				
Total revenue	US\$M	1,215	6,621	13,388
Total operating costs (incl. royalty)	US\$M	576	2,914	6,489
Total EBITDA	US\$M	640	3,707	6,900

*Notes: See Project Summary*

An Upside Case for K. Hill has also been considered, with an additional production line from Year 5 of operations taking total feed capacity to 400,000 tpa. The Upside Case requires US\$208 million of additional capital for the expansion, part of which can be supported from Project free cash flow.

The result is an Upside Case post-tax NPV<sub>8%</sub> of US\$1.6 billion (C\$2.1 billion) and post-tax IRR of 33.5%.

The Base and Upside Cases reflect the optionality available to the Company to meet the long-term supply needs of lithium-ion battery off-takers as well as the ability to expand and maintain or grow market share as demand for HPMSM increases. With more stringent regulations in North America and Europe regarding sourcing of EV battery metals, Giyani's aim is to be the leading global supplier of non-China sourced HPMSM.

## Project Summary

K.Hill, which is 100% owned by Giyani's wholly owned Botswana subsidiary Menzi Battery Metals (Pty)

Limited ("Menzi"), has been assessed as an integrated mining and processing operation for the on-site production of HPMSM directly from manganese oxide material mined at K.Hill.

On July 13, 2023, the Company announced an updated MRE issued by CSA Global for the Project. The MRE reflected a 310% increase in Indicated Mineral Resources and a 97% increase in Inferred Mineral Resources. This significant increase offers the Company greater flexibility in its mine planning and grade scheduling to optimise the feed grade to the plant, as well as extending the operating life of the Project.

The K.Hill orebody will be extracted from an open-pit using conventional truck-and-shovel mining methods and the PEA assumes a contractor mining execution strategy. In order to optimise the feed to the plant, material mined will be managed through dedicated high/medium/low grade stockpiles, ensuring security of supply to the plant at the highest available grade.

The mining schedule in the PEA has focused on early extraction of high-grade material. The increased resources defined in the MRE offers greater operational flexibility for maintaining higher grade feed to the plant to generate strong early cashflows, while delivering a LOP that is significant for off-takers and customers.

The Base Case assumes a processing plant designed with a throughput capacity of 200,000 tpa and a two-year ramp-up schedule to meet the target recovery, reflecting the sophisticated nature of the K.Hill processing plant. The plant will produce HPMSM from K.Hill manganese oxide material using a hydrometallurgical process which does not require any carbon-intensive calcination or electrowinning. Under the Upside Case, a second 200,000 tpa production line will be constructed in Year 4 of the K.Hill operation and commissioned in Year 5.

CPM Group LLC ("CPM"), an independent research and consultancy company based in New York and specialist in analysis of the high-purity manganese market, was engaged in 2022 to complete a HPMSM products market outlook study. The PEA has used CPM's forecast HPMSM prices, realized at the Project's gate and net of transportation costs and applicable tariffs, with 50% of sales to the EU (Berlin) and 50% of sales to North America (Detroit). For the purposes of the PEA and valuation, a long-term average price of US\$3,780/t HPMSM has been used from 2030.

Metallurgical processing reagents and raw materials constitute the largest component of processing expenditure based on the plant design criteria and flowsheet to produce HPMSM. During 2021 and early 2022, Covid-19 related disruptions led to an unprecedented rise in international freight rates, which elevated prices for the procurement of reagents. These rates have continued to normalize since then towards pre-Covid levels and updated reagent and raw materials prices have been incorporated into the PEA to reflect international freight market conditions as of June 2023.

For the calculation of applicable local taxes, the PEA assumes a dual-taxation structure for Menzi, split between a mining company and a manufacturing company. The mining company will mine and sell manganese oxide material to the manufacturing operation and will be taxed according to the Botswana mining company tax formula (minimum of 22% on operating income with a maximum of 55%). A mining royalty of 3% will be applied to the revenue on the sale of the manganese material to the manufacturing operation. Income from the manufacturing company will be taxed at the Botswana manufacturing tax rate of 15%, assuming a manufacturing development order will be received from the Botswana authorities.

*The reader is advised that the PEA summarized in this press release is preliminary in nature and is intended to provide an initial, high-level review of the Project's economic potential and design options. The PEA replaces and supersedes the Company's previous 2022 Feasibility Study on the Project. The PEA mine plan and economic model includes numerous assumptions and the use of Inferred Resources. Inferred Resources are considered to be too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

## Project Execution and Optimized Feasibility Study

The release of the updated MRE and new PEA for K.Hill highlights the inherent value of the Project and the

importance of the continuing activities related to the development of the commercial Project. The Company is progressing with various critical workstreams to move the Project to a final investment decision ("FID"), namely:

- Construction and commissioning of the Demo Plant in Johannesburg, which will be capable of producing up to 600 kg per day of dry HPMSM crystals for shipment to off-takers for product qualification and contractual negotiation.
- Advancing discussions with the multiple Tier-1 off-takers who have expressed interest in bringing K.Hill into their battery raw material supply chains, a number of whom have already visited Giyani's facilities. These discussions will be enhanced by the increased LOP and potential scale of production, which are key requirements for the long-term outlook taken by off-takers.
- Finalization and approval of the EIS following comments received from the DEA, which will facilitate Environmental Authorisation of the Project and open the door to an application for a 25-year mining licence.
- Continuation of discussions with the Special Economic Zone Authority of Botswana with regards to establishing a Special Economic Zone around the K.Hill processing plant, which, among other benefits, establishes a corporation tax rate of 5% for the first 10 years of production and 10% thereafter. This regime has not been utilized within the PEA.
- Review of various optimization parameters including operating costs, specifically related to consumption of key reagents, where the Company is assessing options to reduce consumption of certain higher value reagents and/or localize sourcing (over-the-fence production) to limit transport costs and develop local business opportunities.

