

Sydney Mining Club Investor Presentation

COB : ASX





Cobalt Blue – Company Overview

Thackaringa Cobalt Project

Cobalt Blue is a cobalt centred exploration company focussed on development of its mineral resource at the Thackaringa Cobalt Project in New South Wales.

This strategic metal is in strong demand for new generation batteries, particularly lithium-ion batteries now being widely used in clean energy systems.

The Thackaringa Project, 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 well known and document large-tonnage cobalt-bearing pyrite deposits.

The project area is under-explored, with the vast majority of historical exploration directed at or around the outcropping pyritic cobalt deposits at Pyrite Hill and Big Hill.

Capital Structure

ASX Code:	COB
Share Price (4 July 2018)	\$0.74
Shares:	115.4m
Options	26.1m
Market Capitalisation (undiluted)	A\$85m
Cash @1 July 2018	A\$9.8m
Liabilities	nil

Major Shareholders

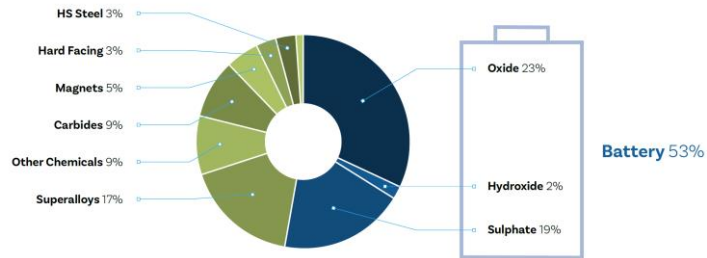
Hill Family Group	7.1%
LG International	6.1%

