# **Boonanarring Mineral Sands Project:** The next cab off the mineral sands rank



121 Mining Investment 17-18 October 2017 Grand Hyatt Hotel Hong Kong

> Patrick Mutz Managing Director Image Resources NL ASX: IMA



## **Forward Looking Statement**

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Certain statements made in connection with this communication, including, without limitation, those concerning the economic outlook for the mining industry, expectations regarding prices, exploration or development costs and other operating results, growth prospects and the outlook of Image's operations contain or comprise certain forward looking statements regarding Image's operations, economic performance and financial condition. Although Image believes that the expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to be 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 that could result from future acquisitions of new tenements, the risks and hazards inherent in the mining business (including industrial accidents, environmental hazards or geologically related conditions), changes in the regulatory environment and other government actions, risks inherent in the ownership, exploration and operation of or investment in mining properties, fluctuations in prices and exchange rates and business and operations risks management, as well as generally those additional factors set forth in our periodic filings with ASX. Image undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect future events or circumstances or to reflect the occurrence of unanticipated events. **Company Description and Focus** 

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### **Image Resources NL**

**ASX: IMA** 

**Emerging mineral sands producer** 

Actively focused on **fast-tracking the development** of its **100%-owned**, **high-grade and high-zircon flagship Boonanarring mineral sands project** in the **North Perth Basin** in Western Australia.

First production targeted for 2<sup>nd</sup> QTR 2018.

## CONVENTIONAL, CONVENTIONAL, CONVENTIONAL

Dry open cut mining

Coarse grained mineralisation

Standard suite of products

# **Project Location**

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- North Perth Basin in Western Australia
- ➢ 80 km north of Perth CBD
- Proven mineral sands address
  - Including majors Iluka and Tronox
- Infrastructure rich
  - paved roads, power, gas pipeline water, telecommunications etc.
- Local communities and landowners experienced with, and accepting of, mineral sands mining.



## **Projects Types and Locations**

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- 1,000 km<sup>2</sup> tenements portfolio
- > 100% focus on mineral sands
- Strandline (dry open cut mining) projects



Dredge mining projects







Total 236Mt; 2.1%HM; 11.5% Zr+Ru

## **Projects Pyramid – Strand Deposits**

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**Mineral Resources – Accessible by Dry Open-Cut Mining** 



Total 103Mt; 6.2%HM; 17% Zr+Ru

**Boonanarring Project Comparison** 

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#### High HM, VHM and Zircon grades relative to peers



Source: Released on 4<sup>th</sup> May 2015 – Morgan's Research Note. VHM added by Image.

## **Ore Reserves**



# QUALITY ORE RESERVES

JORC Code (2012) Compliant

## > High HM, VHM and very high zircon at Boonanarring

High Grade Ore R	eserves - Stra	and Deposits; i	in accordanc	e with th	e JORC Co	de (2012)	$ \land $				
Project/Deposit	Category	Volume	Tonnes	% HM	% Slimes	HM Tonnes	VHM	Ilmenite	Leucoxene	Rutile	Zircon
							(%)	(%)	(%)	(%)	(%)
Boonanarring <sup>2</sup>	Proved	5,008,000	9,344,000	8.6	14.3	803,771	76.081	48.9	1.8	2.2	23.2
Boonanarring <sup>2</sup>	Probable	5,565,000	10,514,00	5.9	17.6	622,429	78.653	52.3	1.8	2.7	21.9
Total Boonanarring	B	10,573,000	19,858,00	7.2	16.1	1,426,20	77.203	50.4	1.8	2.4	22.7
Atlas <sup>2</sup>	Probable	5,000,000	9,477,000	8.1	15.5	767,637	73.3	50.7	4.5	7.5	
Total Atlas		5,000,000	9,477,000	8.1	15.5	767,637	73.3	50.7	4.5	7.5	10.6
Total Ore Reserves	;	15,573,000	29,335,000	7.5	15.9	2,193,837	75.8	50.5	2.7	4.2	18.4
				<b>V</b>			V				

#### 2.COMPLIANCE STATEMENT Boonanarring/Atlas Reserve

The Ore Reserves statement has been compiled in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code – 2012 Edition). The Ore Reserves have been compiled by Jarrod Pye, Mining Engineer and fulltime employee of Image Resources, under the direction of Andrew Law of Optiro, who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Law has sufficient experience in Ore Reserves estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Law consents to the inclusion in the report of the matters compiled by him in the form and context in which it appears.

