



# CARBINE RESOURCES LIMITED

ASX / MEDIA ANNOUNCEMENT

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## CARBINE EXECUTES MOU FOR ADDITIONAL PYRITE OFFTAKE FROM MOUNT MORGAN

### *Highlights*

- ◆ **Conditional MOU to develop formal offtake for pyrite sales into China, India & Europe**
- ◆ **Targeting 100,000 to 200,000tpa of pyrite at ~US\$100/t FOB Gladstone**
- ◆ **Continued strong interest in Mount Morgan's premium pyrite product**
- ◆ **Further validation of projected life-of-mine All-in Sustaining Costs of US\$393/oz**

**Carbine Resources Limited (ASX: CRB)** is pleased to announce a second conditional agreement for future pyrite offtake development from the Mount Morgan Gold & Copper Project, initiated through a Memorandum of Understanding (MOU) with Jainson Labs India.

The MOU is additional to Carbine's conditional pyrite offtake agreement with Talana Limited (see Carbine's ASX announcement 28/01/2015).

Jainson Labs India has been established for over 30 years and in this time has grown to become a global manufacturer and distributor of ferrous sulphide and sulfur products in China, India and Europe. The Company targets value-addition and distribution of these products into a range of industries and applications including steel manufacture, alloying, abrasives, pigments and fertilisers.

The MOU with Jainson will be used as a mechanism to develop formal offtake agreements for pyrite concentrate from Mount Morgan. The terms still to be finalised include, amongst other things, pricing, product and quantity. These terms are to be based on the following:

- FOB sales from the Port of Gladstone
- Production of 100,000 to 200,000tpa, +/- 50% S concentrate, +/- US\$100/t FOB price

The MOU remains non-binding and non-exclusive until the parties have confirmed all terms and entered into formal agreements. The MOU may also be terminated by either party at any time and Carbine remains free to negotiate and enter into additional offtake agreements with third parties.

### **Pyrite Market Overview**

#### Uses:

Pyrite is comprised of iron and sulfur (FeS<sub>2</sub>) and is an important ore for use in the production of sulphuric acid. Pyrite contains a substantial percentage of sulfur, which when burnt can be readily converted to acid. Sulphuric acid itself is used in a myriad of applications, however the predominant use is in the production of fertiliser for agricultural applications.



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In addition, the iron content within pyrite is also utilised within the steel industry as an additional source of Fe following the removal of sulfur.

### Production & Consumption:

In 2013, pyrite consumption in China alone totaled 20.3 million tonnes. China sources pyrite from both low grade domestic supply balanced with typically higher grade imports.

Pyrite consumption is most prevalent in the South, Central and South Western provinces of the China, with the location being a function of end-use sulphuric acid demand and pyrite ore availability.

