



ASX RELEASE
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STRONG PRE-FEASIBILITY STUDY SUPPORTS 1.5 MTPA URQUHART BAUXITE DEVELOPMENT

HIGHLIGHTS

- **Independent Pre-Feasibility Study (PFS) supports development of the Urquhart Bauxite project**
- **PFS estimates pre-tax project NPV₁₀ of A\$78.4m on sales of 6.5 Mt of Urquhart Bauxite's Proved and Probable Reserves**
- **Start-up capital limited to working capital requirements of ~\$1.1 M for all cases**
- **Strong cash margins of +A\$12/t on the Base Case from mining Proved and Probable Reserves in Area A**
- **Potential to increase pre-tax NPV₁₀ to A\$86.9m via additional options of mining of Inferred bauxite inventory and screening stockpiled transitional lower grade material**
- **Highest margin bauxite in Area A slated for first production in Q2 2017**
- **Target production rate of 1.5 million tonnes per annum (mtpa) by 2019**

Brisbane bauxite developer, Metallica Minerals Limited (Metallica) ([ASX:MLM](#)), is pleased to announce the results of the recently completed Pre-Feasibility Study (PFS) for the Company's 50%-owned Urquhart Bauxite project (UBx), five kilometres southwest of Weipa on Queensland's Cape York and slated for first production and DSB shipment by mid next year.

Based on forecast AUD-USD exchange rates starting at A\$0.75 for calendar 2017, the PFS Base Case points to a potential revenue stream nearing A\$300 million across 5.5 years of production, delivering a total operating margin (allowing for all costs including royalties) of around A\$12 per tonne with payback of just five months.



The PFS was independently prepared by Brisbane-based international consultancy, IMC Mining Pty Ltd (IMC), which also completed Urquhart Bauxite's recently upgraded JORC (2012) resources estimate (see ASX Release 14 November 2016). London based independent metals analyst, CRU International estimated the Free On Board (FOB) USD price of bauxite received utilising the Life of Mine (LOM) schedule produced by IMC.

The results of the PFS are summarised in Table 1 below.

Item	Unit	Scenario 1 (Base Case)	Scenario 2	Scenario 3
		<i>Mining Proved & Probable Reserves in Area A</i>	<i>Additional mining of Inferred resource in both Area A and Area B</i>	<i>At end of mine life, screening transitional stockpiled material</i>
Total Saleable Product	dry kt	6,532	8,672	10,296
Total Al₂O₃	%	52.7	51.6	51.2
Total SiO₂	%	13.3	14.7	15.4
AAI*	%	40.6	39.1	38.1
RSi**	%	5.7	6.1	6.1
Total Revenue	A\$m	295.5	364.5	416.9
EBITDA	A\$m	81.8	82.6	90.8
NPV₁₀ Pre Tax	A\$m	78.4	78.9	86.9
NPV₁₀ Post Tax	A\$m	53.9	54.2	59.9
LOM Capital	A\$m	2.7	3.0	3.1
Avg FOB Cost***	A\$ tonne	32.72	32.51	31.67
Avg FOB Received	A\$ tonne	45.24	42.03	40.49
Payback	months	5	5	5

* AAI – Available Alumina @ 150°C

** RSi – Reactive Silica @ 150°C

*** Includes all operating costs, royalties and other payments

Table 1 – Summary of 2016 PFS Results-Urquhart Bauxite Project



Each member of the Cape York HMS & Bauxite Project Joint Venture (JV) is responsible for their portion of mine start-up costs. Metallica is currently in discussions with various parties to deliver its portion of the capital and ensure the Company has adequate funds to develop the project. At this stage negotiations remain incomplete, however due to the very low capital nature of the project the Company remains confident of securing funding.

As of 30 June 2016, Metallica has accumulated tax losses of A\$17.6 million that are also capable of being offset against income earned from Urquhart Bauxite.

The JV has commenced discussions with potential off-take partners and is in the process of delivering samples for customer verification prior to more undertaking more detailed off-take negotiations. It is envisaged that off-take will be secured prior to commencing development in Q2 2017.