## **Ore Reserves Comparison**

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Note:

- TiO2 mineral grade represents the in-ground grade of titanium minerals (ilmenite, leucoxene and rutile)
- Zircon grade represents the in-ground grade of zircon
- Size of bubble represents the VHM grade (ilmenite, leucoxene, rutile and zircon).
- Data includes Proved and Probable Ore Reserves.
- · Hard rock deposits are excluded from the analysis

#### Source: TZMI; May 2017

## **Bankable Feasibility Study**

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## **Base Assumptions**

- Start mining at Boonanarring
- Dry, open-cut mining
- Production rate 500 dry tonnes per hour
  - 3.7M dry tonnes per year
- Conventional gravity separation using spirals
- Product: Heavy Mineral Concentrate (HMC)
  - Production rate: avg. approx. 220K tonnes/annum
  - Truck to Bunbury for bulk shipments to China

## **Bankable Feasibility Study**

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## **Key Financial Metrics**

- Pre-Tax NPV A\$135M (8% discount rate)
- Pre-Tax IRR 64%
- Mine life 8+ years
- Project capital cost A\$52M
  - includes ~\$8M for land
- Payback period 22 months

## **Project Capital Comparison**

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- Data sourced from company reports in the public domain.
- United States dollar capital costs are converted to Australian Dollars using an exchange rate of 0.75 (AUD:USD).
- Cataby has a range of A\$250M to A\$275M, midpoint used in this analysis.
- Ranobe capital cost is based on the 2012 DES estimate.

#### Source: TZMI; May 2017

## **Start-up Capital / Revenue Ratio**

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Start-up capital / Revenue ratio

Note:

· Capital intensity is measured as start-up capital divided by the maximum annual revenue.

Based on TZMI analysis using TZMI price forecasts and modelling except for Boonanarring which is based on Image physicals, operating and capital costs.

31 advanced projects are included varying from brownfield to greenfield projects.

Source: TZMI; May 2017

## **Bankable Feasibility Study**

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### **Sensitivity Analysis**











## **Bankable Feasibility Study**

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## **Other Key Project Metrics**

- Binding offtake contract for heavy mineral concentrate (HMC)
  - 100% of HMC production for life of project
  - Market-based pricing model
  - Full credit for TiO2 products
  - No minimum product specifications
- > Capital equipment already acquired
  - From run-of-mine ore feed through to HMC product

# Plant and Equipment (select examples)

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Wet Concentration Plant



Mineral Separation Plant (Option)



Slurry Booster Stations & pipelines



Power poles, wires & transformers



Mine Slurry Unit

**HMC Stackers** 

Plus much, much more.

# **Image Wet Concentration Plant**





### Upside potential at and near Boonanarring

- Confirmed potential to extend mine life with high grade mineralisation (ASX announcement 13 March & 26 June 2017);
  - Assuming mineralisation in extension area is identical to known Ore Reserves in all aspects and economics; two years of additional mine life could add AU\$60M to project NPV.
- Potential to process lower grade overlying layer of mineralisation;
- Potential to process ores from several other deposits with high grade mineral resources in the vicinity;
  - Red Gully, Regans Ford, and Gingin (South and North).

