

Market Update

28 April 2020

Highlights

Cobalt Blue Holdings Limited
A Green Energy
Exploration
Company



ASX Code:

COB

Commodity Exposure:

Cobalt & Sulphur

Directors & Management:

Robert Biancardi Non-Exec Chairman
Hugh Keller Non-Exec Director
Robert McDonald Non-Exec Director
Joe Kaderavek CEO & Exec Director
Robert Waring Company Secretary

Capital Structure:

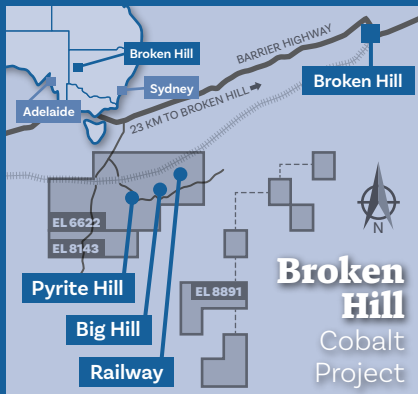
Ordinary Shares at 28/04/2020: **160.0m**

Options (ASX Code: COBO): **29.6m**

Market Cap (undiluted): **\$16.8m**

Share Price:

Share Price at 28/04/2020: **\$0.105**



Cobalt Blue Holdings Limited

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Mixed Hydroxide Product (MHP) testwork delivers premium product.

KEY POINTS

- Significant testwork outcome – strong hydroxide results ~**37% cobalt** and ~**7% nickel** content with low impurities = a premium product.
- Large scale furnace work scheduled for May 2020.
- Pilot Plant – expecting commissioning Q4 2020.
- Ore Reserve Statement update on track for mid-year release.

Significant MHP testwork results

In preparation for the upcoming Pilot Plant trials, COB has been advancing laboratory-scale testwork at ALS Metallurgy. As previously announced, a 45 tonne pilot concentrate trial was completed in early 2019, producing a 7.7 t concentrate sample (*Concentrate Circuit (Pilot Trial) program successfully completed – 24 June 2019*). A 200 kg sub-sample of concentrate was taken for the laboratory-scale process development testwork program.

COB has been actively optimising the processing unit operations to reduce iron, copper, zinc, manganese and calcium in the cobalt-nickel hydroxide intermediate precipitate. COB is pleased to provide the current elemental specification of the hydroxide intermediate, which will then be refined into high-purity cobalt sulphate.

Figure 1 – Broken Hill Cobalt Project MHP – assay results

Ca	Co	Cu	Fe	Mn	Ni	Zn	Cl
%	%	%	%	%	%	%	%
2.22	37.00	0.01	0.07	0.85	6.94	0.12	7.10

The hydroxide precipitate was readily filtered from the chloride mother liquor, with residual moisture at 10–15%. This contrasts with hydroxides precipitated from sulphate mother liquors, which are physically sticky and often contain 50–60% moisture, necessitating a dedicated dryer unit in addition to the filter.

The Market for Cobalt Hydroxides

Hydroxide intermediates represent approximately 75% of total global cobalt trade. The supply side of hydroxides is dominated by production from the Democratic Republic of Congo (DRC) whose contribution is expected to increase over the near term. Hydroxide intermediates are typically purchased by specialist refining companies.

Cobalt hydroxide intermediate is sold on a pricing formula with two components, prior to adjustment for penalty elements (impurities). The first is the floating payables which is relative to the underlying cobalt metal price. The second is the cobalt content.

Fastmarkets quote prices for 30% minimum content cobalt intermediate hydroxide, with typical cobalt content of hydroxide from the DRC being 25–40%. Strong nickel credits will likely command a further payable metal for the COB MHP product. Overall, the extremely low level of impurities in the COB MHP product are considered attractive.

MHP and cobalt sulphate market description

In order to take advantage of prevailing cobalt market conditions, the Broken Hill Cobalt Project (BHCP) has a flexible production strategy. By adopting a metallurgical process which produces a commercially saleable intermediate product, the project will be able to optimise its suite of products to suit varying market conditions, taking advantage of MHP (50–80% cobalt payable) vs cobalt sulphate (90–110% cobalt payable) pricing.

The BHCP refinery will produce:

- An intermediate MHP nominally containing 37% Co and 7% Ni. This high cobalt to nickel ratio is unique and is likely to command a premium sale price.
- A final cobalt sulphate will be produced from further refining of the MHP. The target product specification is a >20.5% Co content sulphate crystal, suitable for use in cathode precursor manufacture.

Figure 2 – MHP vs Cobalt Sulphate Markets

BHCP Product	Payable % Co metal price	Purity	End Use Typical	Customers
Cobalt Sulphate	90–110%	Very High	Li ion batteries	Precursor/Cathode Makers Commodity Trading Houses
Mixed Hydroxide Product	50–80%	Low	Metallic cobalt & Li ion batteries	Mining Companies

Testwork update – Large scale furnace work scheduled May 2020 – on track

In addition to the MHP testwork described above, BHCP sample concentrate (7.5 tonnes) is currently being stored at ANSAC (ANERGY) in Bunbury WA in preparation for calcine (furnace) testwork. After thermal decomposition, this calcined material will be transported to the COB Pilot Plant (Broken Hill).