Source: Metallurgical testwork – Cobalt Blue Holdings

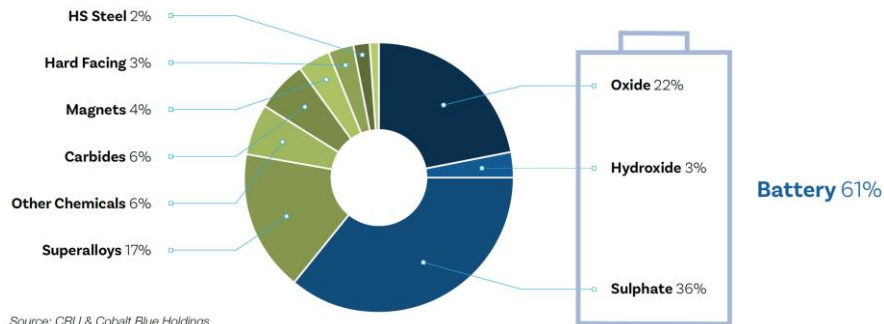
Cobalt Demand +70% next decade

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

Cobalt Demand 2017 – Actual



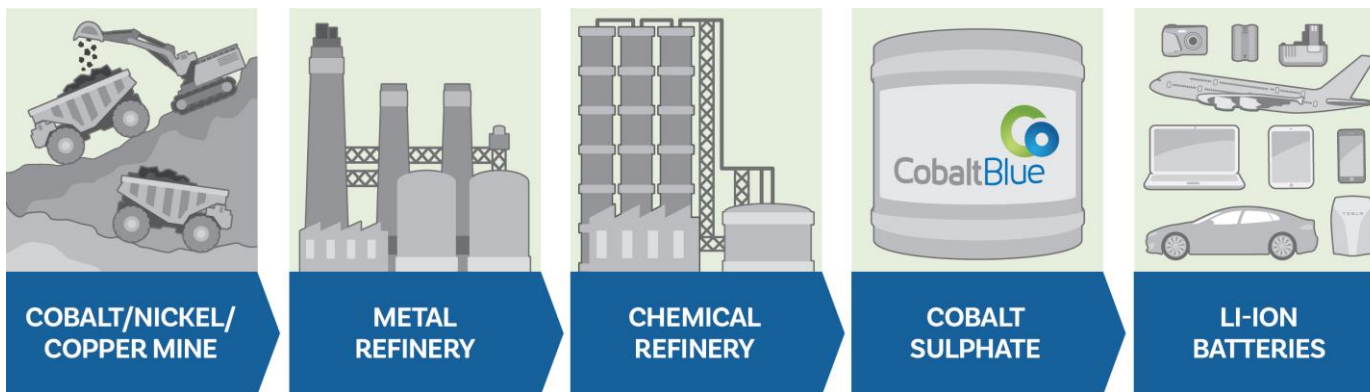
Cobalt Demand 2026 – Forecast



Source: CRU & Cobalt Blue Holdings

Source: CRU, Cobalt Blue Holdings Ltd

Thackaringa – mine to battery strategy

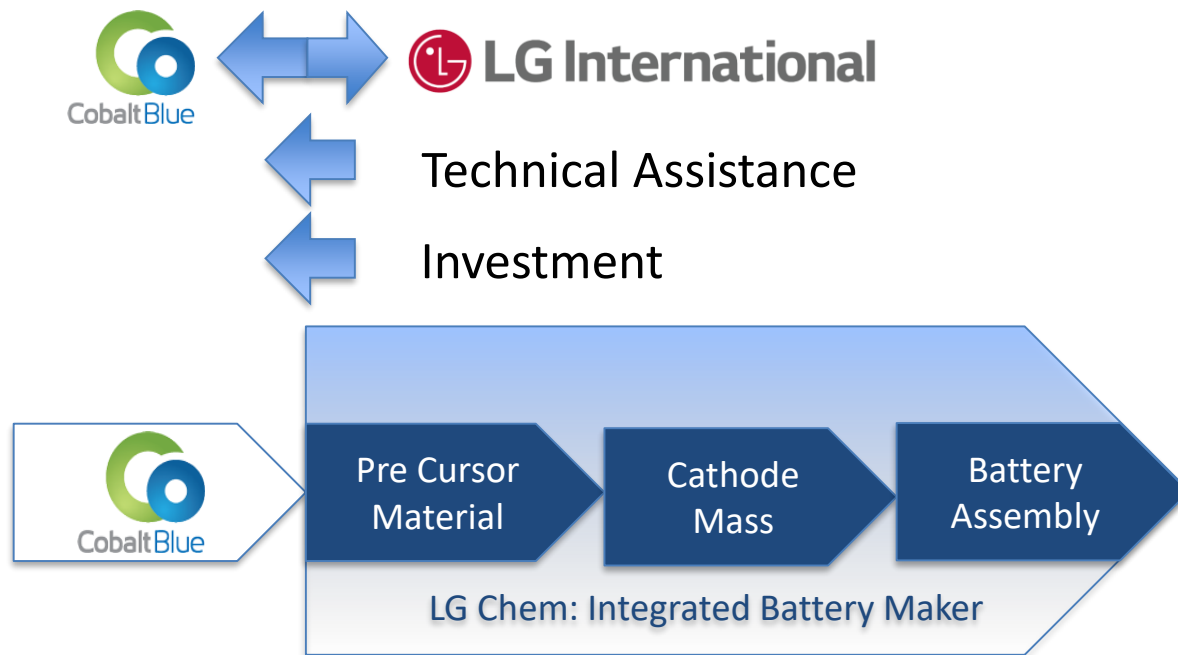


Co ~25-35% payable
Traditional Cobalt Model

Co ~105% payable
Cobalt Blue Model

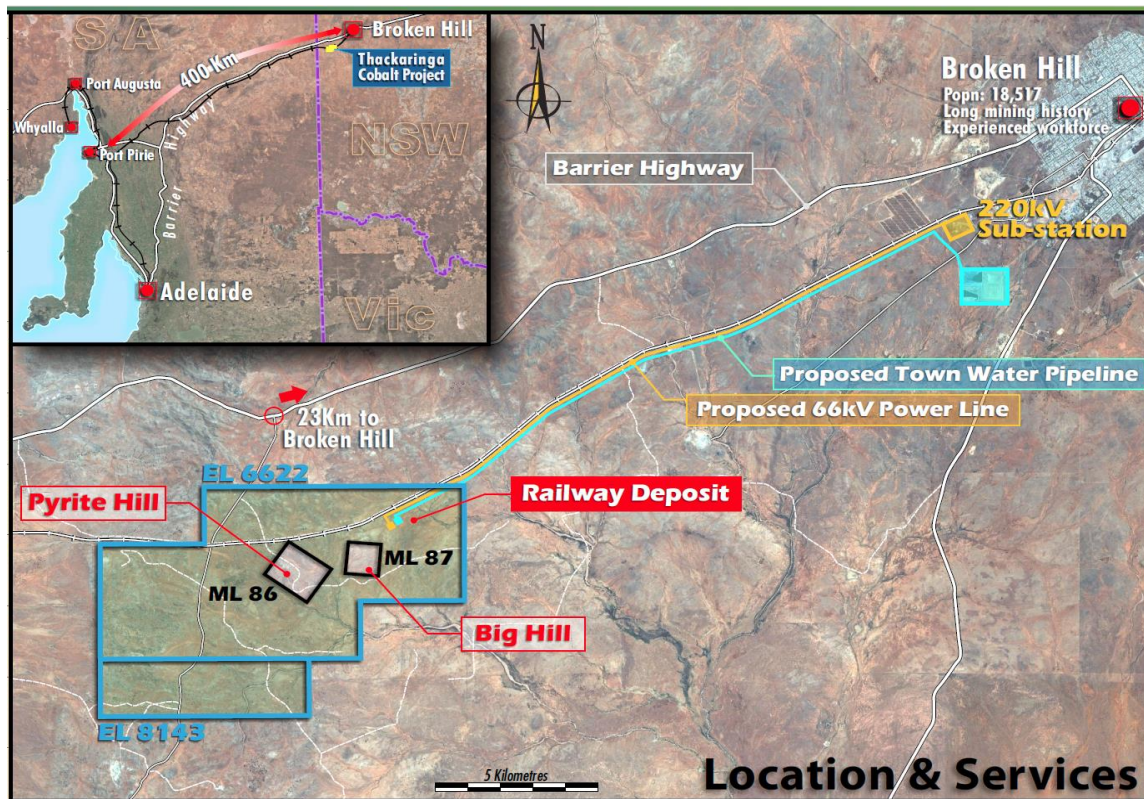
Source: Cobalt Blue Holdings Ltd

LGI & COB - First Mover Strategy



Source: Cobalt Blue Holdings Ltd

Thackaringa – People, Power, Water, Road, Rail



Source: Cobalt Blue Holdings

Thackaringa – 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

Source: Cobalt Blue Holdings

COB – Reserve & Production Targets

Thackaringa Cobalt Project – Ore Reserve Tonnage and Grade

(Note: Minor rounding errors may have occurred in the compilation of this table)

	Tonnes (Mt)	Co (ppm)	S (%)
Proved	–	–	–
Probable	46.3	819	8.83
Total Tonnes	46.3	819	8.83