## **Boonanarring Deposit Extensions**

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### ASX - 13 March & 26 June 2017

New Drilling Results (Feb 2017)

- Confirm 5.6km northern extension of Boonanarring mineralisation
- > Outstanding high grade intersections:
  - 8m @ 23.8% HM in IX00245
  - 8m @ 21.1% HM in IX00244 and
  - 8m @ 16.3% HM in IX00250
    Importantly with high grade zircon:
  - 21.5% Zr in HM in IX00245 & 247
  - 22.1% Zr in HM in IX00243 & 244
  - 16.4% Zr in HM in IX00242, 250 & 251



## **Potential Royalty from Tronox**

#### Royalty agreement in place as of

- > A\$50,000 cash received
- Sliding-scale royalty on production

Avg. HM Grade	<u>Royalty</u>
2.5%	1.25%
3.0%	2.50%
3.5%	3.75%
4.0%	5.00%

Potential for future arrangements with Tronox or others based on large area of potential dredge mining mineralisation within Image's tenements in the vicinity of Tronox's historic dredge operations.



# **Project Approvals**



# PROJECT APPROVALS

- Mining Lease & General Purpose Lease
- ✓ Part IV, Environmental Protection Act (WA) PER
- EPBC Act (Commonwealth)
- Land acquisition for processing plant siting and start of mining
- Groundwater Abstraction Licence (DWER)
- ✓ Interim groundwater licence site establishment (DWER)
- Mining Proposal incl. MCP (DMIRS)
- Project & Radiation Management Plans (DMIRS)
- Atlas Project Gap Analysis Environmental Studies & Approvals
- Works Approval (DWER) Submissions complete; final approval imminent

## **Project Development Schedule**

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## Targeting first production mid-2018

Simplified Boonanarring P	mplified Boonanarring Project Development Schedule - (high l													)										
		2017									2018													
	Jan	Jan Feb Mar May Jun Jul Sep Oct Nov Nov								Jan	Feb	Mar	Apr	May	Jun	In	Aug	Sep	Oct	Νον	Dec			
Finalisation of Transaction																								
Complete BFS																								
Project Approvals																								
HMC Toll or Sale Agreement																								
Project Financing																								
WCP & Equipment Relocation																								
Construction																								
Pre-Stripping																								
Ore Mining		Decision to Mine Target>																						
Plant Commissioning																								
Production																								

## **Transition from Explorer to Producer**

### **Generalisation of Transition from Explorer to Producer**



## Image Corporate Snapshot

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#### **Diverse and experienced Board and Management**

Share Code:	IMA
Share Price:	A\$0.09*
12 Month Price Range:	A\$0.04 - 0.12
Shares on Issue:	571.3m
Market Cap:	A\$50m*
Cash on hand:	A\$2.9m**
Debt (short-term):	A\$4.0m
Top 20 Shareholders:	68%



#### **Board of Directors**

Bob Besley – Independent Chairman Patrick Mutz – Managing Director Chaodian Chen - Non-Executive Director Aaron Chong Veoy Soo – Non-Executive Dir George Sakalidis – Executive Director Peter Thomas – Non-Executive Director Fei (Eddy) Wu – Non-Executive Director

#### Key Management

Patrick Mutz – CEO George Sakalidis – Exploration Director John McEvoy – Chief Financial Officer Todd Colton – General Manager – Dev.

\* - as at 30 September 2017

\* \* - as at 30 September 2017

For further information



Patrick Mutz Managing Director Image Resources NL

info@imageres.com.au Office: +61 8 9485 2410

Ground Floor, 23 Ventnor Avenue West Perth, WA 6005 PO Box 469, West Perth, WA 6872

www.imageres.com.au

## **Compliance Statements**

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#### COMPLIANCE STATEMENT FOR EXPLORATION

Information in this presentation that relates to Exploration Results is based on information compiled by George Sakalidis BSc (Hons) who is a member of the Australasian Institute of Mining and Metallurgy. At the time that the Exploration Results, Mineral Resources and Mineral Reserves were compiled, George Sakalidis was a director of Image Resources NL. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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'. George Sakalidis consents to the inclusion of this information in the form and context in which it appears in this report.

#### 2. COMPLIANCE STATEMENT FOR BOONANARRING AND ATLAS DEPOSITS ORE RESERVES

The Ore Reserves statements for the Atlas and Boonanarring deposits have been compiled in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code – 2012 Edition). The Ore Reserves have been compiled by Jarrod Pye, Mining Engineer and full-time employee of Image Resources, under the direction of Andrew Law of Optiro, who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Law has sufficient experience in Ore Reserves estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Law consents to the inclusion in the report of the matters compiled by him in the form and context in which it appears.

