

Bauxite Hills Definitive Feasibility Study for 2Mtpa Production Scenario

Highlights

-  Strong and robust project economics in line with PFS
-  1.95Mtpa of DSO bauxite produced over a 25+ year mine life*
-  Modest CAPEX of A\$33.9 million with a capital payback period of 1.1 years
-  Annual EBITDA of A\$54.4 million and low OPEX (pre-royalties) of A\$22.49/t
-  Post tax NPV_{15%} of A\$235 million with IRR of 148%
-  Studies for optimised 4-5Mtpa operation underway

Metro Mining Limited (**Metro**) is pleased to announce that mining consultants MEC Mining have completed a Definitive Feasibility Study (**DFS**), to an accuracy of +/- 15% for Metro's 100% owned Bauxite Hills project located in Cape York, Queensland (**Bauxite Hills**).

The DFS considers a 1.95 million tonne per annum* (**Mtpa**) production scenario given Metro's strategy to develop Bauxite Hills under a streamlined environmental approval process by adopting a sub 2Mtpa production profile until the Queensland Department of Environment and Heritage Protections (**DEHP**) advised Metro that a full environmental process would be required for Bauxite Hills.

At the time of the DEHP's formal advice in late September 2015 the key components of the DFS were largely complete. As such, Metro decided to complete the DFS in order to confirm Bauxite Hills as a standout investment proposition and to assist current studies evaluating an optimised production profile of 4-5Mtpa.

The DFS considers a 25+ year mining operation producing 1.95Mtpa* of Direct Shipping Ore (DSO) quality bauxite in steady state. This production is based on mining all of the DSO resources at Bauxite Hills that were considered feasible as part of the DFS findings. A total of 53.6 million tonnes** (Mt) of resources exist across the BH1 and BH6 deposits.

The DFS confirmed that Bauxite Hills will have strong and robust project economics given modest CAPEX, low OPEX and an attractive LOM operating margin of A\$28.73/tonne. The DFS calculated a post-tax Net Present Value (**NPV**) of A\$235 million and Internal Rate of Return (**IRR**) of 148%.

**Metro confirms all material assumptions underpinning production target & corresponding financial information continue to apply & have not materially changed as per Listing Rule 5.19.2. **Refer 2 June 2015 ASX Release*

Metro CEO Simon Finnis said, "The completion of the Definitive Feasibility Study within 9 months of completing the Pre-Feasibility Study is an enormous achievement for the company and a testament to the project team and the quality of the asset. The DFS confirms Bauxite Hills as an attractive project that should deliver strong financial returns. Metro will now work towards obtaining all relevant regulatory approvals in order to move to a final investment decision for project development whilst also undertaking feasibility studies with respect to a larger mining operation."

Key Results and Assumptions

Result	Output
NPV (Real, after tax)	A\$235M
IRR	148%
Payback Period	1.1 years
Total LOM Revenue	A\$2.87B
LOM Average Annual EBITDA	A\$54.4M
LOM Average Annual NPAT	A\$37.3M
LOM Average Operating Margin	A\$28.73/t
LOM Average Operating Costs (ex-Royalties)	A\$22.49/t
LOM Total Operating Expenditure	A\$29.75/t

Assumption	Input
Annual Production Rate (Steady State)	1.95Mt*
LOM Production	49.1Mt
Mine Life	25.2 years
Bauxite Price (FOB)	US\$38.60 – 45.40/t
Exchange Rate (AUD/USD)	0.75
Discount Rate	15%
Pre-Mining Development Capital Expenditure	A\$33.9M
Deferred and Sustaining Capital Expenditure	A\$4.9M
Working Capital	A\$4.0M

Feasibility Studies for larger 4-5Mtpa Operation

In undertaking the DFS for the 1.95Mtpa* operation, Metro identified that Bauxite Hills had excellent potential and a resource base that could support a larger annual production rate. The potential benefits identified of a larger operation included:

-  Greater utilisation of deployed capital
-  Realisation of economies of scale
-  Stronger presence in the bauxite market, and
-  Potential offtake partners supportive

As part of its Environmental Impact Study (**EIS**) submissions, Metro will submit Terms of Reference for a 5Mtpa mining operation at Bauxite Hills. On the back of this submission, Metro has already commenced work on a Scoping Study for a 4-5Mtpa operation.