Source: Mining One

Thackaringa Cobalt Project – Upside Production Target

Tonnes (Mt)	Co (ppm)	S (%)
58.7	802	8.7

Source: Mining One

COB – PFS Economics

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

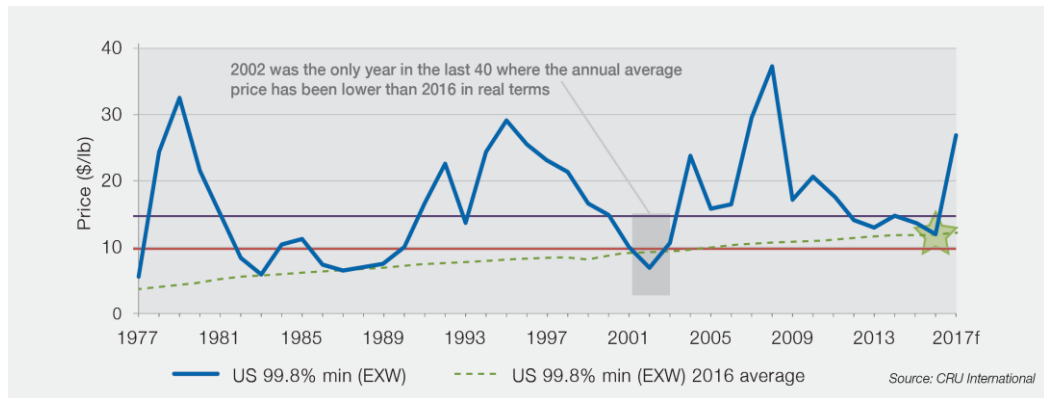
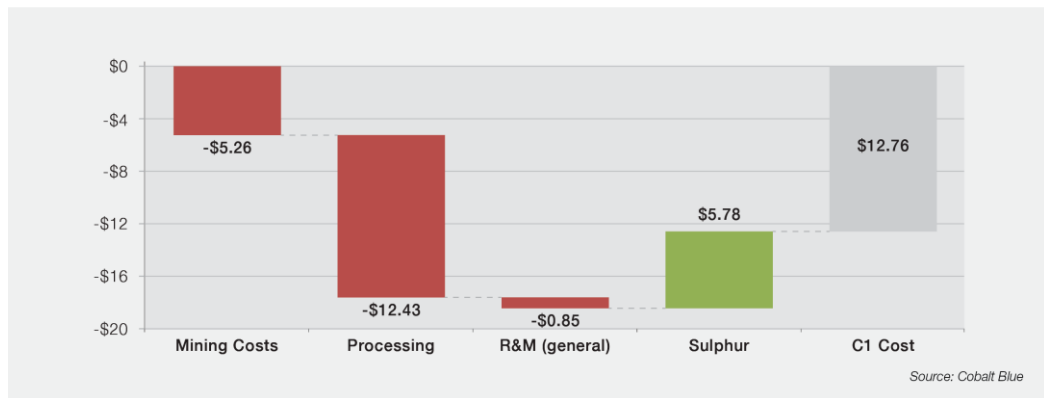


COB – 12 month catalysts

Four key optimisation opportunities:

- ❑ **Process plant tailings handling and storage:** LOM management of tailings (Capex + Opex) ~A\$260M. Review study (Q3 2018).
- ❑ **Metal recoveries:** Design criteria used during the PFS was based on batch testwork. Larger scale testing will be conducted during the BFS targeting increased metal recoveries.
- ❑ **Power pricing:** Power represents 22% of site cash costs. Focus upon energy storage (batteries), process plant operating philosophies, frequency & grid stability options.
- ❑ **Mine life:** Extend project life by treating ore from inferred inventories from known resources and from other sources beyond Thackaringa.

Thackaringa – Resilient economics



Thackaringa – Outstanding Capital Efficiency

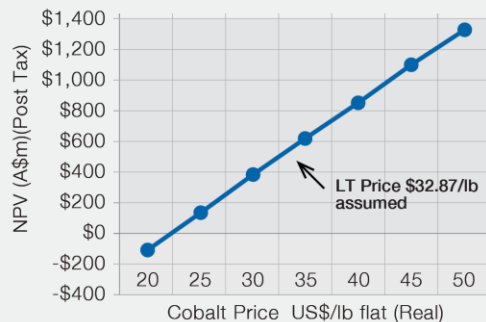
New global projects running at 3 to 4x COB capital intensity

Project	First Production (Date)	US\$ Capex	Cobalt (tpa)	By-products	Cobalt (% revenue)	Cobalt Payable (% LME)	Mine Life (years)	Capital Intensity (US\$/t Co)
Kamoa-Kakula (DRC)	2020	1,000	TBD	Copper			>20	TBD
Black Butte (US)	2021	220	?	Copper				
eCobalt (US)	2021	210	1,000	Cu/Au		100%	13	210,000
NICO (Canada)	2021	589	500	Bi/Au		100%	> 20	1,178,000
Sunrise (Syerston) (Aust)	2021	1,400	3,200	Ni/Sc		100%	> 20	437,500
Thackaringa Cobalt (Aust)	2022	413	3,600	Sulphur	80%	100%	Target 20	114,583
Kalgoorlie Nickel Project	2022	560	1,450	Nickel			> 20	385,862
Wellgreen Central (Canada)	2022	450	1,000	Ni/Cu		?	20	450,000
Kabanga (Tanzania)	2022	750	2,400	Ni				312,500
Dumont (Canada)	2022	1,030	2,000	Ni/Pt		35%	20	515,000
Wingelina (Australia)	2024		3,000	Ni				–

