

Austmine 2015  
Mining Innovator  
of the Year



# CARBINE RESOURCES LIMITED

## Mount Morgan Gold & Copper Project

IMARC 2015 Presentation:  
Restarting Operations at the Mount Morgan Mine



November 2015

# DISCLAIMER

## Mineral Resources

The Indicated and Inferred Resources referred to in this presentation were presented by Norton Gold Fields Limited at the Mining 2009 Resource Convention (Brisbane). The presentation was released to the ASX on 28 October 2009 and is available for viewing on the Norton Gold Fields website ([www.nortongoldfields.com.au](http://www.nortongoldfields.com.au)). The resources were stated to have been prepared in accordance with the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") by Competent Person Troy Lowien, Resource Geologist, of consultants Coffey Mining Pty Ltd.

## Exploration Targets

Carbine has identified an Exploration Target at the site comprising low grade mullock dumps, slag dumps and retreated tailings from previous operations. In the Exploration Target table of this presentation a range of approximate tonnage and grade has been compiled from extensive review of historic reports and studies by previous owners. Carbine has not yet completed any exploration activity on the Exploration Target. The potential quantity and grade of the Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource, and it is uncertain if further exploration will result in the estimation of a Mineral Resource. The basis for the estimates of tonnage and grade include historic production records, various topographic and volume surveys, drilling by various methods, grab and channel sampling and small scale bulk sampling. Carbine proposes to further evaluate the Exploration Target during the next year by drilling and possible bulk testing to provide material for additional metallurgical test work and to verify tonnage and grade.

## Competent Person Statements

The information in this report that relates to the recently completed exploration results is based on and fairly represents information compiled by Dr Marat Abzalov, who is a geological consultant to Carbine Resources Limited. Dr Abzalov is a Fellow of The Australasian Institute of Mining and Metallurgy (FAusIMM) and he has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and the activity 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". Dr Abzalov consents to the inclusion in the report of the matters based on information in the form and context in which it appears. Previous results were released to the ASX on 16 March and 20 April 2015 and have not materially changed since last reported.

The information in this report that relates to the Exploration Target is based on information compiled by Lance Govey, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Lance Govey is an independent geological consultant and has no association with Carbine Resources Limited other than being engaged for services in relation to the preparation of parts of this report. Lance Govey 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'. Lance Govey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. This was initially release to the ASX on 13 November 2014 and has not materially changed since it was last reported.

The information in this report that relates to the Mineral Resources of the Mount Morgan Mine project was prepared in accordance with the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") by Troy Lowien, Resource Geologist, of consultants Coffey Mining Pty Ltd, who is a Member of The Australasian Institute of Mining and Metallurgy ("AusIMM") and has a minimum of five years of experience in the estimation, assessment and evaluation of Mineral Resources of this style and is the Competent Person as defined in the JORC Code. Troy Lowien conducted the geological modelling, statistical analysis, variography, grade estimation, and report preparation. This report accurately summarises and fairly reports his estimations and he has consented to the resource report in the form and context in which it appears. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated to comply with the JORC Code 2012 on the basis that the information has not materially changed since last reported on 28 October 2009.

# CARBINE SNAPSHOT

Experienced Board & Management

## Share Price History



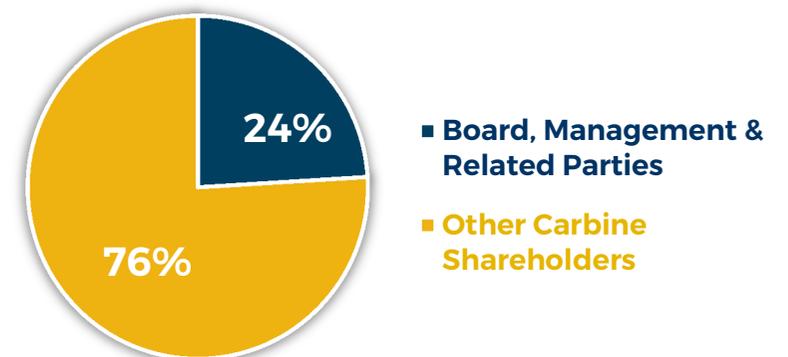
## Board & Management

Patrick Walta	Executive Director
Evan Cranston	NED
Tom Bahen	NED
Stephen Dobson	NED
Terry Moylan	Chief Operating Officer
Rod Smith	Chief Metallurgist
Russell Dann	Project Specialist