As part of the recently announced CRC-P Project, a large Pilot Plant trial will then be completed in Q4 2020. The calcined material will be used for leaching and metal recovery trials, whilst providing approximately 1 t of elemental sulphur for assessment by Mitsubishi Corporation.

However, the Company notes that the availability of personnel to run these trials may change if further measures related to social isolation in response to the COVID-19 pandemic are enacted.

Pilot Plant update – expected commissioning in Q4

A key stepping stone on the Company's development path is to build a metallurgical testing centre in Broken Hill. This centre will scale from an initial Pilot Plant Operation (expected to be commissioned in Q4 2020, producing ~100 kilograms of cobalt sulphate from 90 tonnes of ore) to a subsequent larger scale fully integrated Demonstration Plant (producing 1–2 tonnes of cobalt sulphate using up to 2,000 tonnes of ore). The results will form the evidentiary basis for the engineering designs and cost estimates for the BHCP Feasibility Study. Pilot Plant equipment has now arrived on site in Broken Hill and is currently in the process of installation.

Ore Reserve Statement update on target for mid-year

COB has previously announced its intention to release an updated Ore Reserve Statement in mid-2020. COB expects this more optimised series of studies to significantly improve the economics delivered as part of the PFS in mid-2018. The Company targets a cash cost of US\$10/lb (C1 basis – net of by-products) to produce cobalt sulphate. This will place the project in the lowest-cost quartile of cobalt projects globally. COB is pleased to reiterate that based on current guidance by independent consultants, COB will deliver an updated ore reserve statement by mid-year 2020.

Maintaining the Development Timeline

Overall, the development timeline to 2022 is shown in Figure 3.

Figure 3 – COB’s Development Timeline

	2017	2018	2019	2020	2021	2022
Business Achievements	IPO	LGI – Cobalt First Mover	Mitsubishi – Sulphur Agreement 100% Project Ownership	Global cobalt sample program – Q4 2020		Final Investment Decision – H1 2022
Technical Studies	Resource upgrade Drilling: +8,000m Resource: 55Mt Scoping Study	Resource upgrade Drilling: +12,500m Resource: 72Mt Pre Feasibility Study	Resource upgrade Drilling: +9,500m Resource: 111Mt	Ore Reserve Update – Q2 2020		Feasibility Study and Approvals – Q1 2022
Metallurgical Studies			Concentration – Pilot Scale Testwork	Pilot Plant – Q4 2020	Demonstration Plant – Q1 2021	
Environmental Approvals			CPDP Submitted	Scoping Report – Jan 2020 SEARs issued – Feb 2020	EIS Submission – H2 2021	SSD Determination – H1 2022
	ACHIEVEMENTS			GOALS		

Update - Cobalt Product Sample Program

COB has previously announced a Cobalt Product Sample Program (*Cobalt Product and Sulphur Sample Program – 10 March 2020*) using mixed hydroxide and cobalt sulphate from COB’s metallurgical testing centre. The aim of this program is to provide samples for technical and market assessments, to top-tier companies in the cobalt-for-battery supply chain. From late-2020, COB expects to ship samples to over ten partners, including cobalt trading companies and battery precursor manufacturers. Further market updates will be provided, subject to confidentiality agreements.

COB is pleased to announce that Sojitz Corporation has recently become a partner in the Cobalt Product Program. Sojitz is a leading Japanese general trading company, who have also taken active investments in operating mines around the world.

Cobalt Blue Background

Cobalt Blue Holdings Limited (ASX: COB) is an exploration and project development company, focussed on cobalt, a strategic metal in strong demand for new generation batteries, particularly lithium-ion batteries now being widely used in clean energy systems.

Work programs advancing the Broken Hill Cobalt Project in New South Wales continue. COB’s development timeline is subject to funding availability.

Looking forward, COB would like its shareholders to keep in touch with updates and related news items, which COB will post on its website, the ASX announcements platform, as well as social media such as Facebook (f) and LinkedIn (in). Please do not hesitate to join the ‘COB friends’ on social media and to join the newsletter mailing list at the COB website.



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This announcement was authorised by the Board of Directors.

Previously Released Information

This ASX announcement refers to information extracted from the following reports, which are available for viewing on COB's website <http://www.cobaltblueholdings.com>

- 06 April 2020: COB Partnerships – Testwork Success & QLD Minerals Initiatives
- 31 March 2020: Project update and Business Impacts of COVID-19 discussed
- 02 March 2020: Pilot Plant Update – Critical Equipment Received
- 09 December 2019: Pilot Plant Update
- 24 June 2019: Concentrate Circuit (Pilot Trial) program successfully completed
- 31 May 2019: COB-Mitsubishi Sulphur Agreement
- 04 April 2019: Significant Thackaringa Resource Upgrade
- 26 February 2019: Testwork Update
- 04 July 2018: Thackaringa Pre Feasibility Study Announced

COB confirms it is not aware of any new information or data that materially affects the information included in the original market announcement, and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. COB confirms that the form and context in which the Competent Person's findings presented have not been materially modified from the original market announcement.