Metallica CEO, Mr Simon Slesarewich:

"We were confident that the PFS for Urquhart Bauxite would show the attractiveness of the project and justify progressing development plans in parallel with the PFS. Utilising contractors to deliver the mining as well as the nearby and operational Hey Point barge loading and transshipping facility delivers a nimble and low capital development with targeted production starting from Q2 2017, will deliver direct shipping bauxite into a tightening market, thereby maximising returns for our shareholders."

URQUHART BAUXITE RESERVES AND RESOURCES

The Urquhart Bauxite project is situated approximately 5km southwest of Weipa on Queensland's Western Cape York Peninsula. Western Cape York is world-renowned for its extensive deposits of high-quality, export grade pisolitic bauxite.

The maiden Inferred Mineral Resource was announced on 11 May 2015, precipitating a subsequent favourable mine planning internal assessment. Infill drilling of the main resource in August 2016 upgraded the Inferred Mineral Resource classification to a Measured and Indicated Resource (*see ASX Release 14 November 2016*).

The project's Weipa-type pisolitic bauxite is of high quality export grade with high alumina content (>50% Al₂O₃) that is well known and accepted by Chinese and other alumina refineries.

UBx consists of two (2) bauxite plateaus, known as Area A and Area B; both of which are wholly contained within EPM15268, held 50% by Oresome Australia Pty Ltd (a wholly-owned subsidiary of



Metallica) and 50% by Ozore Resources Pty Ltd. The completion of the PFS allows for a maiden JORC (2012) Reserves Statement (see Table 2) contained within Mining Lease Application (MLA) 100044.

	Area	Direct Shipping Bauxite (Low Temp) <i>Dry kt</i>	Al ₂ O ₃ %	SiO ₂ %	THA %	Low Temp RSi %
Proved	A	2,964	53.7	12.3	42.3	5.4
Probable	A	3,568	51.9	14.2	39.1	5.9
Ore Reserve	A	6,532	52.7	13.3	40.6	5.7

Table 2 - Urquhart Bauxite project Reserves

The Proved and Probable Reserves (Base Case), wholly contained in Area A, delivers attractive returns. The PFS has identified that if Inferred material in both Area A and B is mined (Production Target) then the mine life increases by a further 1.5 years (Scenario 2). Further upside is derived by stockpiling transitional material that is dry screened at the end of the mine life (Scenario 3). Both Scenarios 2 and 3 have a lower confidence level than the Base Case as there is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised, and further investigation is required to increase the confidence in this material. The PFS allows for capital to undertake these investigations.

A summary of the key assumptions used in including the Inferred Mineral Resource in Scenarios 2 and 3 are:

- The Urquhart Bauxite Project has a successful history of converting Inferred Resources into Indicated Resources.
- The mining is sequenced in such a way that the Proved and Probable Ore Reserves form the majority of production for the initial years of operation, whilst the scheduled material sourced from Inferred Resources (which together with the Ore Reserves makes up the Production Target for scenario 2 and scenario 3) is at the end of the mine operations.
- The modified Inferred Mineral Resources and screened material included in the Production Target are not a determining factor in the project viability but should be considered as upside.



- IMC are of the opinion that it is reasonable to include the modified Inferred Resources in the Production Target as the Bauxite deposits in the area are well understood, are relatively continuous and the extents of the deposit have been well defined by drilling. thus far
- The re-classification of zones of Inferred Resource to Measured and Indicated Mineral Resources at Area B primarily requires more drilling and quality test work which will be funded out of operating cash flow whilst mining is underway in the Proven and Probable Ore Reserves at Area A.
- IMC are of the opinion that it is reasonable to include screened product as a Production Target at the end of the mining operations. A nearby operation successfully screens bauxite and wet screen test work has been carried out on the Urquhart material. A conservative approach has been taken with the assumptions regarding screening.
- The Inferred Mineral resources do not feature as a significant proportion of the mine plan in the early stages of operations, and represent only around 25% of the total scheduled material.
- The screened product does not feature as a proportion of the mine plan in the early stages of operations.
- The modifying factors applied to develop the Ore Reserves and Production Targets are appropriate for a Pre-Feasibility level study.



