

March 2019

Investor Presentation

COB : ASX





Cobalt Blue – Company Overview

Broken Hill (Thackaringa) Cobalt Project

Cobalt Blue Holdings Limited (COB) is a cobalt exploration/development company focussed on the development of the Broken Hill Cobalt (Thackaringa) Project in New South Wales, Australia.

The Broken Hill Project is 23 km west of Broken Hill and 400km by rail from Port Pirie, consists of four granted tenements (EL6622, EL8143, ML86 and ML87) with total area of 63km². The main targets for exploration are large-tonnage cobalt-bearing pyrite deposits.

Capital Structure

ASX Code:	COB
Share Price (12 March 2019):	\$0.16
Shares:	124.6m
Options:	25.4m
Market Capitalisation (undiluted):	A\$20m
Cash @ 31 December 2018:	A\$7.2m
Liabilities:	nil

Major Shareholders

LG International	5.6%
Hill Family Group	5.4%



Cobalt Blue - Achievements + Goals

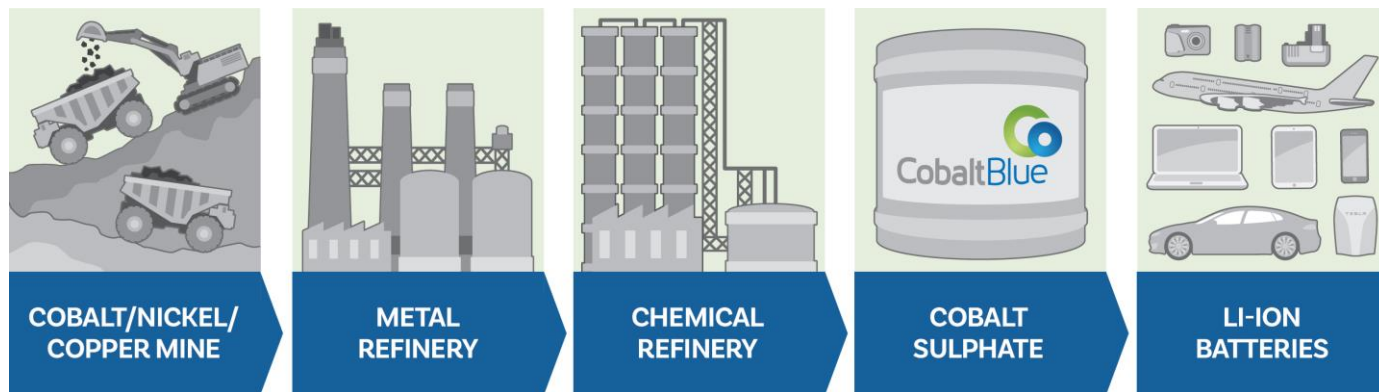
Achievements:

- ✓ Initial Public Offering: February 2017.
- ✓ Scoping Study.
- ✓ Pre Feasibility Study.
- ✓ LGI Partnership.

Goals:

- ❑ Bulk Scale Metallurgical Testing: Target mid 2020.
- ❑ Project Permits & Approval: Target end 2020.