*Metro confirms all material assumptions underpinning production target & corresponding financial information continue to apply & have not materially changed as per Listing Rule 5.19.2.

Project Overview

Description

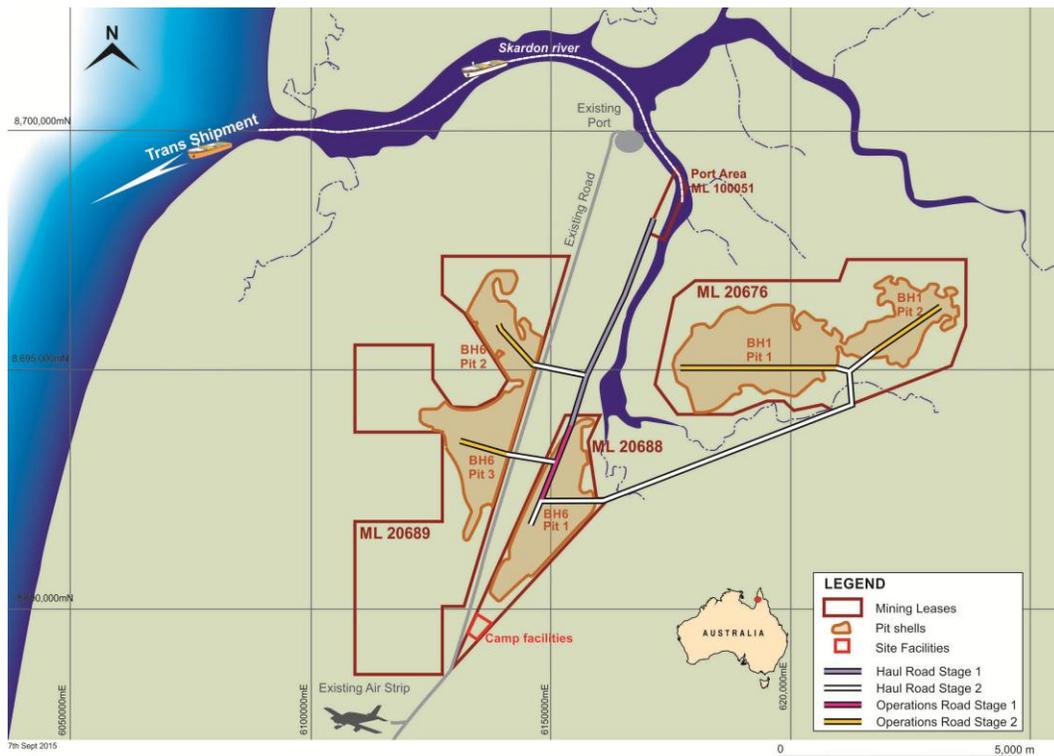
The Bauxite Hills Project is located approximately 95km north of Weipa on western Cape York in North Queensland. Western Cape York is world-renowned for its deposits of high-quality, export-grade bauxite. The Bauxite Hills Project consists of two bauxite plateaus (BH 1 and BH 6) situated next to the Skardon River.

The forecast quality and nature of the bauxite resources in BH1 and BH6 are suitable for export as Direct Shipping Ore (**DSO**). As a result, the DFS considers a simple mining operation as follows:

-  Free-dig mining of bauxite ore (no drill and blast required)
-  Screening of bauxite ore to a maximum size of 100mm
-  Transport of bauxite ore by haul trucks to Barge Loading Facility (**BLF**)
-  Transhipment of bauxite ore down the Skardon River by Tug and Barge fleet to awaiting international freight carrier ships

The simple mining operation allows for a low capital and low operating cost project and facilitates a quick start-up from the commencement of project development. In addition, the environmental footprint is minimised and the mining pits will be rehabilitated and those areas revegetated as mining progresses (with topsoil and overburden being replaced).