## Capital Structure

<b>Shares</b> (ASX: CRB)	140 Million
<b>Unlisted Options</b> (\$0.05 - \$0.10)	25 Million
<b>Market Capitalisation</b> (@ \$0.075/share)	\$10.5M
<b>Cash &amp; Deposits</b> (30 Sep 2015)	\$2.6M
<b>Enterprise Value</b>	\$7.9M

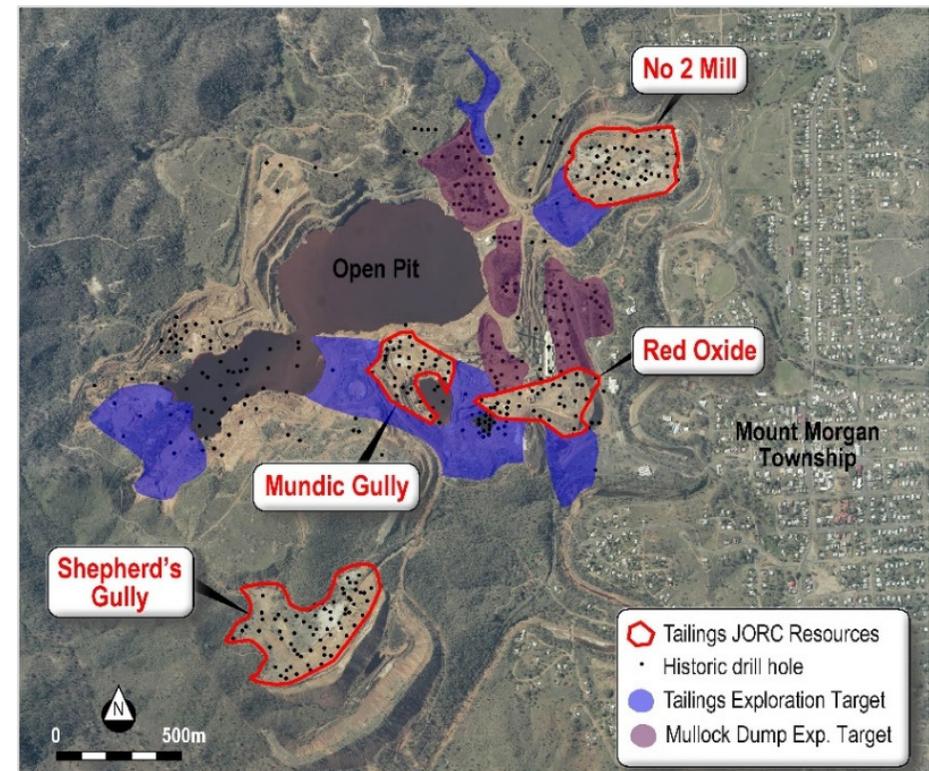
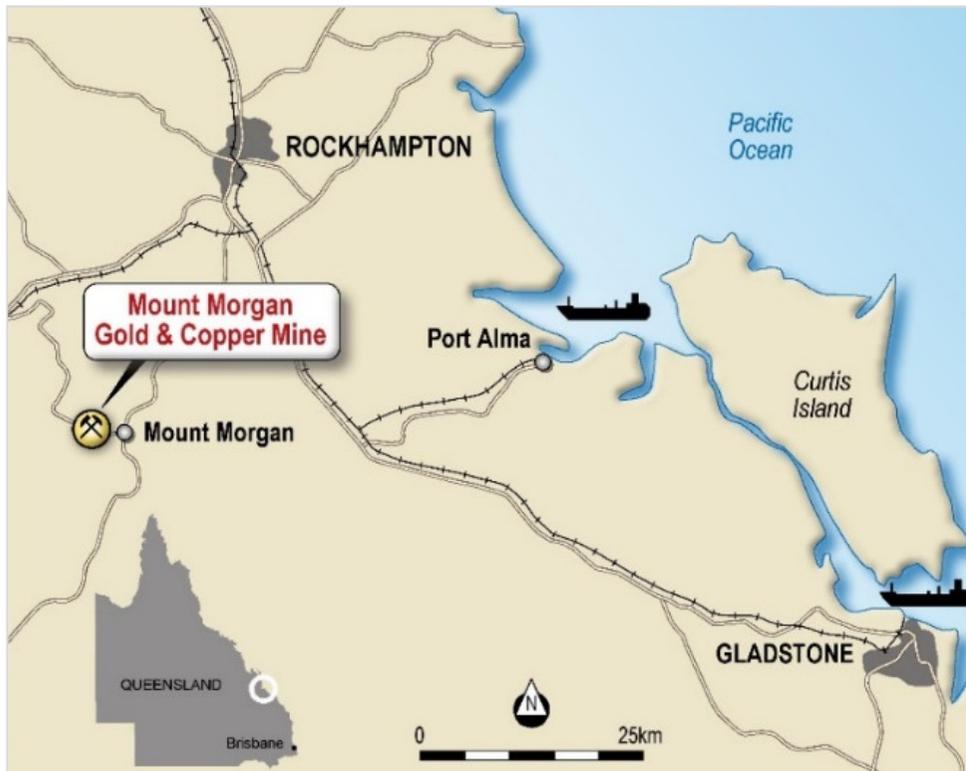
## Significant Shareholders