Cobalt Blue – Mine to Battery Strategy



Co ~25-35% payable
Traditional Cobalt Mine Model

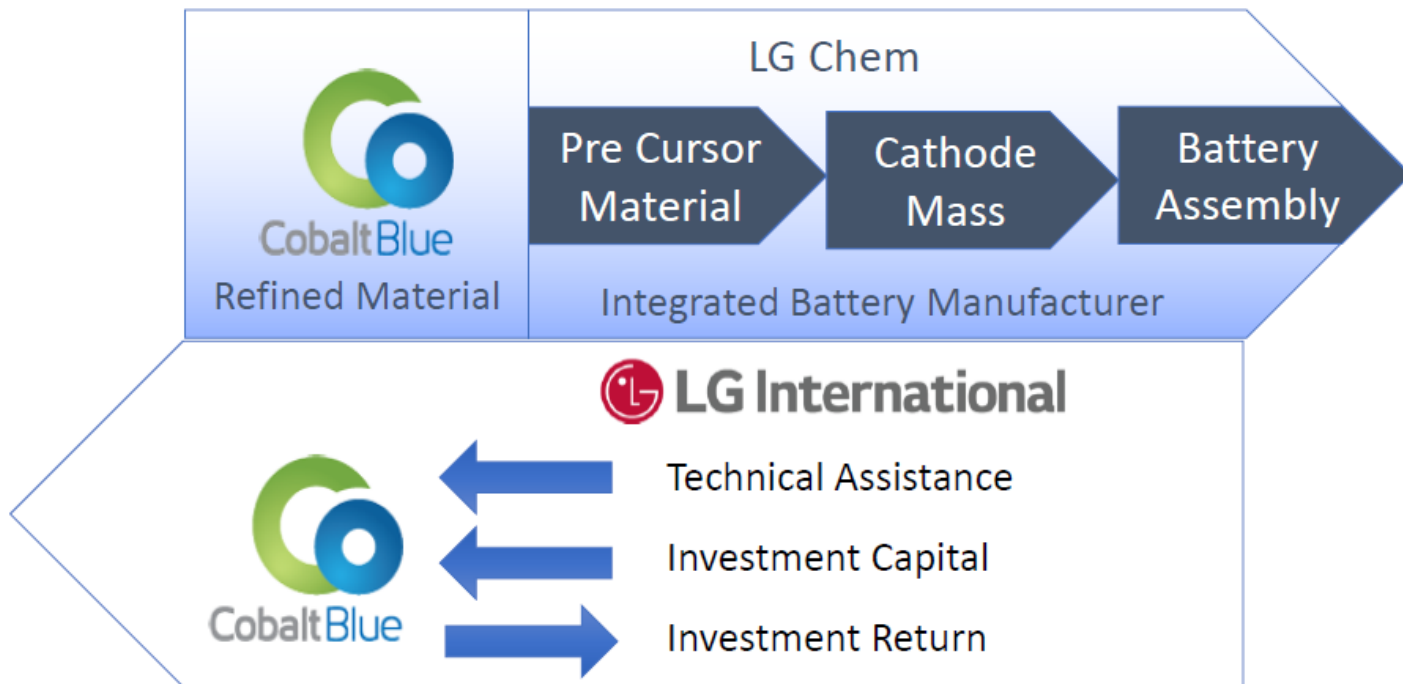


Co ~90-110% payable
COB Model

Source: Cobalt Blue Holdings Ltd

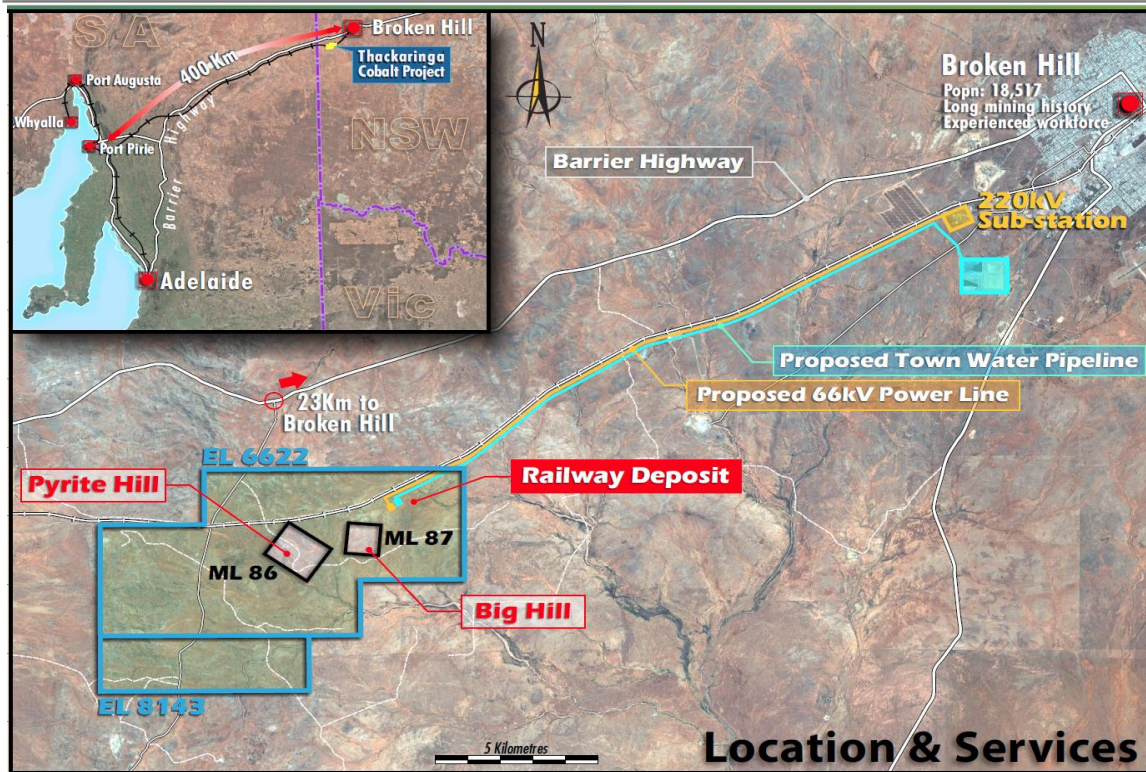
LGI & COB - First Mover Strategy

Strategic Partnership



Source: Cobalt Blue Holdings Ltd

Broken Hill - People, Power, Water, Road, Rail



Water Note: Essential Water has committed to supply up to 1.5 gigalitres per year of water to service the cobalt processing and refining requirements of the Project.

PFS - Significant Defined Resources and Reserve

Mineral Resource (March 2018)

Category	Mt	Co ppm	S %	Contained Co (t)
Indicated Mineral Resource	52	869	9.3	44,900
Inferred Mineral Resource	20	810	9.2	16,600
Total Mineral Resource	72	852	9.3	61,500

Component of Mineral Resource

Ore Reserve and Production Target (June 2018)

					Indicated %	Inferred %
Probable Ore Reserve	46	820	8.8	38,000	100	0
Production Target	59	800	8.7	47,000	87	13

Source: Cobalt Blue Holdings Ltd

Note: Crush + concentration/float circuit enables ~5x grade uplift from 800ppm ROM to ~ 4000ppm concentrate.

These estimates of Mineral Resources were first announced by Cobalt Blue Holdings Ltd in *Thackaringa – Significant Mineral Resource upgrade - 19 March 2018*. The Company confirms that it is not aware of any new information or data that materially affects the information included in that announcement, and all material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed.

“These Ore Reserves were first announced in ASX announcement “*Thackaringa Cobalt Project Pre-Feasibility Study*” on 4 July 2018. The Company is not aware of any new information or data that materially affects the information included in the relevant announcement and, that all material assumptions and technical parameters underpinning the estimates in the relevant announcement continue to apply and have not materially changed.”

PFS - Economic Summary June 2018

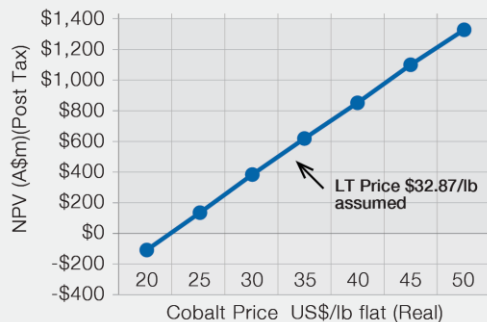
Summary of Product Target Financial Model

Throughput, CAPEX, Costs	Input	Comments
Plant Capex (±25%)	A\$550m	Incl A\$66m in contingency, excl \$23m pre-strip
Plant throughput	5.25 Mtpa	Following commissioning period
Cobalt production (metal in sulphate)	3,558 tpa	Average over first 10 years post ramp-up
Cobalt production (metal in sulphate)	40,331 tonnes	LOM Total
C1 Cash Cost (incl sulphur credit)	US\$12.80/lb	Average based on Production Target
Initial mine life (Production Target)	12.8 years	Production Target 58.7mt @ 802ppm cobalt
Macro Assumptions	Input	Comments
A\$/US\$ Exchange Rate	Fwd curve	2018 \$0.75, 2019 \$0.73, 2020 \$0.71, 2021 \$0.71 then \$0.70 onwards
Avg LOM Cobalt Sulphate Price	US\$33.80/lb	Independent expert – CRU International
Avg LOM Sulphur Price (landed in Aus)	US\$145/t	Independent expert – CRU International
Financial Metrics	Input	Comments
Pre Tax NPV (8%)	A\$792m	Based on Production Target
Pre Tax IRR (%)	27.0%	
Post Tax (7.5%)	A\$544m	
Post Tax IRR (%)	22.0%	
Project Payback (simple)	4 years	