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Project Development & Timeline

Project Development Timeline

The figure below displays the development timeline envisaged under the DFS assuming all regulatory approvals are granted by late 2016 and project funding is obtained prior to the commencement of project development:

Event	Timeline
Preliminaries (recruitment, development pre-commitments operating systems)	November 2016 – February 2017
BLF Construction	February 2017 – August 2017
Mobilisation to site	April 2017
Roads	April 2017 – August 2017
Site infrastructure	April 2017 – August 2017
Commence Mining	September 2017

Development Works

Project development is expected to take 7 months and involves the following:

-  Preliminary works and subsequent construction of BLF at designated location
-  Installation of navigational aids and cyclone moorings for Tug and Barge fleet
-  Construction of haul roads connecting BH1 deposit to BH6 deposit and BH6 deposit to the BLF
-  Construction of other site infrastructure including camp, communications and fuel storage
-  Mobilisation of all required mining and ancillary equipment
-  Pre-strip of initial mining areas

Reserves and Resources

The mine plan compiled as part of the DFS was based on the JORC reserves and resources at the BH1 and BH6 deposits. These are detailed in the table below:

Area	Category	DSO ² Tonnes (Mt) ¹	DSO Bauxite Qualities (Dry Basis)			
			Total Al ₂ O ₃ (%)	THA ³ (%)	Total SiO ₂ (%)	RxSi ⁴ (%)
BH1 & BH6	Measured Resource (Dry <i>In-situ</i>)	41.8	51.0	39.2	11.0	6.1
BH1 & BH6	Indicated Resource (Dry <i>In-situ</i>)	8.3	49.3	37.1	14.0	6.8
BH1 & BH6	Inferred Resource (Dry <i>In-situ</i>)	3.4	48.4	35.9	14.8	7.2
TOTAL RESOURCE		53.6	11.68	50.6	11.7	6.3
BH1 & BH6	Proved Reserve ⁵ (ROM @ 10% Moisture)	41.8	50.7	38.6	10.9	6.3
BH1 & BH6	Probable Reserve ⁶ (ROM @ 10% Moisture)	6.4	49.3	36.8	13.4	6.9
TOTAL MARKETABLE ORE RESERVES		48.2	50.2	38.4	11.2	6.4

¹ For BH1 & BH6 the tonnages are calculated using the following default bulk densities determined from a program of sonic drilling; 1.6g/cm³ for BH1 and 2g/cm³ for BH6. Actual values are used where measurements have been taken ² DSO or "Direct shipping ore" is defined as bauxite that can be exported directly with minimal processing and beneficiation. ³ THA is trihydrate available alumina (gibbsite alumina + kaolinite alumina – low temperature desilication product (DSP) alumina) at 150°C. ⁴ RxSi is reactive silica at 150°C. ⁵ Proved Reserve - the probable reserve is included in the BH1 & BH6 Measured Resource ⁶ Probable Reserve - the Probable Reserve is included in the BH1 & BH6 Indicated Resource. For further information on MMI's JORC reserve & resources at the Bauxite Hills project, please refer to prior ASX Releases.

Mine and Haulage

Mining Operation

Mining will be a day-shift only operation mining 1.95Mtpa* (at steady state) of bauxite ore over an 8 month/annum operating window. Initially, topsoil and vegetation will be removed by clear and grub activities. Dozers will then be used to remove overburden, which will be stockpiled for rehabilitation purposes. The average overburden thickness across the BH1 and BH6 deposits is only 0.5 metres, resulting in a very low strip ratio of 1:9.

The removal of the overburden exposes the bauxite DSO ore, which is free-dig in nature meaning no drill or blast is required. Front end loaders will be used to mine the bauxite and load directly into mobile in-pit screens.

Screening of the bauxite ore will be to a maximum size of 100mm, resulting in a product suitable for export. Any oversize material will be collected, stockpiled and campaign crushed when appropriate.



Grade Control

To ensure appropriate grade control measures are taken, a geological team will work ahead of the mine plan to survey and assay the next section of the deposit to be mined. This will ensure greater understanding of the ore body and mining horizons.