# MOUNT MORGAN MINE

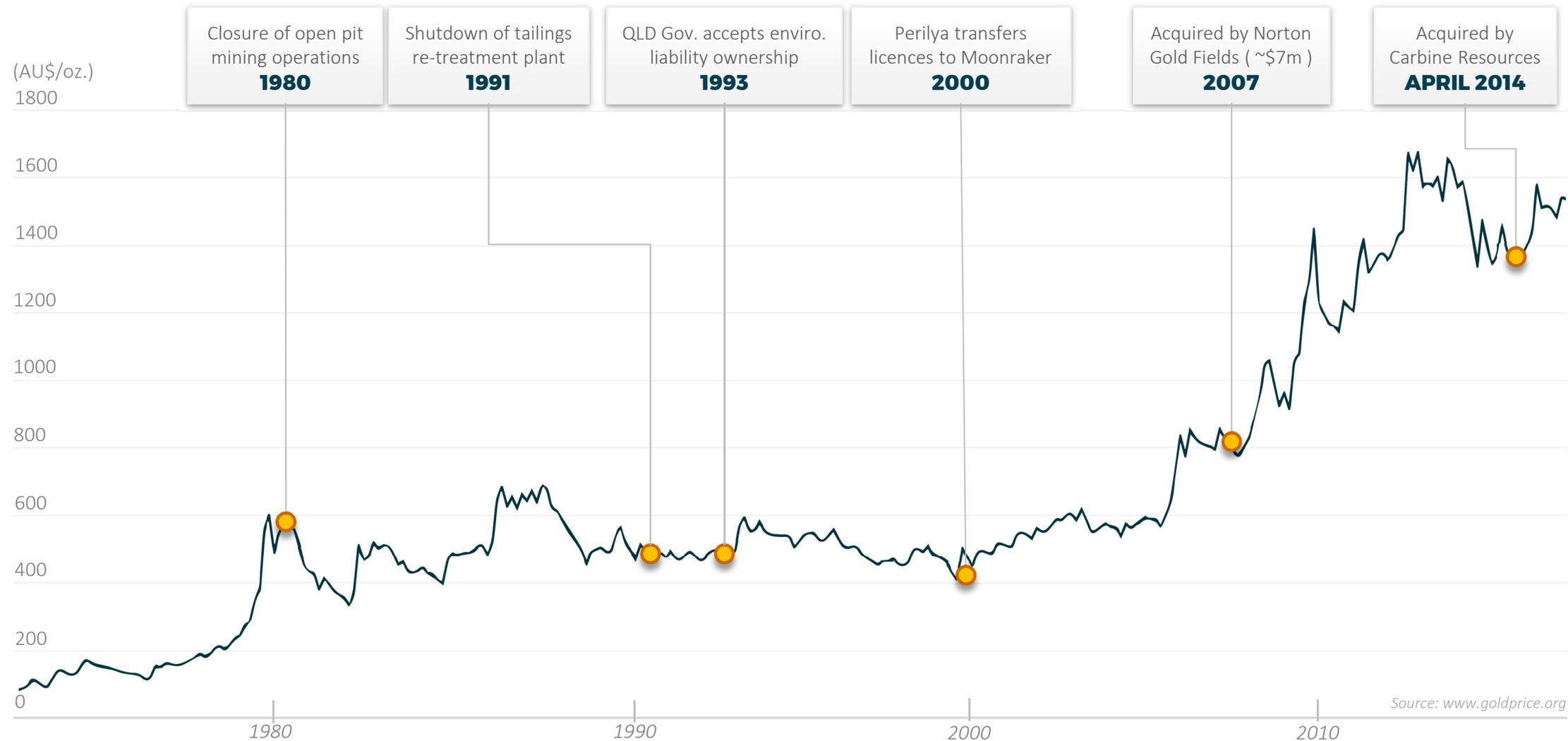
## Overview

- Historic QLD gold mine - close proximity to infrastructure, cities, ports & rail
- Primary deposit mined for ~100 years (8.4Moz Gold, 400kt Copper)
- Mineralised Tailings: ~40Mt deposited on site
- Significant environmental legacy, 100% owned by QLD government



# MINING HISTORY

## Timeline: Mount Morgan Site Operations Vs Gold Price



### PRIMARY ORE MINING 1882 - 1980

- 50Mt ore mined & processed
- Production: 8.4M oz. Au, 400kt Cu, 1.2M oz. Ag