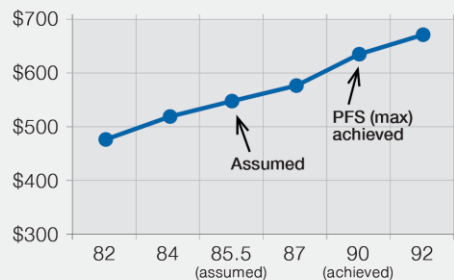
Source: Cobalt Blue

PFS - Cobalt Leverage

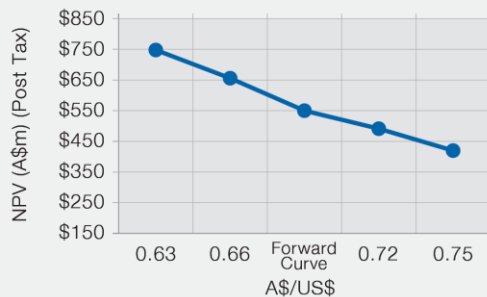
NPV A\$m (Post Tax) vs Cobalt Price



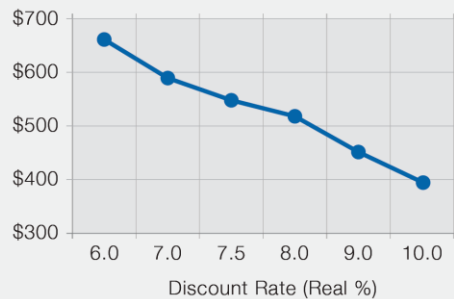
NPV A\$m (Post Tax) vs Cobalt Recovery



NPV A\$m (Post Tax) vs A\$/US\$

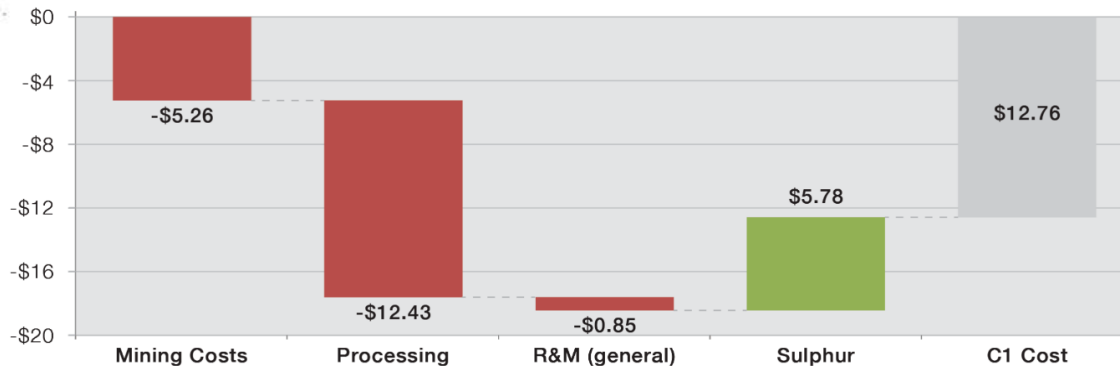


NPV A\$m (Post Tax) vs Discount Rate

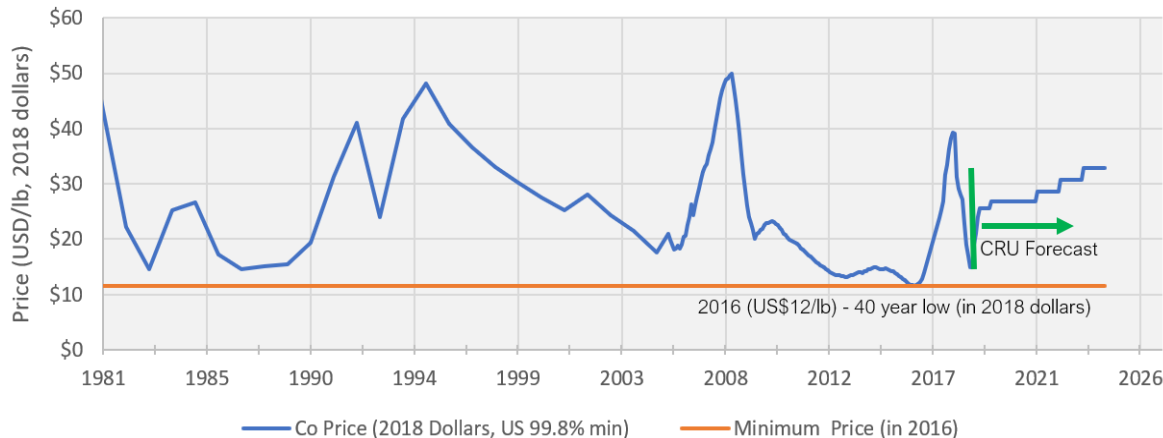


Source: Cobalt Blue

PFS - Forecast Resilient C1 Costs



Source: Cobalt Blue



Source: USGS, LME



Cobalt Blue - Project Updates Over 2019

Three key optimisation opportunities:

☐ **Mine life:**

- ☐ Extend project life through exploration and acquisitions.
- ☐ Updated Resource Statement due Q1 2019.

☐ **Metal recoveries:**

- ☐ Larger scale testing is now underway, targeting increased metal recoveries.

☐ **Optimising Project Costs:**

- ☐ CAPEX and OPEX of life-of-mine management of mine waste rock and process plant tailings.
- ☐ Target reductions in power costs (22% of PFS C1 costs) through waste heat recovery and power supply opportunities (PV, batteries).

The Cobalt Blue Team

“Extensive expertise in mineral exploration and mine development, investment management, corporate law and energy storage.”



Chief Executive Officer – Joe Kaderavek

- Deutsche Bank, Head of Resources, equities / investment management, resources and energy storage technology focus
- PricewaterhouseCoopers performing operational reviews and strategic assessments across mining, minerals processing, railway and port facilities throughout Australia, North America and Europe; worked extensively on secondment to BHPB and Rio Tinto
- International consulting role focused on renewable energy / battery storage technologies

Executive Manager – Dr Andrew Tong

- Metallurgist with nearly 15 years experience in project development, operating mining and processing activities, and patenting innovative minerals processing technology
- Non-executive director of Northern Territories Resources Pty Ltd
- Owner of Minerals and Residues Pty Ltd, which provides metallurgical consulting and testwork, and corporate management and advisory services
- Formerly CEO of Compass Resources (Australia), and CEO of Goldsmith Resources (Peru)