The results of some of these workstreams will be incorporated into an Optimized Feasibility Study based on the updated MRE for K.Hill, which will form the basis for a future FID. Work on the Optimized Feasibility Study is expected to commence in Q4 2023.

## Mineral Resources

The Mineral Resource Estimate complete by CSA Global is presented for ease of reference.

K.Hill CSA Global MRE Statement as of July 2023 (at a cut-off grade of 7.3% MnO)

Mineral Resource Classification	Tonnage (Mt)	Grade (% MnO)	Contained MnO (Mt)
Indicated	8.6	15.2	1.3
Inferred	6.1	14.1	0.9

### Notes to MRE:

- The Mineral Resource has been classified and reported under the guidelines defined by the Canadian Institute of Mining, Metallurgy and Petroleum in their document "CIM Definition Standards for Mineral Resources and Mineral Reserves" of May 2014.*
- Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.*
- Mineral Resources are stated as in situ dry tonnes; figures are reported in metric tonnes.*
- Figures have been rounded to the appropriate level of precision for the reporting of Mineral Resources.*
- Estimation has been completed within 6 different mineralization domains.*
- Mineral Resources are reported assuming open pit mining methods.*
- The Mineral Resource is reported within a conceptual pit shell determined using a price of US\$3,800/t HPMSM (equivalent to US\$9,054/t MnO), conceptual parameters and costs to support assumptions relating to reasonable prospects for eventual economic extraction.*
- The Mineral Resource is reported at a cut-off grade of 7.3% MnO.*
- The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. CSA Global is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other any other relevant factors affecting the MRE.*
- HPMSM price quoted is based on 2022 market data, which was available at the time of reporting the Mineral Resource. Additional pricing information will be available for input into subsequent technical studies, and this may impact on the Mineral Resource reported.*

## About Giyani

Giyani's mission is to become a sustainable, low-carbon producer of battery materials for the electric vehicle ("EV") industry. The Company has developed a hydrometallurgical process to produce high-purity manganese sulphate monohydrate, a lithium-ion battery cathode precursor material critical for EVs, directly from its manganese oxide deposits in Botswana, wholly owned by its Botswana subsidiary Menzi Battery Metals (Pty) Limited. The Company's assets include K.Hill and the Otse and Lobatse manganese prospects, each of which has seen historical mining activities.

Additional information and corporate documents may be found on [www.sedarplus.ca](http://www.sedarplus.ca) and on the [Giyani Metals Corp.](https://giyanimetals.com/) website at <https://giyanimetals.com/>.

#### Qualified Persons / NI 43-101 Disclosures

An NI 43-101 technical report including results of the PEA and the MRE will be filed within 45 days of the release by the Company dated July 13, 2023 first disclosing the MRE on SEDAR+ at [www.sedarplus.ca](http://www.sedarplus.ca) and made available on the Company's website at [www.giyanimetals.com](http://www.giyanimetals.com).

Mr. Howard Simpson BSc Eng (Hons), BCom, FAusIMM- CP Mining (membership number 326398), RPEQ, Mining Manager and Consulting Director at CSA Global is a qualified person as defined by National Instrument 43-101. Mr. Howard Simpson is responsible for the capital and operating cost as well as economic analysis estimates in this news release. Mr. Howard Simpson has reviewed and approved the scientific and technical content contained in this press release.

Mr. Anton Geldenhuys (MEng), a registered Professional Natural Scientist (SACNASP, membership number 400313/04) of CSA Global is a qualified person as defined by National Instrument 43-101. Mr. Anton Geldenhuys has reviewed and approved the scientific and technical content contained in this press release.

EUR ING Andrew Carter BSc, CEng, MIMMM, MSAIMM, SME Head of Mining UK & Ireland for Tetra Tech, is a QP under NI 43-101 and is responsible for the metallurgical test work results, process engineering, process operating costs and plant and infrastructure capital cost estimates in this news release. Mr. Andrew Carter has reviewed and approved the scientific and technical content contained in this press release.

Neither CSA Global, Tetra Tech nor the QPs of the PEA, has or have had previously any material interest in Giyani or the mineral properties in which Giyani has an interest. The relationship with Giyani is solely one of professional association between the client and the independent consultant. The PEA is prepared in return for professional fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of the PEA or the contents of this news release.