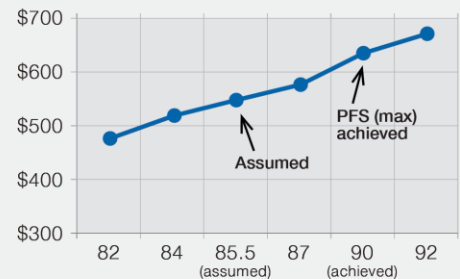
Source: Coy data, Cobalt Blue Holdings Ltd

Thackaringa – Cobalt Leverage

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

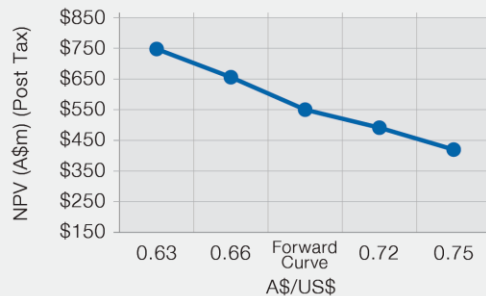


NPV A\$m (Post Tax) vs Cobalt Recovery

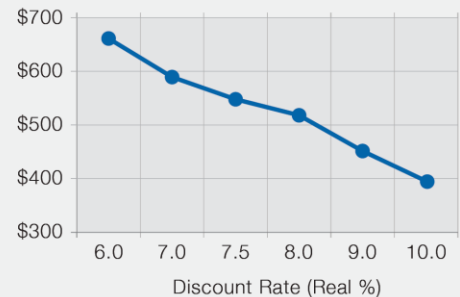


Cobalt Recovery (%) – Ore to Payable Product

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



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



Source: Cobalt Blue

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 – Matt Hill

More Information

Email

ASX Code

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COB



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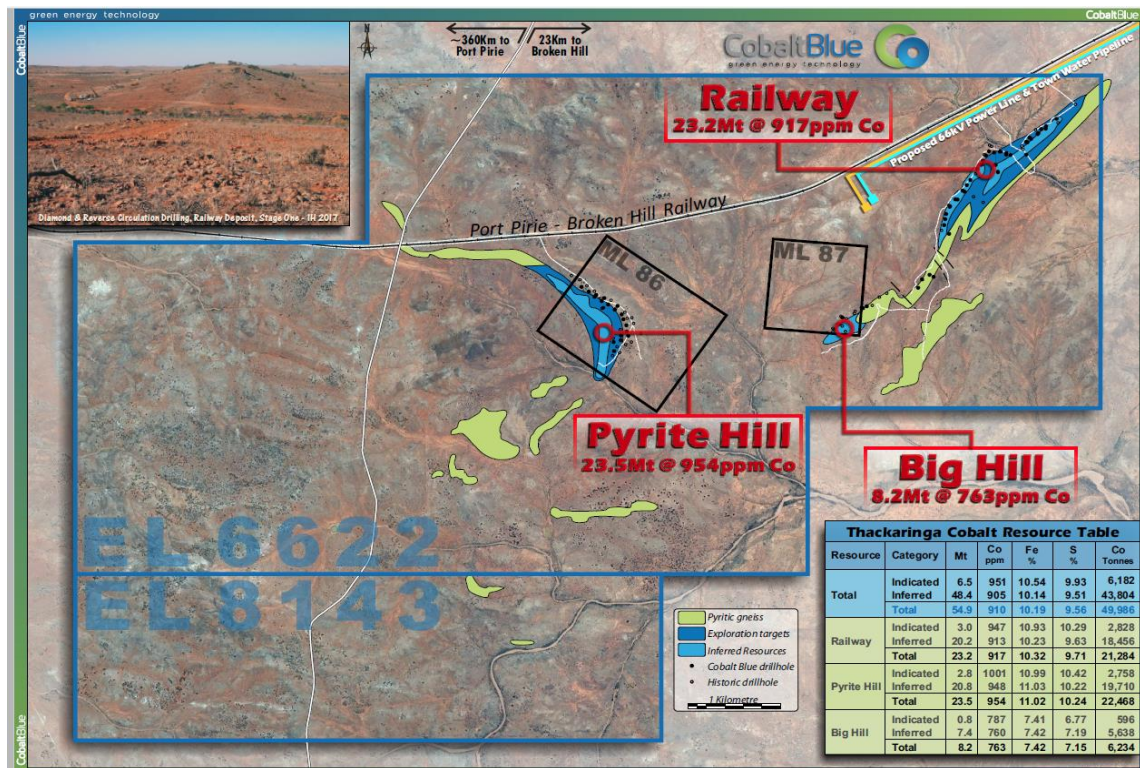
COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources and Ore Reserves 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 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.