In addition, a gamma ray on-belt analyser will be fitted to the screening plant and to the BLF to provide early delivery of product grades and ensure that customers receive the proposed specifications. This will allow Metro Mining to gain an immediate understanding of each area of the ore body mined for reconciliation to the resource model.

Haulage

Screened bauxite ore will be loaded into triple road trains capable of a 150 tonne payload for haulage to stockpiles at the BLF. The average haul distance from BH6 to the BLF is 7.1km and from BH1 to the BLF is 16.4km. Bauxite ore will be hauled to product stockpiles located adjacent to the BLF.

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Transshipment Operation

Barge Loading Facility

The BLF has been designed and will be constructed to achieve a minimum operating capacity of 1,250tph. The BLF will be operated on a 24 hour basis during the 8 month/annum operating window and is situated adjacent to the product stockpile area. Two front end loaders will load bauxite ore from the stockpiles onto the BLF. Bauxite ore will then be conveyed onto awaiting barges.

Tug and Barge Operations

Metro will use a transshipment fleet consisting of the following:

-  2 towing tugs
-  2 support tugs
-  4 dumb barges with approximately ~3,500t capacity

Barges will be loaded and towed down the Skardon River approximately 16 nautical miles to an anchorage site, which lies just beyond the river mouth, to meet an awaiting freight carrier ship. Cranes on the ship will then be used to load bauxite ore from the barges into its hulls, ready for delivery into export markets. It is envisaged that Metro will charter and load Supramax size vessels with a capacity of 50,000 to 60,000 tonnes. Tug and Barge operations will run for an 8 month period during the dry season.

A detailed assessment of the river and bathymetric survey results has been undertaken as part of the DFS. On the back of this work, Metro is confident that transshipment activities are possible without the need for any dredging or bed levelling of the Skardon River and a safe path can be navigated by the tug and barge fleet.



Capital and Operating Expenditure

Capital Expenditure

Capital expenditure estimates have been undertaken to an accuracy of $\pm 15\%$ and are supported by detailed design engineering and direct industry quotes. As part of the DFS, varying levels of contingency have been assessed at each item reflecting the level of confidence achieved in each of the estimates. The table below details total development capital expenditure:

Item	Amount (including contingency)
Haul roads and site establishment	A\$3.17M
Navigational aids and cyclone moorings	A\$1.05M
Site Infrastructure including BLF and accommodation camp	A\$24.28M
Mining and ancillary equipment	A\$2.91M
Mobilisation, insurances and EPC design	A\$2.49M
Total	A\$33.9M

Operating Expenditure

Operating expenditure estimates have been undertaken to an accuracy of $\pm 15\%$ and are supported by first principles engineering estimates and direct industry quotes. The table below details total development operating expenditure:

Item	Amount
Mining, haulage and operation of BLF	A\$7.09/t
Transshipment activities	A\$9.17/t
Site and administrative costs	A\$6.24/t
Total Operating Costs (ex-royalties)	A\$22.49/t
Royalties and other costs	A\$7.26/t
Total Operating Expenditure	A\$29.75/t



Bauxite Market Overview

Bauxite Overview

Bauxite is the main raw material used in the commercial production of alumina (Al₂O₃) and subsequently aluminium metal. Bauxite is a heterogeneous, naturally occurring material of varying composition that is relatively rich in aluminium.