### HISTORICAL TAILINGS RETREATMENT 1881 - 1991

- ~28Mtpa reprocessed via 3Mtpa CIL plant
- Excess cyanide consumption caused by soluble copper

### PERILYA LTD 1992 - 2000

- Explored for ore body extensions
- Identified large in-situ sulphide resource, remains underexplored

### MOONRAKER PTY LTD 2000 - 2007

- Tailings processing testing
- Applied convention CIL tech.
- Soluble copper issue remained

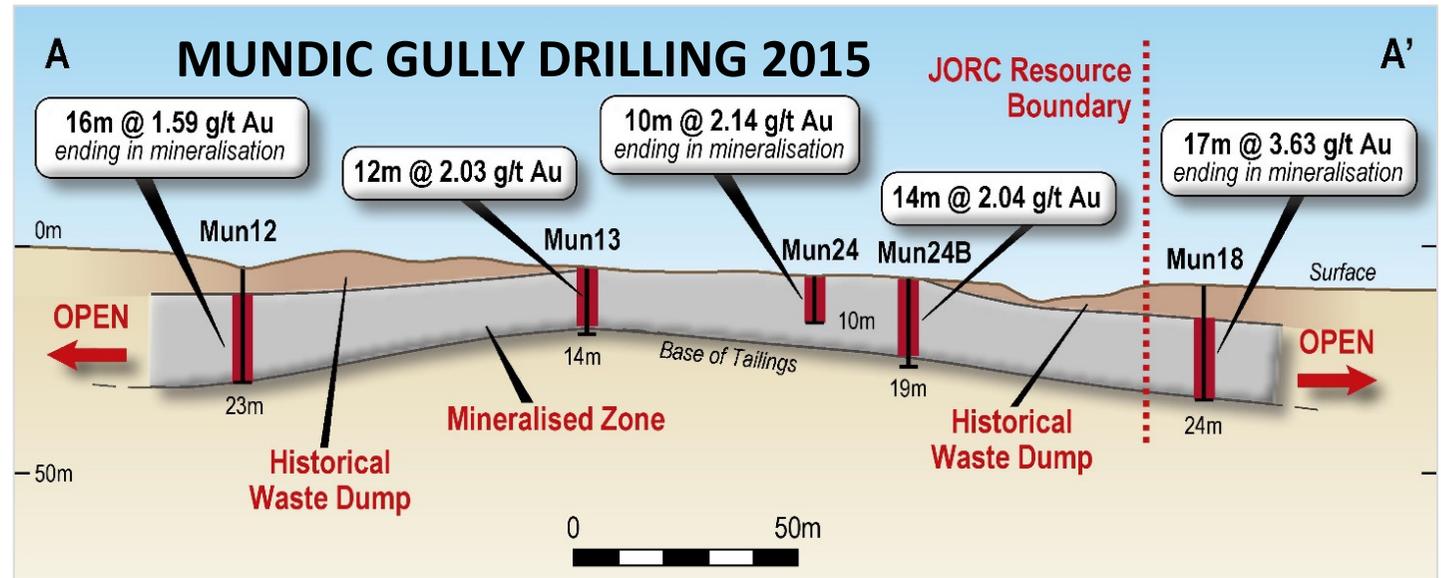
### NORTON GOLD FIELDS LTD 2007 - 2014

- Secondary asset to Paddington
- 2009 GFC – financial issues
- 2010 DFS demonstrates viable project, but NGF focus elsewhere