## **Mineral Resources – Strand Deposits**

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#### Strand Deposits 1 of 2

High Grade Mineral Resources - Strand Deposits; in accordance with the JORC Code (2012) @ 2.0% HM Cut-off													
Project/Deposit	Category	Volume	Tonnes	% HM	% Slimes	HM Tonnes	VHM	Ilmenite	Leucoxene	Rutile	Zircon		
							(%)	(%)	(%)	(%)	(%)		
Boonanarring <sup>1</sup>	Measured	6,359,359	11,799,213	8.0	14	942,167	74.3	48.3	1.7	2.2	22.0		
Boonanarring <sup>1</sup>	Indicated	11,802,047	22,265,400	4.9	18.3	1,081,208	71.7	49.2	2.2	2.5	17.8		
Boonanarring <sup>1</sup>	Inferred	4,987,703	9,420,449	4.5	21	422,507	68.8	50.0	3.5	3.4	11.9		
Boonanarring Tota	l	22,886,875	43,485,062	5.6	18	2,445,882	72.2	49.0	2.2	2.6	18.4		
Atlas <sup>1</sup>	Measured	5,210,526	9,900,000	7.9	16.1	782,000	71.0	49.1	4.2	7.2	10.5		
Atlas <sup>1</sup>	Indicated	3,368,421	6,400,000	3.7	17.3	237,000	56.5	41.6	3.4	4.7	6.8		
Atlas <sup>1</sup>	Inferred	947,368	1,800,000	4.0	19.9	72,000	41.5	29.0	3.3	4.4	4.8		
Atlas Total		9,526,316	18,100,000	6.0	16.9	1,091,000	65.9	46.1	4.0	6.5	9.3		
Sub-Total Atlas/Boonanarring		32,413,191	61,585,062	5.7	17.7	3,536,882	70.3	48.1	2.8	3.8	15.6		

## **Mineral Resources – Strand Deposits**

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#### Strand Deposits 2 of 2

Previously Reported Mineral Resources - Strand Deposits; in accordance with JORC Code (2004) @ 2.5% HM Cut-off														
Project/Deposit	Category	Volume	Tonnes	% HM	% Slimes	<b>HM Tonnes</b>	VHM	Ilmenite	Leucoxene	Rutile	Zircon			
							(%)	(%)	(%)	(%)	(%)			
Gingin Nth <sup>3</sup>	Indicated	680,175	1,318,642	5.7	15.7	75,163	75.4	57.4	9.3	3.2	5.5			
Gingin Nth <sup>3</sup>	Inferred	580,000	1,090,000	5.2	14.0	57,116	78.4	57.3	11.3	3.7	6.0			
Gingin Nth Total		1,260,175	2,408,642	5.5	15.0	132,279	76.7	57.3	10.2	3.4	5.7			
Gingin Sth <sup>3</sup>	Measured	872 <i>,</i> 830	1,526,122	4.4	7.2	67,149	79.4	50.7	15.3	5.6	7.8			
Gingin Sth <sup>3</sup>	Indicated	3,241,835	5,820,480	6.5	7.1	377,167	90.6	67.6	9.8	5.1	8.1			
Gingin Sth <sup>3</sup>	Inferred	398 <i>,</i> 573	732,912	6.5	8.4	47,566	91.6	67.4	7.5	5.8	10.9			
Gingin Sth Total		4,513,238	8,079,514	6.1	7.3	491,882	89.2	65.3	10.3	5.2	8.3			
Helene <sup>3</sup>	Indicated	5,568,110	11,466,106	4.6	18.6	522,854	88.7	74.6	0.0	3.6	10.5			
Hyperion <sup>3</sup>	Indicated	1,786,781	3,742,471	7.7	19.3	286,673	69.4	55.8	0.0	6.3	7.3			
Cooljarloo Nth Tota	I	7,354,891	15,208,577	5.3	18.8	809,528	81.9	67.9	0.0	4.6	9.4			
Red Gully <sup>3</sup>	Indicated	1,930,000	3,409,768	7.8	11.5	265,962	89.7	66.0	8.3	3.1	12.4			
Red Gully <sup>3</sup>	Inferred	1,455,000	2,565,631	7.5	10.7	192,422	89.0	65.4	8.2	3.0	12.3			
Red Gully Total		3,385,000	5,975,399	7.7	11.2	458,384	89.4	65.7	8.2	3.1	12.4			
Sub-Total Other		16,513,304	31,672,132	6.0	14.1	1,892,073	85.2	66.0	5.4	4.3	9.6			