Independent Chairman – Robert Biancardi

Independent Director – Hugh Keller

Independent Director – Rob McDonald

More Information

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ASX Code

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COB

Appendix





Further Information

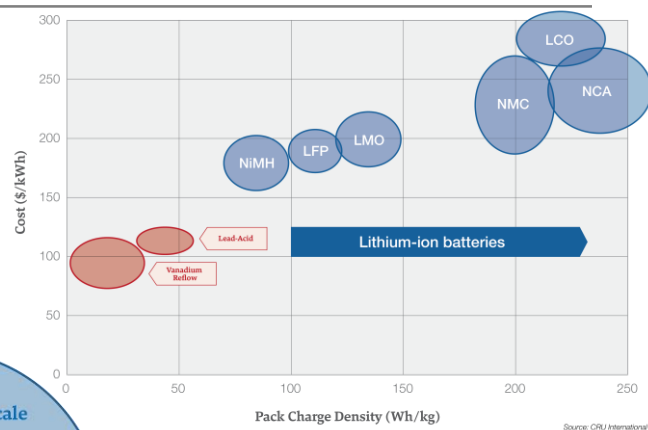
Appendices

- A1** Cobalt and Batteries
- A2** Cobalt Blue Resources and Reserves
- A3** Cobalt Blue Process and Testwork Description

Source: Cobalt Blue Holdings Ltd

A1. Li ion & Cobalt Cathodes – Strong EV Credentials

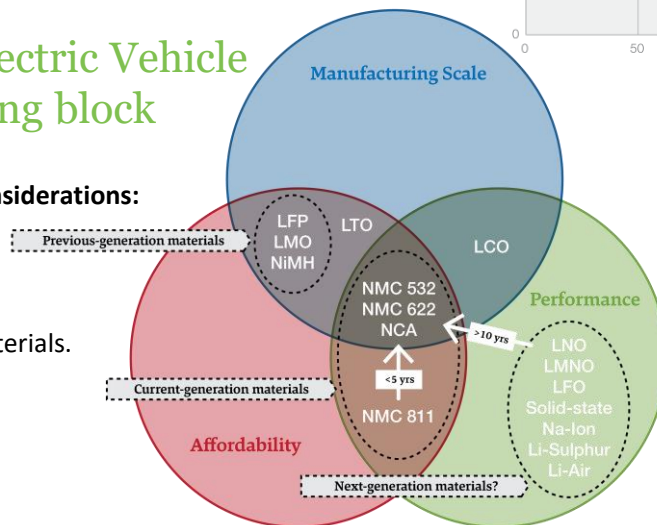
- **NMC/NCA:** EV nickel-cobalt battery chemistries.
- **LFP/LMO:** Cheaper battery chemistries.
- **Nickel-Metal Hydride:** Phased out of EV sector.
- **Lead-Acid/Vanadium:** Energy storage applications.



Cobalt = Electric Vehicle building block

Other important considerations:

- Safety.
- Cycle lifespan.
- Availability of materials.
- Partnerships.

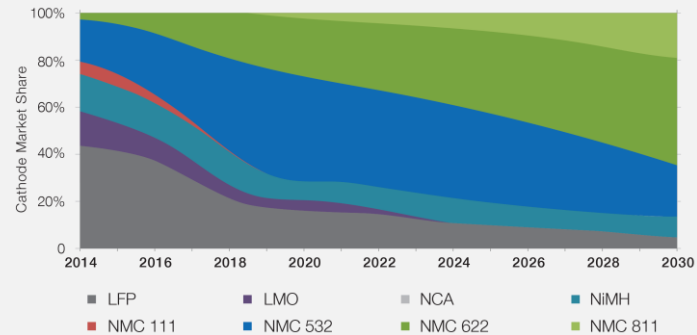


NMC = Nickel Manganese Cobalt
NCA = Nickel Cobalt Aluminium Oxide

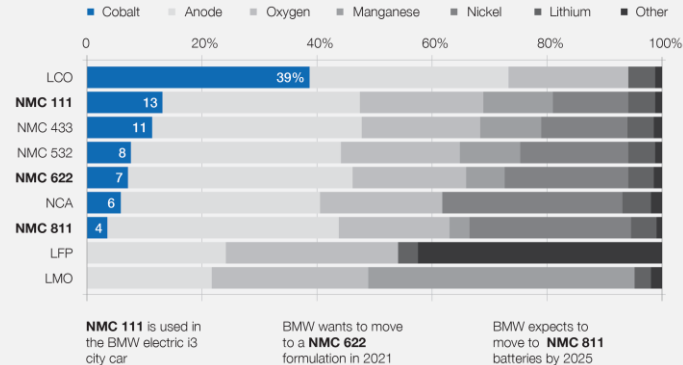
Source: CRU International

A1. Battery Cathode - Adoption

NMC 532/622
- dominant
chemistry



Cobalt proportion
in various battery
chemistries:

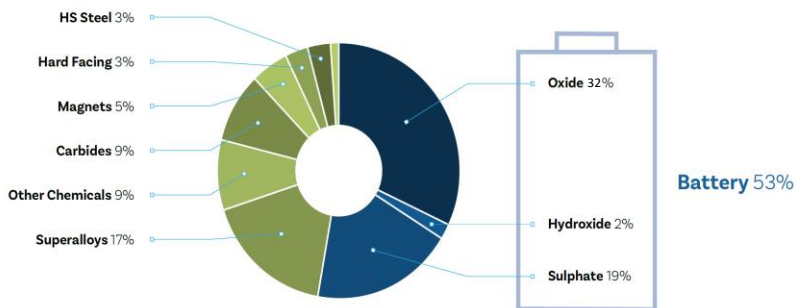


Source: Cobalt Blue Holdings Ltd

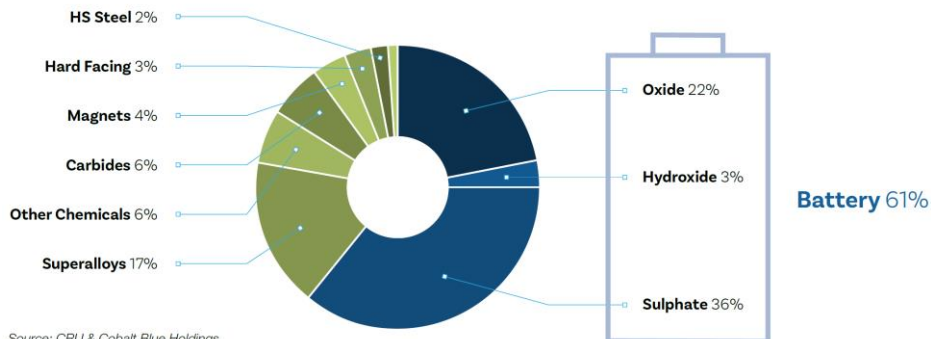
A1. Cobalt Demand +70% next decade

.....driven by >300% Cobalt Sulphate

Cobalt Demand 2017 – Actual



Cobalt Demand 2026 – Forecast



Source: CRU & Cobalt Blue Holdings

A2. Significant Defined Resources

Category	Mt	Co ppm	Fe %	S %	Pyrite % ¹	Contained Co (t)	Py Mt	Density
Railway (at a 500ppm Co cut-off)								
Indicated	23	854	10.1	9.2	17	19,400	4	2.85
Inferred	14	801	10.4	9.2	17	11,100	2	2.85
Total	37	842	10.2	9.2	17	30,800	6	2.85
Big Hill (at a 500ppm Co cut-off)								
Indicated	7	712	7.2	6.9	13	5,200	1	2.77
Inferred	2	658	6.7	6.3	12	1,500	0	2.76
Total	10	697	7.1	6.7	13	6,700	1	2.77
Pyrite Hill (at a 500ppm Co cut-off)								
Indicated	22	937	10.9	10.3	19	20,300	4	2.87
Inferred	4	920	11.2	10.8	20	4,000	1	2.89
Total	26	934	10.9	10.3	19	24,200	5	2.88
Total (at a 500ppm Co cut-off)								
Indicated	52	869	10.0	9.3	17	44,900	9	2.85
Inferred	20	810	10.1	9.2	17	16,600	4	2.85
Total	72	852	10.0	9.3	17	61,500	13	2.85

Data is reported to significant figures to reflect appropriate precision and may not sum precisely due to rounding

Source: Cobalt Blue Holdings Ltd

A2. Significant Defined Ore Reserves

Ore Reserve (30 June 2018)

Category	Mt	Co ppm	S %	Contained Co (t)
Probable Ore Reserve	46	820	8.8	38,000

PFS Base Case Pit Inventories per Deposit (30 June 2018)

Deposit	Tonnes (Mt)	Co (ppm)	S (%)
Pyrite Hill	22	880	9.6
Railway	21	790	8.6
Big Hill	4	650	6.1
Total	46	820	8.8

PFS Production Target per Deposit (30 June 2018)

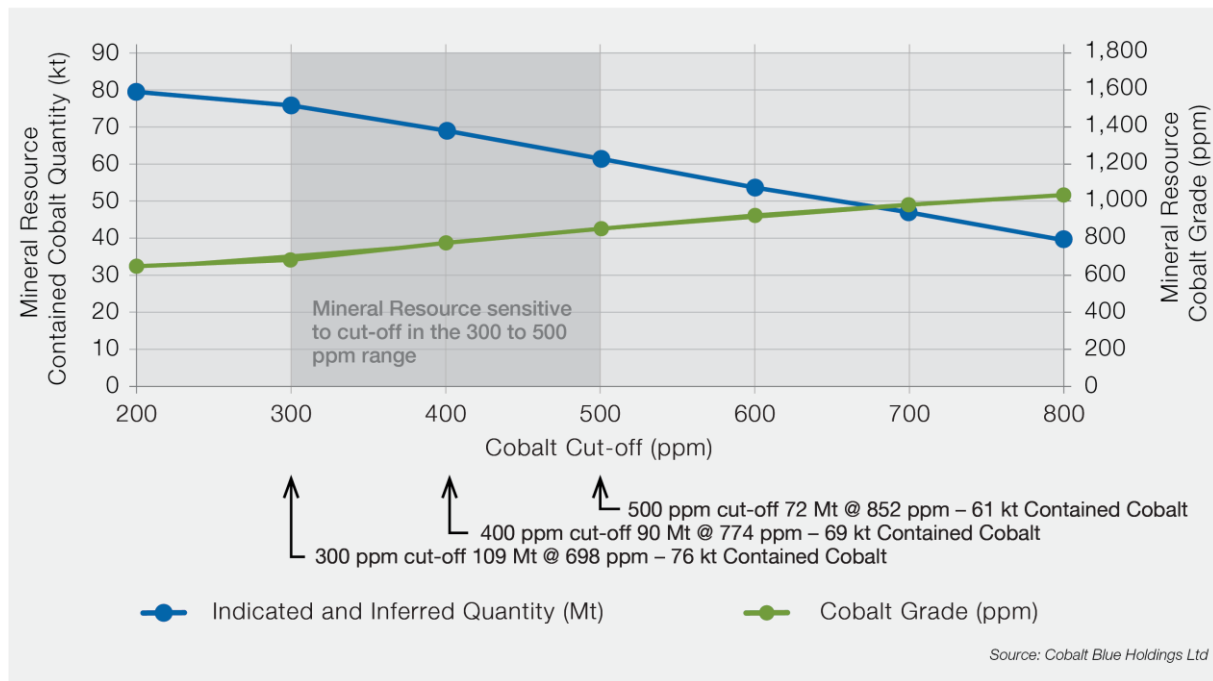
Deposit	Tonnes (Mt)	Co (ppm)	S (%)	Indicated %	Inferred %
Pyrite Hill	26	880	9.7	87	13
Railway	25	780	8.6	88	12
Big Hill	9	630	6.1	85	15
Total	59	800	8.7	87	13

Data is reported to significant figures to reflect appropriate precision and may not sum precisely due to rounding