# SIGNIFICANT RESOURCE BASE

Tailings resource: Deposit at surface, already crushed & ground

Resources		Tonnes	Au (g/t)	Cu (%)	Au (oz)	Cu (t)
<b>JORC RESOURCES</b>		8.4 Mt	1.23	0.15%	329,000	12,300
<b>NON-JORC HIGH GRADE RESOURCS (Exploration Target)*</b>	Low	4.7 Mt	1.54	0.12%	231,000	5,700
	High	5.8 Mt	1.81	0.17%	336,000	9,800
<b>TOTAL RESOURCES*</b>	Low	13.1 Mt	1.34	0.14%	560,000oz	18,000t
	High	14.2 Mt	1.46	0.16%	665,000oz	22,100t



\* The potential quantity and quality in these exploration targets are conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource

# UNLOCKING THE VALUE

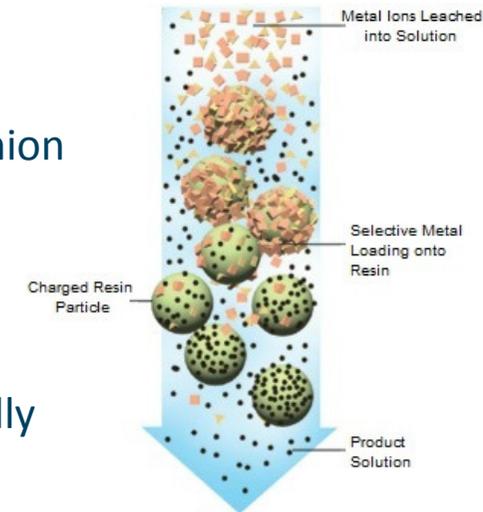
## Carbine's Process Solution: Reverse Leach IX - CIL

- *Extract copper prior to gold circuit*
- *Ion exchange technology solves soluble copper issue*
- IX technology provides:
  - Decreased cyanide consumption in gold circuit
  - Additional revenue stream from copper production
  - Increased gold recoveries (reduced Cu competition)

Metal Recovery	Historical Tailings Reprocessing (1981 - 1991)	Norton Feasibility Study (2010)	Carbine Pre-Feasibility Study (2015)
Gold	50 - 55%	65%	76%
Pyrite	-	86%	90%
Copper	-	-	68%

## ION EXCHANGE (IX)

- Developed in the Former Soviet Union
- 60+ years of operating history
- 30+ full scale IX operations globally



*Operating 4,500m<sup>3</sup>/hr IX facility in Kazakhstan*



# PRE-FEASIBILITY STUDY RESULTS

Completed by GR Engineering



Production Parameters	Value	Notes
Mine Life	8 years	JORC resources only
Annual Throughput	1,000,000 t/yr	Based on available JORC resources
Average Production	31,200 oz/yr 3,200 tpa 211,000 tpa	Gold Copper Sulphate Pyrite Concentrate
<b>Average Gold Eq. Production</b>	<b>46,500 oz/yr</b>	<b>Inc. &gt;58,000oz/yr Au eq. during the 1<sup>st</sup> 3 yrs</b>