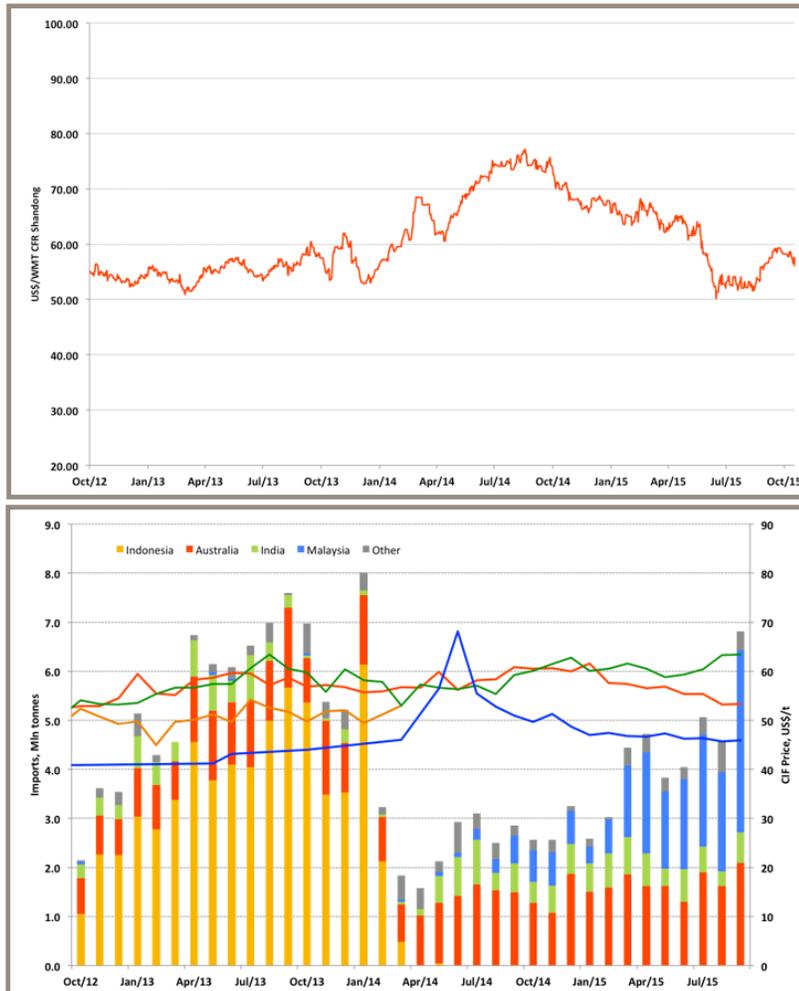
To produce aluminium, bauxite is crushed and purified through the Bayer process. This is a heavily energy intensive process and is therefore most economically carried out in regions where energy costs are the lowest.

Supply and Demand Factors

In the past decade, there has been a transformation of the global third party bauxite market, brought about by the emergence of Chinese merchant alumina refining capacity treating imported bauxite. The majority of these refineries were configured to process 'low temperature' Indonesian bauxite. However with the change in legislation in Indonesia banning raw materials exports, Chinese merchant refineries have been forced to look for other supply sources.

The Indonesian ban on exports pushed imported bauxite prices into China to record highs. However, since these peaks, the emergence of low cost Malaysian bauxite has seen a reduction in these imported bauxite prices.

Since the Indonesian bans on exportation of raw material, the major Chinese merchant refineries have been working to develop new global bauxite sources in Fiji, Australia, Guinea, Malaysia and other countries.



Bauxite Market Overview (Cont'd)

This strategy has been implemented to diversify the supply base and avoid the potential replication of the concentrated supply base that is prominent in the iron ore sector.

Despite concerns over the Chinese economy, the demand for aluminium is forecast to remain strong with much of the industry forecasting 5 -8 % growth over the decade ahead. The demand for imported bauxite is expected to remain strong due to a number of factors:

-  Growth in the demand for aluminium
-  Existing demand from merchant refineries
-  Depleting reserves and grades for domestic producers forcing domestic supply to be replaced by imported supply.

Bauxite Hills DSO Product Marketability

As part of the DFS, Metro commissioned bauxite commodity price expert CM Group to undertake a marketing study into the global bauxite market. CM Group has undertaken a detailed examination of supply and demand drivers to provide a price forecast for bauxite. CM Group uses a baseline CBIX "value in use" CFR reference price for a standard gibbsitic bauxite which is 5% reactive silica, 10% moisture and 50% reactive alumina. This product specification reflects the market conditions for bauxite imports into China. This product specification is used as a benchmark for pricing bauxite from various mines throughout the world.