Source: Cobalt Blue Holdings Ltd

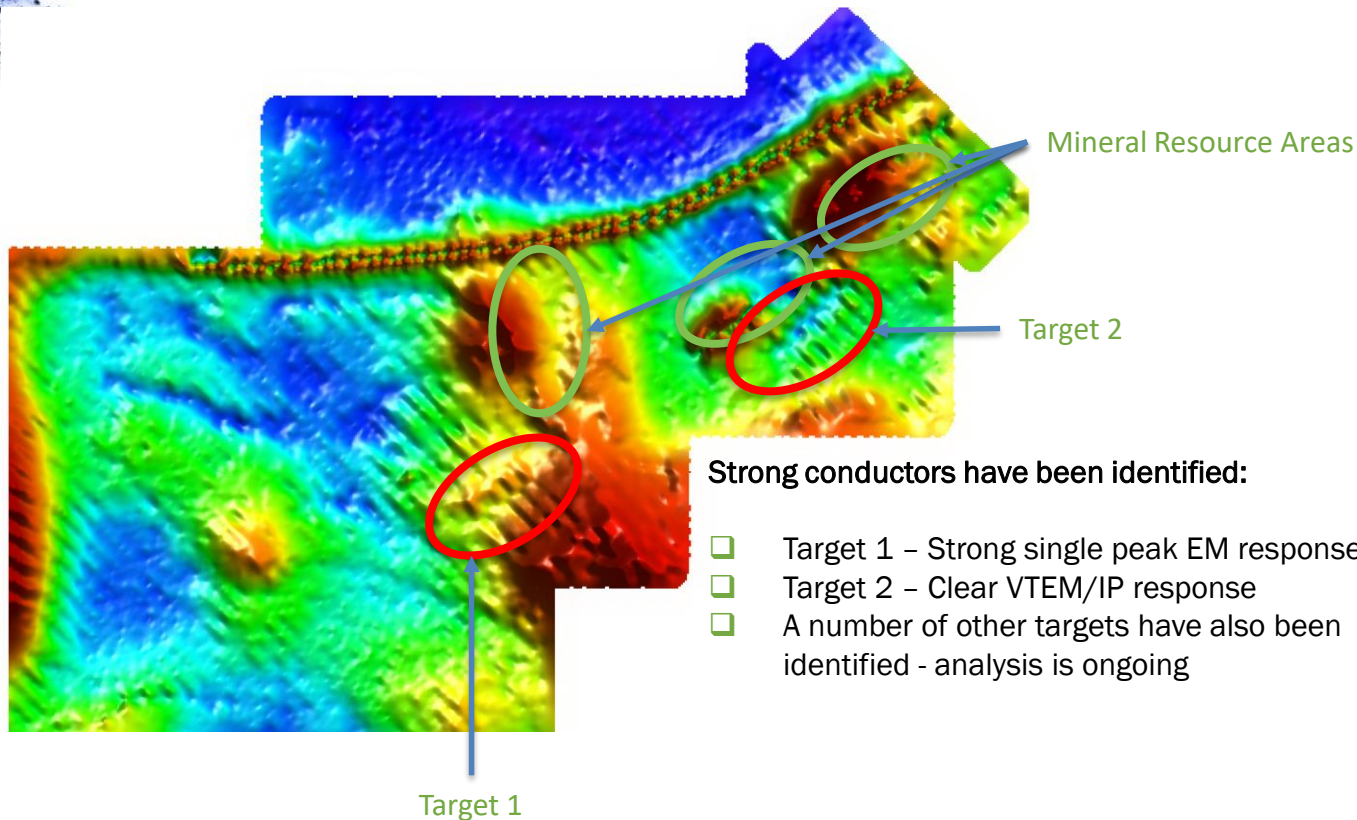
A2. Grade Tonnage Curve

Contained Cobalt – Mineral Resource Grade Tonnage Curve – Total Indicated and Inferred



These estimates of mineral resources were first announced by Cobalt Blue Holdings Ltd in *Thackaringa – Significant Mineral Resource upgrade - 19 March 2018*. The Company confirms that it is not aware of any new information or data that materially affects the information included in that announcement, and all material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed.