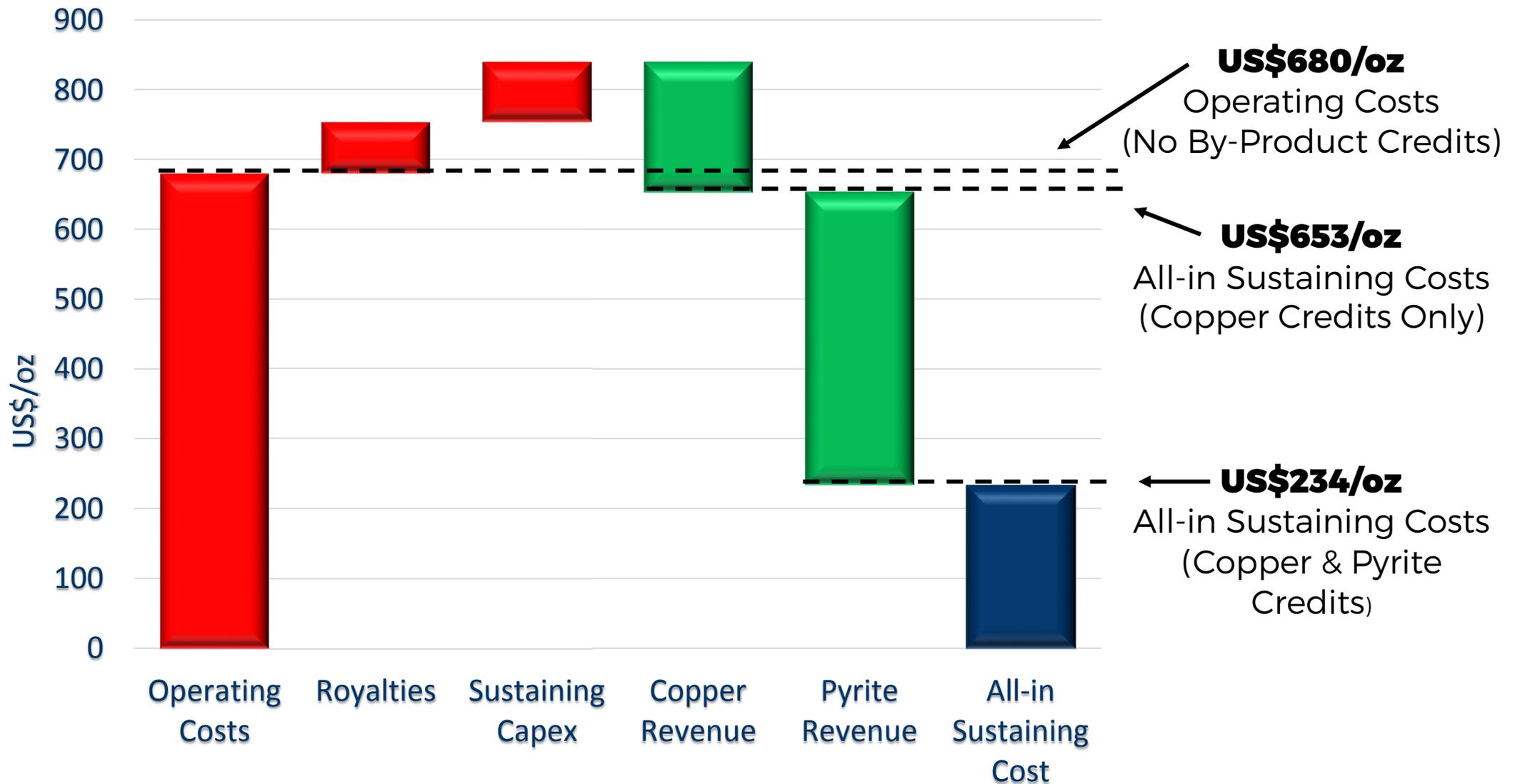
Financial Parameters	Value	Notes
Capital Costs	A\$ 63.3M	Assumed new plant construction
Operating Costs	A\$ 29.2/t	
<b>All-in Sustaining Costs</b>	<b>US\$ 234/oz.</b>	<b>Life of mine</b>

*\*Note: Metal prices Gold US\$1,125/oz.; Copper US\$5,100/t;  
Pyrite US\$60/t. Exchange rate \$0.75.*

Potential to become one of the lowest cost gold operations in Australia.