	Area	Direct Shipping Bauxite (Low Temp)	Al ₂ O ₃	SiO ₂	THA	Low Temp RSi
		<i>Dry kt</i>	%	%	%	%
Proved	A	2,964	53.7	12.3	42.3	5.4
Probable	A	3,568	51.9	14.2	39.1	5.9
Sub Total – Ore Reserve	A	6,532	52.7	13.3	40.6	5.7
Other	A	134	51.8	13.2	37.2	6.0
Total Production Target Area A - Excluding Screening	A	6,666	52.7	13.3	40.5	5.7
Other	B	2,007	47.9	19.0	34.6	7.3
Sub Total - Production Target Excluding Screening	A+B	8,672	51.6	14.7	39.1	6.1
Other – Screened Product	A+B	1,624	48.9	19.3	32.3	6.1
Total Production Target with Screened Product	A+B	10,296	51.2	15.4	38.1	6.1

Table 3 - Urquhart bauxite project Reserves with Production Target and Screened Product

DEVELOPMENT STRATEGY

The Cape York Bauxite and HMS Project Joint Venture (JV) plans to develop UBx via a contractor model so as to minimise mine start-up capital and maximise returns. The JV will have minimal staff on site to manage contractors and the shipping of Direct Shipping Bauxite (DSB) to customers.

The JV is in the process of negotiating a mining and haulage contract with an appropriately qualified contractor. The chosen contractor will provide labour, machinery, management and technical support to operate the UBx mine and deliver consistent bauxite product to Hey Point, with responsibility for mine planning, clearing and stockpiling of topsoil, removal of overburden, mining and trucking of bauxite, and site rehabilitation. It is proposed that the chosen contractor will capitalise their mobilisation and 15km haul road construction, linking UBx to Hey Point with repayment being made evenly across 18 months. Repayment is planned to commence within 12 months of first commercial shipment from UBx.



Mining operations are very simple with the deposit being mined in 160m wide strips which will commence in the lower strip ratio and higher grade material in Area A. Strips are mined contiguously to enable short hauls to the nearby mined out strip for dumping overburden (predominantly sand cover) back in-pit, resulting in the continuous rehabilitating of mined out areas. The target bauxite horizon ranges in thickness from 0.5 to 4m and averages 1.5m. Overburden thickness varies and is thinnest in the eastern part of Area A which is scheduled for initial production.

In scenarios 1 and 2 there will be no screening of bauxite material. Scenario 3 allows for stockpiling of transitional material which is planned to be dry screened at the end of the mine life. Dry screening will be undertaken via a contractor utilising a simple mobile screening plant and will not require any infrastructure to be constructed. Benign waste material from the screening operation will be placed in a previously mined out area and will be rehabilitated at mine closure.

The JV has already entered into a Heads of Agreement with Green Coast Resources (GCR) for GCR to provide access and transshipping services of DSB from UBx (*see ASX release 7 April 2016*), through Hey Point, located just 15km from UBx. Metallica provided working capital to GCR via a Short Term Loan (Loan) (*see ASX release 4 October 2016*) to assist that company's successful maiden bauxite export from the Hey Point facility (*see ASX release 24 October 2016*). Three GCR shipments have now departed through GCR's Hey Point facility. Under the terms of the Loan, GCR is now bound to provide transshipping services and access to Metallica.