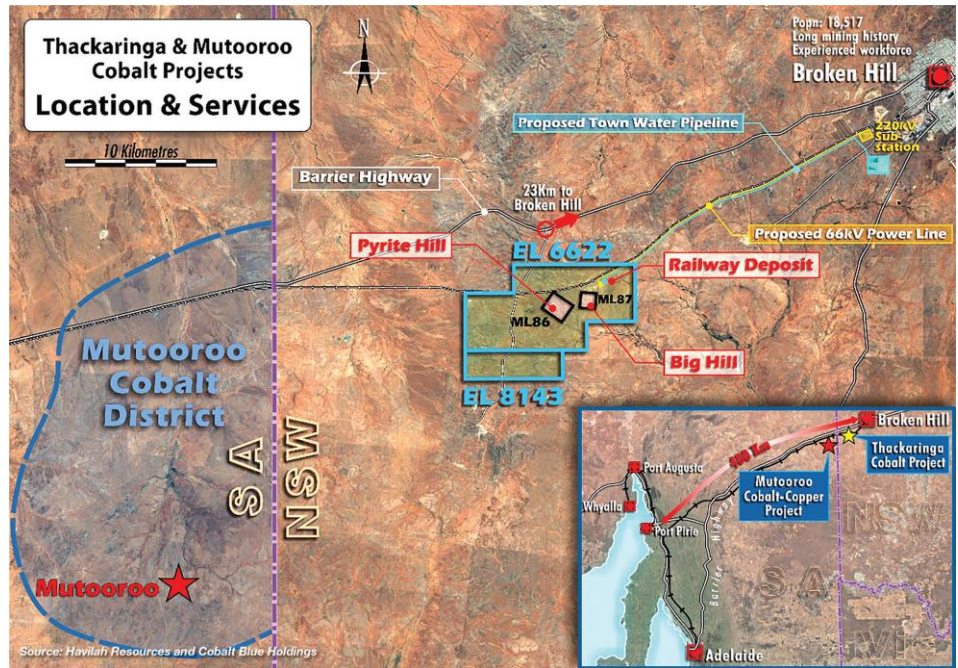
A2. “Blue Sky” Geophysics



A2. COB-Havilah Resources - MOU

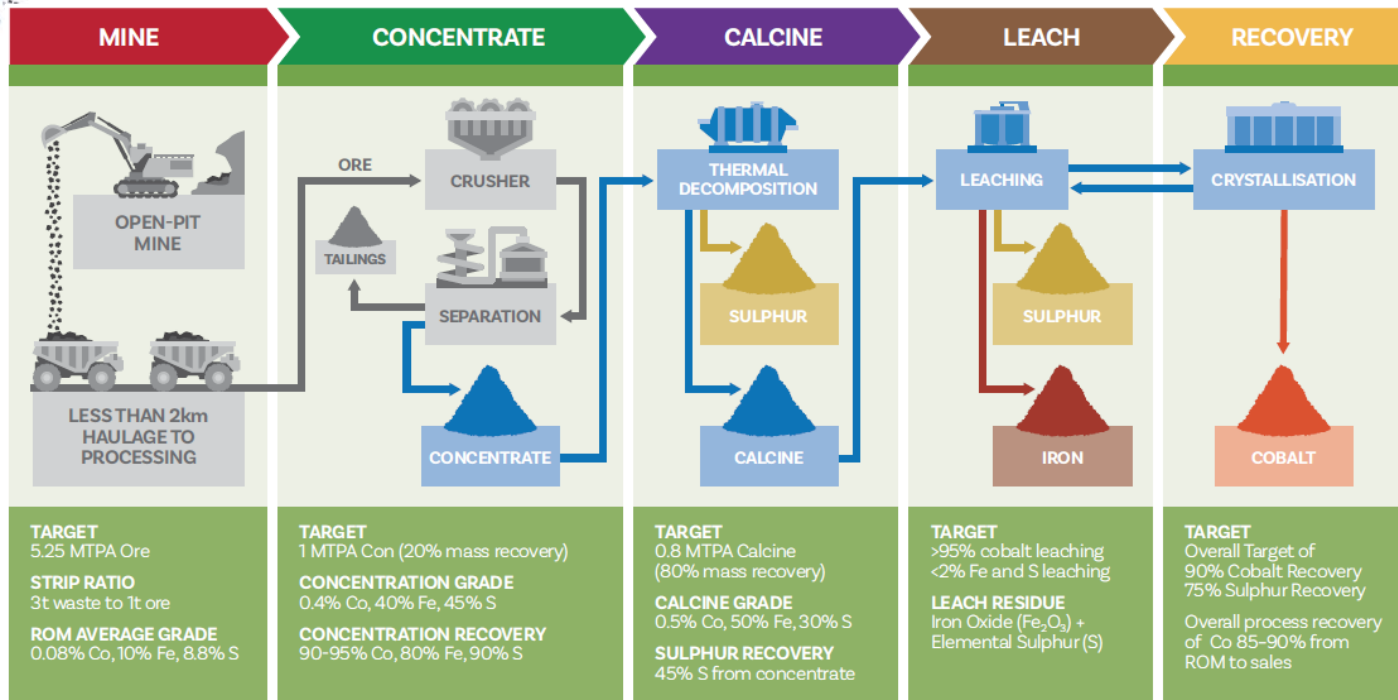
COB considering growth opportunities

- ❑ Cooperation with Havilah Resources
- ❑ Potential regional Broken Hill cobalt district



Source: Havilah Resources & Cobalt Blue Holdings

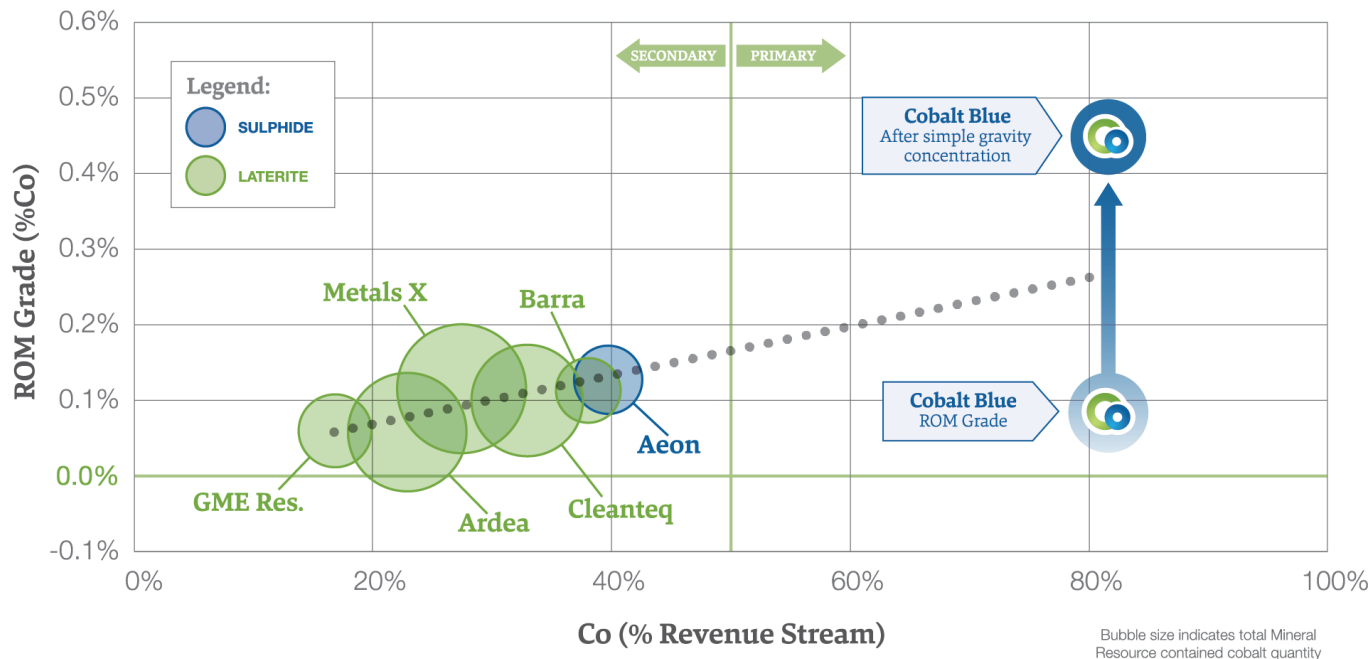
A3. Cobalt Sulphate Production Flowchart



Source: Metallurgical testwork – Cobalt Blue Holdings

A3. Broken Hill– Comparison with ASX peers

Cobalt – ASX Primary & Secondary (Explorers/Developers)



Note: Revenue stream figures are based solely upon head grades converted into revenues at Feb 2019 spot prices.

A3. Processing – Concentrate (PFS Testwork)



PFS Testwork material - 820 kg of ore composited.

Ore was crushed to p100 @ 1.2 mm and passed through a gravity spiral circuit. The tails were screened, with the fines subjected to froth flotation. The gravity and flotation concentrates were combined into a single concentrate.

Key PFS outcomes:

- ❑ High (92%) cobalt recovery to concentrate from ore
- ❑ Cobalt recovery achieved with coarse crush size of 1.2 mm and gravity separation, indicating low capital and operating costs compared to fine milling and floating the entire ore



Concentrate testwork – simple gravity spirals delivering exceptional results

Source: Metallurgical testwork – Cobalt Blue Holdings

A3. Processing – Calcine & Leach (PFS Testwork)

MINE

CONCENTRATE

CALCINE

LEACH

PRODUCT RECOVERY

100 kg of concentrate was treated through the calcine and leach unit operations for the PFS.

The concentrate is thermally treated to remove some of the sulphur into the gas phase. The resulting solid calcine is then leached to extract cobalt into solution.

Key outcomes:

- ❑ Calcining the gravity concentrate typically removes ~35% of the sulphur from the pyrite
- ❑ The resulting elemental sulphur condensed from the gas phases averaged 97.5% Sulphur. Improved engineering design is expected to improve the quality of the sulphur in future testwork
- ❑ There are no losses of cobalt to the gas phases in the thermal treatment step
- ❑ Leaching of the calcine achieved cobalt recoveries ranging from ~90% to 96%. The leach parameters are still being optimised



Above: Laboratory-scale furnace & elemental sulphur condenser. **Below:** Photos of the feed concentrate, residual calcine and collected elemental sulphur.