# ALL-IN SUSTAINING COST

High margin operations



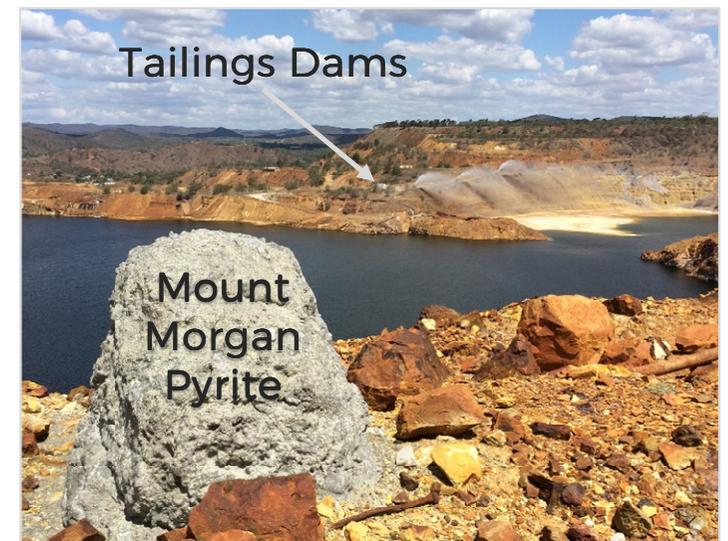
Multiple by-products = Low AISC.

# PYRITE OFFTAKE

Underpins low cost operation

## Binding Agreement Fully Commits Mount Morgan Pyrite

- Four year contract – up to 225,000tpa
- To be exported through Port of Gladstone
- Sale price – US\$80/t FOB Gladstone Port (~US\$20/t logistics)
- 90% payment at mine gate, Letter of Credit terms
- Revenue base of ~A\$25 Million per annum



## Pyrite Facts

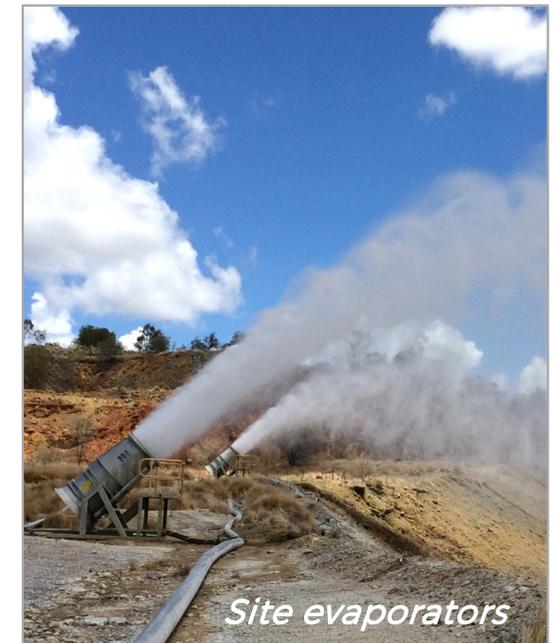
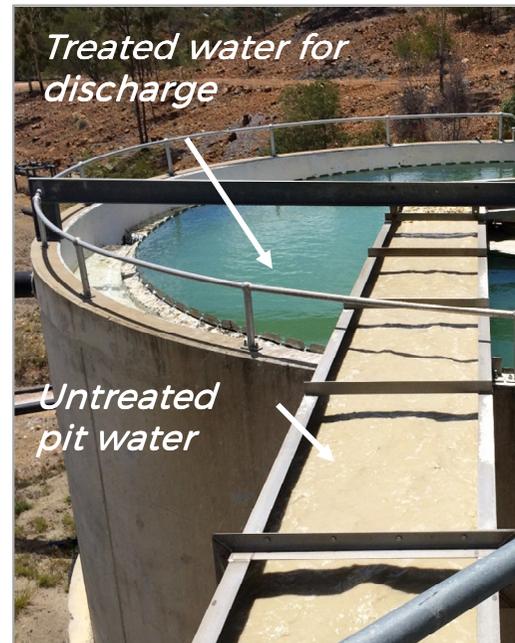
- Iron Sulphide ( $\text{FeS}_2$ ) – source of sulphur & iron
- Primarily used in sulphuric acid manufacture
- >20 Million tpa consumed in China alone
- Mount Morgan premium product (↑ Sulphur ↓ Impurities)

# MINE WATER TREATMENT

\$1.25 Million per annum near term cashflow generation

## Long term service agreement to operate existing site water treatment plant

- 10 year contract – treating up to 500ML per annum (revenue of \$2,500/ML before costs)
- Targeting further improvement in volume and quality of discharge water
- Opportunity to apply IX demonstration plant on front end of water treatment plant:
  - Showcase for the use of IX technology
  - Further cashflow via extraction of up to 300tpa of copper