#### About CSA Global

CSA Global is a geological and mining consulting company that provides technical and expert services, training and independent corporate advice to public and private mining companies, and financial and legal group. CSA Global is an ERM Group Company that has been providing services to its clients across all mineral commodities and regions globally for over 35 years. Website: <https://www.csaglobal.com>

#### About Tetra Tech

Tetra Tech is a leading provider of high-end consulting and engineering services for projects globally. With 27,000 associates and 550 offices worldwide, Tetra Tech provides clear solutions to complex problems in water, environment, infrastructure, resource management, energy, and international development. For more information about Tetra Tech, please visit [www.tetrattech.com](http://www.tetrattech.com)

On behalf of the Board of Directors of [Giyani Metals Corp.](https://giyanimetals.com/)

Danny Keating, President and CEO

Contact:

Danny Keating  
President & Chief Executive Officer  
dkeating@giyanimetals.com

George Donne  
VP Business Development  
+44 7866 591 897  
gdonne@giyanimetals.com

*Neither the TSX Venture Exchange (the "TSXV") nor its Regulation Services Provider (as that term is defined in the policies of the TSXV) accepts responsibility for the adequacy or accuracy of this news release.*

Forward Looking Information

This press release contains "forward-looking information" within the meaning of applicable Canadian securities legislation including without limitation: (i) all of the results of the PEA; (ii) the construction and commissioning of the Demo Plant; (iii) discussions with Tier 1 off-takers and any subsequent off-take agreements; (iv) finalization and approval of the EIS; (v) establishment of a Special Economic Zone around the K.Hill processing plant; (vi) sourcing and consumption of reagents; (viii) a final investment decision on the Project; and (ix) the timing and completion of an Optimized Feasibility Study of the Project. All statements in this news release, other than statements of historical fact, that address events or developments that Giyani expects to occur, are "forward-looking statements". Forward-looking statements are statements that are not historical facts and are generally, but not always, identified by the words "expects", "does not expect", "plans", "anticipates", "does not anticipate", "believes", "intends", "estimates", "projects", "potential", "scheduled", "forecast", "budget" and similar expressions, or that events or conditions "will", "would", "may", "could", "should" or "might" occur.

All such forward-looking statements are based on the opinions and estimates of the relevant management as of the date such statements are made and are subject to certain assumptions, important risk factors and uncertainties, many of which are beyond Giyani's ability to control or predict. Forward-looking statements are necessarily based on estimates and assumptions that are inherently subject to known and unknown risks, uncertainties and other factors that may cause actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking statements. In the case of Giyani, these facts include their anticipated operations in future periods, planned exploration and development of its properties, and plans related to its business and other matters that may occur in the future. This information relates to analyses and other information that is based on expectations of future performance and planned work programs.

Forward-looking information is subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ from those expressed or implied by the forward-looking information, including, without limitation: inherent exploration hazards and risks; risks related to exploration and development of natural resource properties; uncertainty in Giyani's ability to obtain funding; commodity price fluctuations; recent market events and conditions; risks related to the uncertainty of mineral resource calculations and the inclusion of inferred mineral resources in economic estimation; risks in how the worldwide economic and social impact of COVID-19 is managed; risks related to governmental regulations; risks related to obtaining necessary licences and permits; risks related to their business being subject to environmental laws and regulations; risks related to their mineral properties being subject to prior unregistered agreements, transfers, or claims and other defects in title; risks relating to competition from larger companies with greater financial and technical resources; risks relating to the inability to meet financial obligations under agreements to which they are a party; ability to recruit and retain qualified personnel; and risks related to their directors and officers becoming associated with other natural resource companies which may give rise to conflicts of interests. This list is not exhaustive of the factors that may affect Giyani's forward-looking information. Should one or more of these risks and uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in the forward-looking information or statements.

Giyani's forward-looking information is based on the reasonable beliefs, expectations and opinions of their

respective management on the date the statements are made, and Giyani does not assume any obligation to update forward looking information if circumstances or management's beliefs, expectations or opinions change, except as required by law. For the reasons set forth above, investors should not place undue reliance on forward-looking information. For a complete discussion with respect to Giyani and risks associated with forward-looking information and forward-looking statements, please refer to Giyani's most recent Annual Information Form and Management Discussion and Analysis, all of which are filed on SEDAR+ as [www.sedarplus.ca](http://www.sedarplus.ca).

This release also contains references to estimates of mineral resources. The estimation of mineral resources is inherently uncertain and involves subjective judgments about many relevant factors. Mineral resources that are not mineral reserves do not have demonstrated economic viability. The accuracy of any such estimates is a function of the quantity and quality of available data, and of the assumptions made and judgments used in engineering and geological interpretation, which may prove to be unreliable and depend, to a certain extent, upon the analysis of drilling results and statistical inferences that may ultimately prove to be inaccurate. Mineral resource estimates may have to be re-estimated based on: (i) fluctuations in mineral prices; (ii) results of drilling, (iii) metallurgical testing and other studies; (iv) proposed mining operations, including dilution; (v) the evaluation of mine plans subsequent to the date of any estimates; and (vi) the possible failure to receive required permits, approvals and licences or changes to existing mining licences.

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