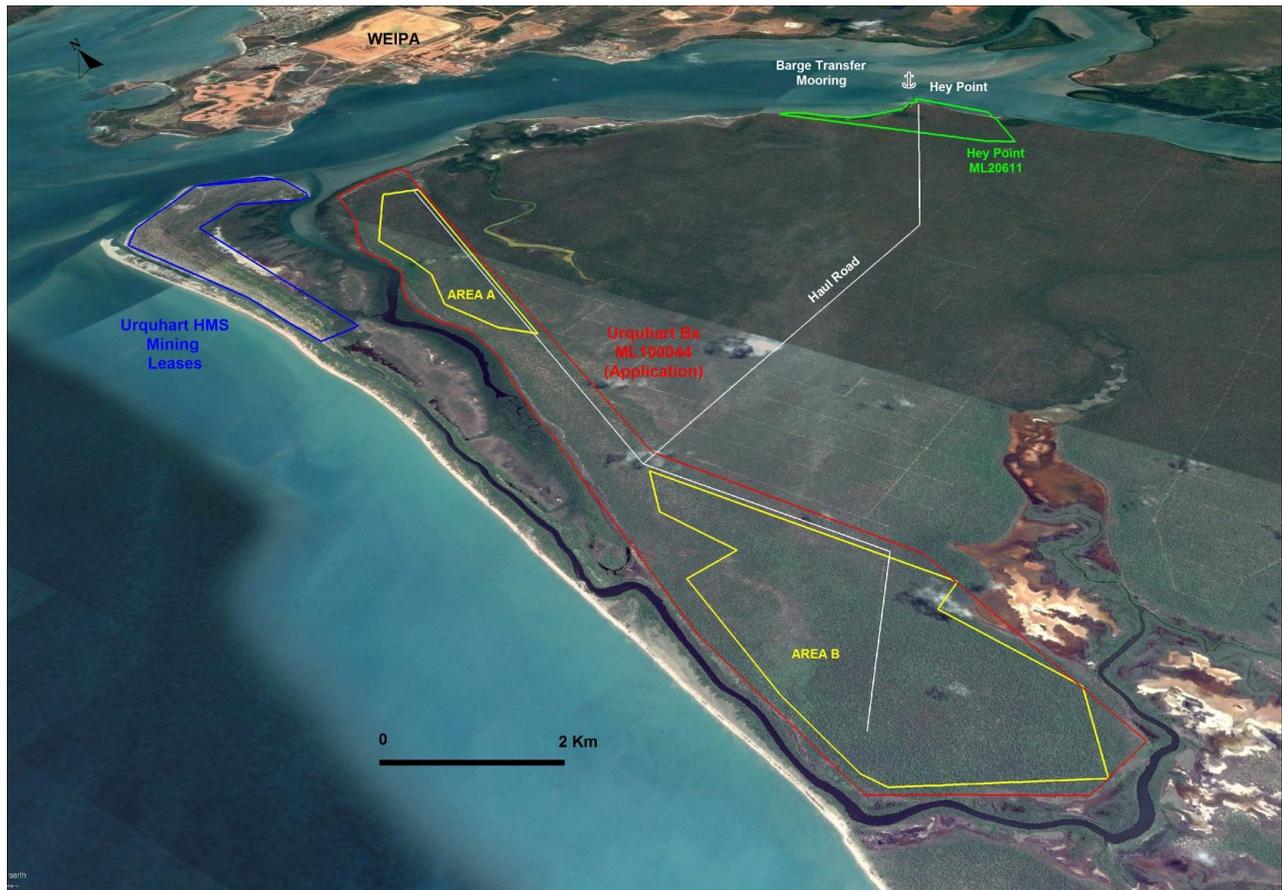


Figure 1 – Urquhart Bauxite project location looking north-east

Other key assumptions used in the completion of the PFS Base Case include:

- Average Free On Board bauxite price of A\$45.24 (Source – London based independent metals analyst, CRU International).
- Average Life of Mine Operating costs, including royalties, of approximately A\$32.72 per tonne utilising contractor quotes and known transshipping and barging capped costs
- Average Life of Mine operating margin of A\$12.52
- Exchange Rate (AUD/USD) of 0.75 for calendar 2017, then 0.70 thereafter. (Source – Internal estimation)
- Discount rate of 10%
- A buffer zone of 50m has been allowed between the mine and the edge of the tenement to ensure no encroachment on environmentally sensitive areas
- Operations to be undertaken during the dry season (9 months per annum) only, nominally April through December



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Competent Person's Statement

The Mineral Reserve estimate and Production Target estimates were undertaken by Mr Stewart Lewis, Mining Engineer, who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy and the CEO of IMC Mining Pty Ltd. Mr Lewis has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Lewis consents to the inclusion of this information in the form and context in which it appears in this release/report.

The Mineral Resource estimate was undertaken by Mr John Horton, Principal Geologist, who is a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy and an associate at IMC Mining Pty Ltd. Mr Horton has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Horton consents to the inclusion of this information in the form and context in which it appears in this release/report.

Caution regarding Forward Looking Statements

Certain statements made in this announcement contain or comprise certain forward-looking statements. Although Metallica believes that the estimates and expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to have been correct. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in commodity prices and exchange rates and business and operational risk management. Metallica undertakes no obligation to update publically or release any revisions to these forward-looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events.