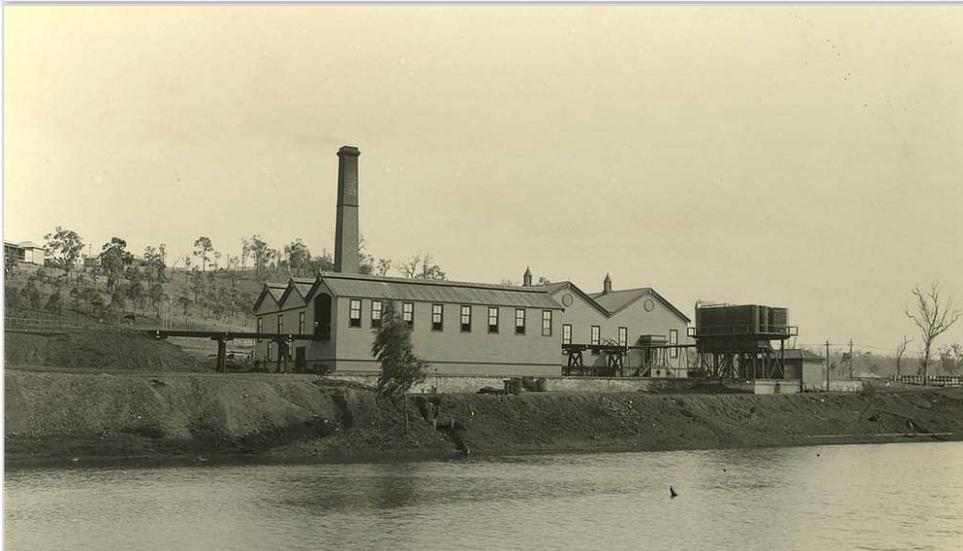
# HISTORY REPEATS...

Using the success of the past in restarting operations

## 1927

*Underground → Open Pit Operations*

- Gold production main focus
- Initial revenue via copper cement production from flooded underground workings
- Pyrite by-product sales



## 2016 (planned)

*Primary Ore → Tailings Operations*

- Gold production main focus
- Initial revenue via copper sulphate production from flooded open pit
- Pyrite by-product sales



# MINE DEVELOPMENT PLANNING

Final feasibility & financing process underway

## Highlights

- ✓ Confirmed US\$234 AISC via PFS
- ✓ Binding pyrite offtake – A\$25M per annum revenue
- ✓ Employed key technical and financial staff
- ✓ Copper sulphate offtake under final negotiations
- ✓ Received 2015 Austmine Innovation Award for Miners
- ✓ Three phases of independent testwork completed
- ✓ PFS completed to +/- 20% (GR Engineering)
- ✓ Scoping Study completed (Ausenco)

Timeline	2014		2015				2016				2017
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	+
Scoping Study	█										
PFS Drilling Program		█									
PFS Testwork			█								
Preliminary Feasibility Study				█							
Pyrite Offtake			█								
Copper Sulphate Offtake				█							
Definitive Feasibility Study						█					
JORC Reserve Drilling							█				
Detailed Plant Design								█			
Construction & Operations										█	

**2014 & 2015: Achieved significant technical and commercial targets for project derisking**  
**2016: Targeting mine development financing & decision to mine**

# MOUNT MORGAN SUMMARY

Value Proposition

## Significant Resource Base

- ✓ 8.4Mt JORC Resource base (<30% of known mineralisation on site)
- ✓ Up to +1Moz Au & 80,000t Cu tailings resource

## Robust Project Economics

- ✓ Two independent studies & three phases of independent testwork
- ✓ All-In Sustaining Costs of US\$234/oz for life of mine

## Long Mine Life Potential

- ✓ Minimum 8 year mine life (current JORC resources only)
- ✓ Potential for 25yr+ operations

## Near Term Cashflow

- ✓ \$1.25 Million per annum site water treatment contract
- ✓ IX demonstration plant to produce up to 300tpa copper



# CARBINE RESOURCES LIMITED

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*Unlocking significant metal value left behind  
after 100+ years of operations*