#### Historic Deposit - Strand deposit (Under EL application)

Project/Deposit	Category	Volume	Tonnes	% HM	% Slimes	<b>HM</b> Tonnes	VHM	Ilmenite	Leucoxene	Rutile	Zircon
							(%)	(%)	(%)	(%)	(%)
Regans Ford <sup>4</sup>	Indicated	4,505,285	9,024,226	9.9	16.8	893,398	94.3	70.0	10.0	4.3	10.0
Regans Ford <sup>4</sup>	Inferred	455,933	918,536	6.5	18.5	59,705	90.5	68.3	7.7	4.4	10.1
<b>Regans Ford Total</b>		4,961,218	9,942,762	9.6	17.0	953,103	94.1	69.9	9.9	4.3	10.0

## Mineral Resources – Dredge Deposits

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#### Dredge Deposits 1 of 1

Previously Reported Mineral Resources - Dredge deposits; in accordance with JORC Code (2004) @ 1.0% HM Cut-off													
Project/Deposit	Category	Volume	Tonnes	% HM	% Slimes	<b>HM</b> Tonnes	VHM	Ilmenite	Leucoxene	Rutile	Zircon		
							(%)	(%)	(%)	(%)	(%)		
Titan <sup>3</sup>	Indicated	10,335,053	21,163,741	1.8	22.1	378,831	86.0	71.9	1.5	3.1	9.5		
Titan <sup>3</sup>	Inferred	58,517,775	115,445,391	1.9	18.9	2,205,007	85.9	71.8	1.5	3.1	9.5		
Total Titan	Total	68,852,828	136,609,132	1.9	19.4	2,583,838	85.9	71.8	1.5	3.1	9.5		
Telesto <sup>3</sup>	Indicated	1,716,328	3,512,204	3.8	18.4	134,499	83.3	67.5	0.7	5.6	9.5		
Calypso <sup>3</sup>	Inferred	27,113,647	51,457,008	1.7	13.7	854,186	85.6	68.1	1.6	5.1	10.8		
Bidaminna <sup>3</sup>	Inferred	26,260,000	44,642,000	3.0	3.6	1,339,260	96.8	83.11	7.2	1.0	5.5		
Total Dredge		123,942,803	236,220,344	2.1	15.2	4,911,783	88.7	74.1	3.1	2.9	8.6		

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#### **COMPLIANCE STATEMENT FOR MINERAL RESOURCES**

#### 1. COMPLIANCE STATEMENT Boonanarring/Atlas Mineral Resources

The information in this presentation that relates to the estimation of Mineral Resources is based on information compiled by Mrs Christine Standing, who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG). Mrs Standing is a full-time employee of Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking 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'. Mrs Standing consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.

#### 3. COMPETENT PERSON'S STATEMENT – MINERAL RESOURCE ESTIMATES

The information in this presentation that relates to Mineral Resources is based on information compiled by Lynn Widenbar BSc, MSc, DIC MAusIMM MAIG employed by Widenbar & Associates who is a consultant to the Company. Lynn Widenbar has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 edition of the 'Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Lynn Widenbar consents to the inclusion of this information in the form and context in which it appears.

#### 4. HISTORIC INFORMATION - REGANS FORD DEPOSIT

The information in this presentation that relates to tonnes, grades and mineral assemblage is based on historic information published by Iluka Resources Limited and indicating the mineral resources were compiled in accordance with the JORC Code (2004).