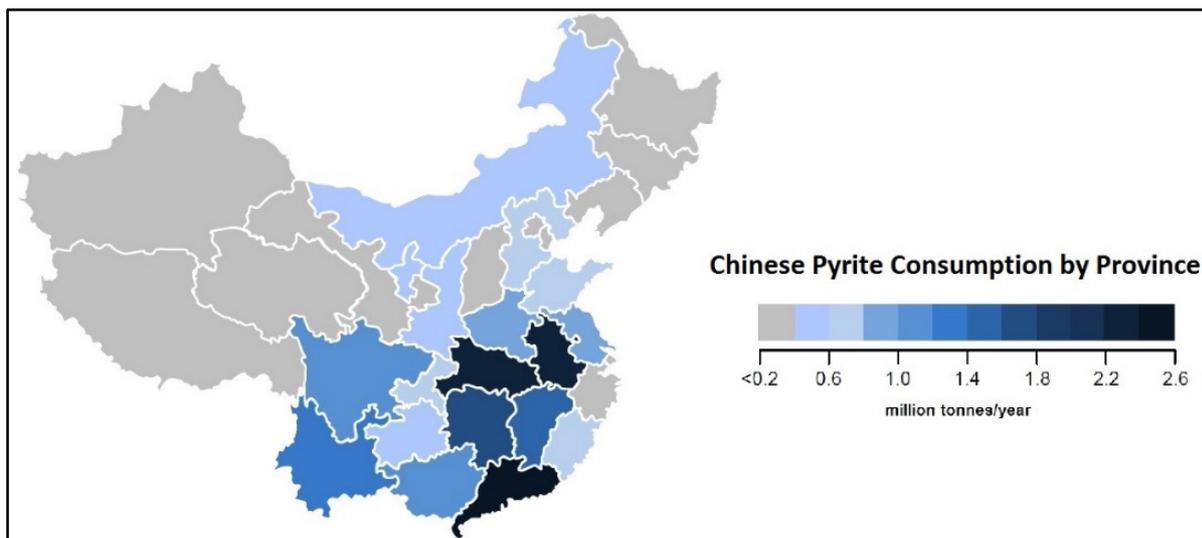
The grade of domestic Chinese pyrite ore is typically low and is reported as a standardised 35% S product. The pyrite produced at Mount Morgan (~50% S) is consider a premium high grade product which attracts strong demand as a blending product to improve domestic ore grades.

The majority of the pyrite ore consumed within China originates from domestic mines but there has also been a consistent import of higher grade (50% S) material into the country.

For example, in 2013 First Quantum Minerals Limited produced 825,000tpa of 50% S pyrite from the Pyhäsalmi mine in Finland, with the majority ending up in China (Source: <http://www.first-quantum.com/>).

Imports of pyrite ore are typically delivered into ports of Zhanjiang in Guangdong province and Nanning in Guangxi province. Any pyrite imported to China from Mount Morgan will have obvious competitive advantages in shipping distances of the bulk commodity compared to Finland.

It is also important to note the Pyhäsalmi operation has a projected mine life of 2019, implying a significant shortfall in the supply of 50% S into China in the near future.



**Figure 1: Chinese pyrite consumption in 2013 (Source: CRU Group)**



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### Pricing:

Pyrite pricing is dependent on the Chinese sulfur price, which in turn is a function of fertilizer demand for agriculture and food production. In addition, further value is placed on pyrite as a source of iron (40 - 45% Fe), with pyrite residue typically on-sold to steel manufacturers following the removal of sulfur for sulphuric acid production.

The price of imported pyrite into China has been relatively consistent over the last four years, with the weighted volume price averaging at US\$102/t CFR China (Source: CRU Group).

It should be noted Carbine's recently completed Scoping Study was based on a conservative long term pyrite price estimate of US\$86/t CFR.

### Logistics:

Pyrite is anticipated to be shipped in bulk to end users in Asia, with potential for shipments to Europe and domestic supply opportunities also under assessment.

The product will be delivered to the port of Gladstone by truck or truck/rail in half height concentrate shipping containers. The container system provides a dual benefit of mitigation of any environmental concerns over spillage during transport and also an adequate storage mechanism at the port without need to obtain warehouse space.

The pyrite containers will be loaded into ships at the port of Gladstone by a container tipper, providing suitable bulk or break bulk transport options to overseas end users.

### **Environmental Benefits**

The historical environmental legacy of Mount Morgan is 100% owned by the Queensland Government through the Department of Natural Resources & Mines (DNRM), with the mining lease holder not responsible for existing environmental problems or the impact of past mining activities.

Despite this, Carbine has been active in assisting the DNRM with the development of mechanisms for remediation of the site during proposed future mining operations.

The ability to concentrate and sell pyrite from Mount Morgan provides a significant benefit to overall site remediation activities. The pyrites themselves are the source material for acid mine drainage at the historic mine and have been largely responsible for the current legacy issues.

This MOU therefore provides a credible mechanism for removal of these acid forming pyrites, which will ultimately result in a substantial improvement to environmental conditions at the mine.

### **For further information, please contact:**

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