Metro provided CM Group with a baseline product specification which would be typical of bauxite produced at Bauxite Hills. CM Group's assessment of the Bauxite Hills DSO product considers it to be of high total silica relative to levels of reactive silica. This makes the product suitable for Low Temperature Chinese Refineries. Based on CM Group's research, over 80% of Chinese merchant refinery capacity is for low temperature and there are 9 potential Chinese customers available to Metro. Metro is in contact with several groups who are interested in long-term off take agreements.

CM Group assessed the Bauxite Hills product to be a quality direct shipping ore and is forecast to achieve robust prices and be competitive in the market place.

CM Group Bauxite Hills Price Forecast

Based on its analysis of industry dynamics and the product specification detailed above, CM Group has forecasted the Bauxite Hills project to achieve the following pricing for its product:

US\$/t FOB	2017	2018	2019	2020	2021	2022	2023	2024	2025
Base Case	45.30	45.40	38.60	42.40	42.40	42.40	44.40	44.40	44.40
Upside	68.70	60.0	48.10	48.10	50.20	52.00	48.10	50.20	50.20
Downside	29.80	27.40	25.30	25.30	25.30	25.30	25.30	25.30	25.30

This price forecast is based on a baseline product specification. Varying reactive silica and available alumina levels will increase or decrease the forecast prices:

-  **Price increase:** higher available alumina / lower reactive silica
-  **Price decrease:** lower available alumina / higher reactive silica

Financial Results

Key Financial Result	Output
NPV (Real, after tax)	A\$235M
IRR	148%
Payback Period	1.1 years
Total LOM Revenue	A\$2.87B
LOM Average Annual EBITDA	A\$54.4M
LOM Average Annual NPAT	A\$37.3M
LOM Average Operating Margin	A\$28.73/t
LOM Average Operating Costs (ex-Royalties)	A\$22.49/t
LOM Total Operating Expenditure	A\$29.75/t

Key Financial Assumptions	Input
Annual Production Rate (Steady State)	1.95Mt*
LOM Production	49.1Mt
Mine Life	25.2 years
Bauxite Price (FOB)	US\$38.60 – 45.40/t
Exchange Rate (AUD/USD)	0.75
Discount Rate	15%
Pre-Mining Development Capital Expenditure	A\$33.9M
Deferred and Sustaining Capital Expenditure	A\$4.9M
Working Capital	A\$4.0M

Note: Both NPV and IRR have been calculated as at the time mine development first commences

Sensitivity Analysis As part of the DFS, a sensitivity analysis was undertaken on key assumptions.

Bauxite Price	CM Group Downside Price	CM Group Upside Price
NPV	A\$59M	A\$321M

Exchange Rate	0.637	0.675	0.712	0.787	0.825	0.862
NPV	A\$317M	A\$286M	A\$259M	A\$213M	A\$193M	A\$175M

Capital Expenditure	-15%	-10%	-5%	+5%	+10%	+15%
NPV	A\$240M	A\$238M	A\$237M	A\$233M	A\$232M	A\$230M

Operating Expenditure (ex-royalties)	-15%	-10%	-5%	+5%	+10%	+15%
NPV	A\$275M	A\$262M	A\$248M	A\$222M	A\$208M	A\$195M



ASX : MMI

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Technical information about the Bauxite Hills Project. The information in this report that relates to Exploration Results is based on information compiled by Neil McLean who is a consultant to Metro Mining and a Fellow of the Australasian Institute of Mining and Metallurgy (F.AusIMM). Mr McLean has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr McLean consents to the inclusion in the report of the matters based on information in the form and context in which it appears. The information in this report that relates to Mining and Reserves is based on information compiled by MEC Mining and reviewed by Maria Joyce, a Competent Person who is a Chartered Engineer of the Australasian Institute of Mining and Metallurgy. The information in this report to which this statement is attached that relates to the "Metro Mining – Bauxite Hills" Reserve Estimate based on information compiled by Maria Joyce, a consultant to Metro Mining and a Competent Person who is a Chartered Engineer of the Australasian Institute of Mining and Metallurgy. Maria Joyce is the head of the Technical Services division and full-time employee of MEC Mining Pty Ltd. Maria Joyce has sufficient experience that is relevant to the style of mineralization, type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Maria Joyce consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.