Source: Metallurgical testwork – Cobalt Blue Holdings

A3. Processing – 2018-2019 Programs



Scale up of testwork programs from PFS

Concentration

- ❑ 45 t of ore is being processed by April 2019, aiming to produce 6-10 t concentrate (ALS Burnie)

Pyrolysis

- ❑ Laboratory testwork on 150 kg sample - January 2019 at Harper International (USA) - **completed**
- ❑ Pilot trials planned on 150 kg/hr basis using 5 t concentrate in Q2 2019 (Perth)

Leaching

- ❑ Continuous POX trials to follow pilot pyrolysis trials in Q3 2019

Product Recovery

- ❑ Optimisation of recovery circuits currently underway at ALS Perth

A3. Processing – Global Operations Reference



Comminution and Concentration via flotation

- ❑ Newcrest - 10mtpa pyrite ore via milling and flotation (Lihir Island - PNG)
- ❑ OZ Limited - 10mtpa copper ore milling, flotation of concentrate (Prominent Hill - Australia)

Concentration via spirals

- ❑ Illuka Resources - 600ktpa heavy mineral concentrate (Jacinth Ambrosia - Australia)

Pyrolysis

- ❑ Kinross Gold - Tasiat Project (Mauritania) – (carbon regeneration)
- ❑ PT Aincourt - Martabe Gold Project (Indonesia) – (carbon regeneration)
- ❑ Outotec – (1950-1970) pyrite reduction to elemental sulphur (Finland)

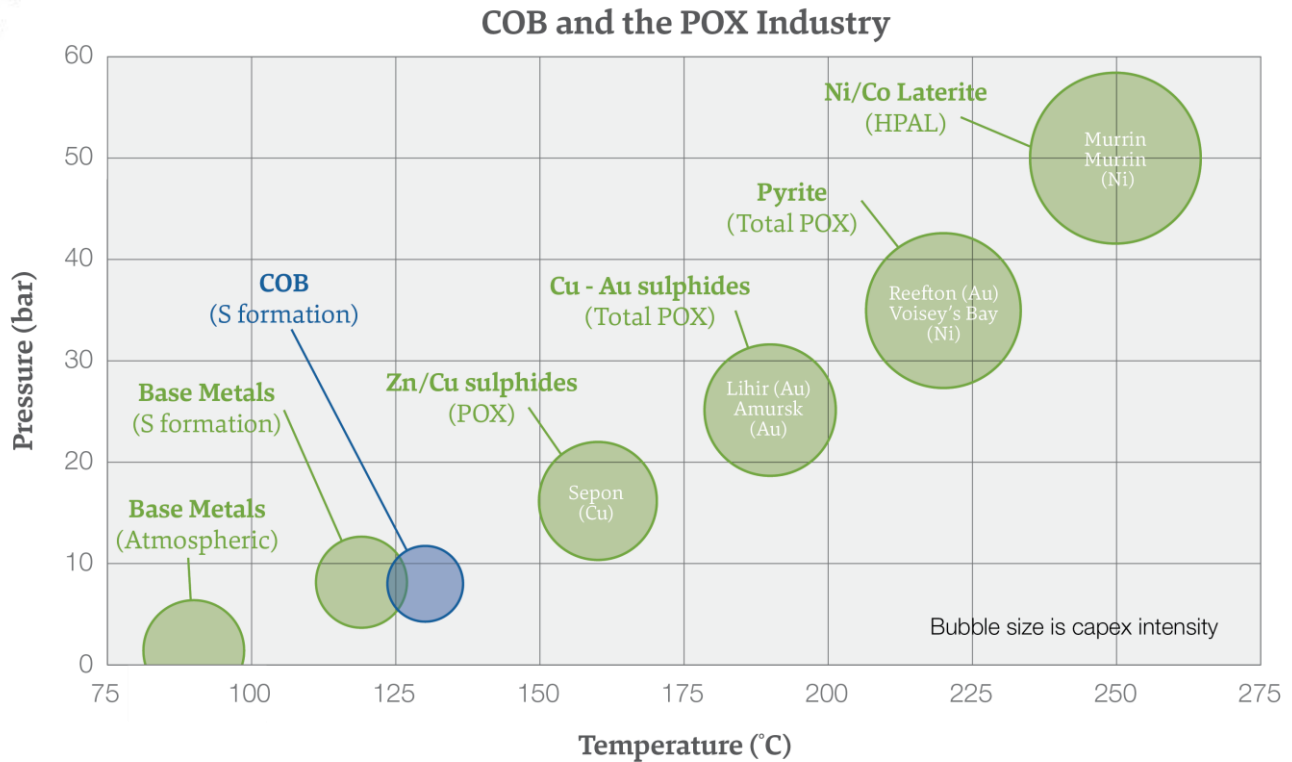
Leaching

- ❑ Vale S.A. - POX plant copper concentrates (Carajas region - Brazil)
- ❑ Flin Flon - Hudson Bay Mining & Smelting (Canada)

Product Recovery

- ❑ Sepon - SX Copper at 75ktpa (Laos)
- ❑ CoSO₄ crystallisation – (Democratic Republic of Congo)

A3. COB – Position in POX Industry



Key Note: Low temperature/pressure POX = reduced capital requirements.

Source: Cobalt Blue Holdings Ltd

A3. Premium Prilled Sulphur Produced



Source: Metallurgical testwork – Cobalt Blue Holdings



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Competent Persons Statement

COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration Targets, Exploration Results, and Mineral Resources is based on information compiled by Mr Peter Buckley, a Competent Person who is a Member of The Australian Institute of Geoscientists (MAIG). Mr Buckley is employed by (Left Field Geoscience Services) and engaged by Cobalt Blue Holdings on a consulting basis. Mr Buckley 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'. Mr Buckley consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The revised Mineral Resource was independently prepared by SRK Consulting using a Co-Kriging ('CK') method of estimation, suitable for the style of mineralisation. Mr Danny Kentwell, Principal Consultant (Resource Evaluation) at SRK Consulting, was engaged to estimate the Mineral Resource as the independent Competent Person. The Mineral Resource has been estimated and reported in accordance with the guidelines of the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Minerals Resources and Ore Reserves ('2012 JORC Code').

The information in this report that relates to Ore Reserves is based on information compiled by Dean Basile, who is a Competent Person and is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM). Dean Basile MAusIMM (CP) is a full-time employee of Mining One (at the time of estimation). Dean Basile has had sufficient experience that is relevant to the style of mineralisation and the 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'. Dean Basile consents to the inclusion in this report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to Metallurgical Testwork Results or Engineering Design Studies is based on, and fairly represents, information and supporting documentation prepared by Dr Andrew Tong, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Dr Andrew Tong is engaged by Cobalt Blue Holdings as Executive Manager. Dr Andrew Tong 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'. Dr Andrew Tong consents to the inclusion in the report of the matters based on his information in the form and context in which they appear.