Thackaringa – Site Layout



Source: Cobalt Blue Holdings

“FY19 - another big year for Cobalt Blue”

>20,000m of drilling targeted for CY18

= One of the largest cobalt exploration commitments on the ASX

ASPIRATIONAL TARGET: Significant improvement in size of the Thackaringa cobalt deposit

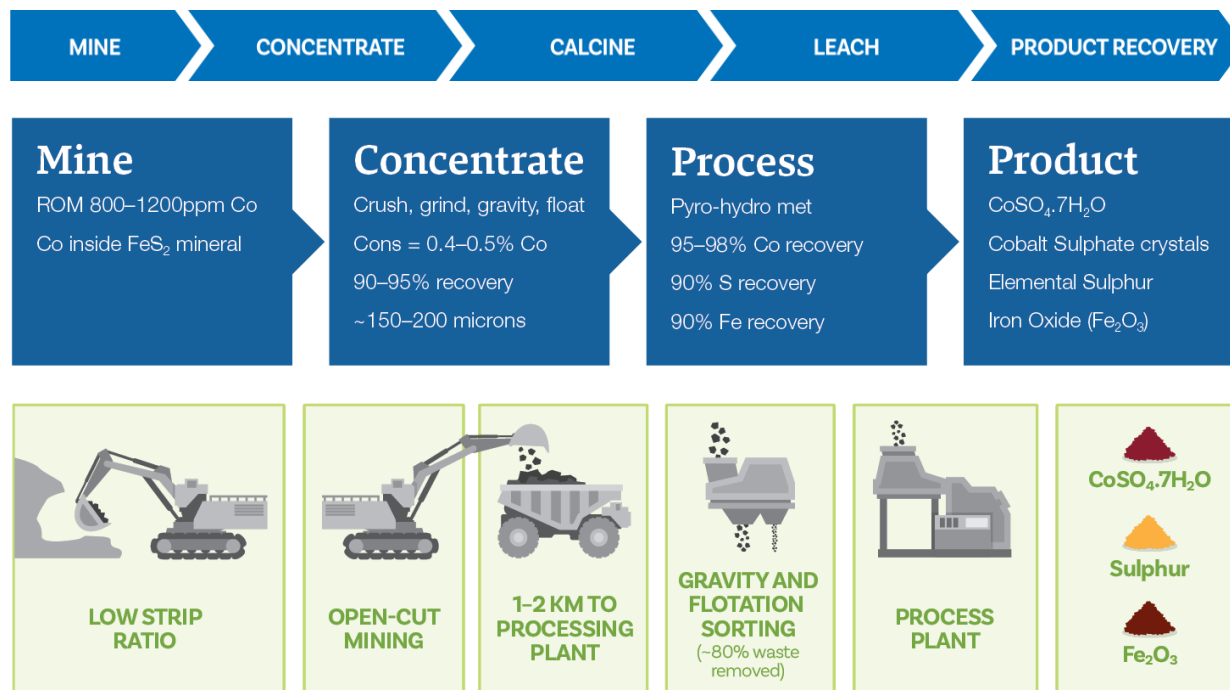
= A global top 5 mining operation with 20 year + life

OUR SCHEDULE OF WORK IS AS FOLLOWS:

Aug 2016 – Feb 2017	1 April 2018	30 June 2018	30 June 2019	
Formation	Stage One	Stage Two	Stage Three	Stage Four
Cobalt Blue formed JV & Farm-in JORC 2012 upgrade Cobalt Blue listed	Minimum expenditure \$1.2m in ground + \$0.2m geophysical survey. Delivered: <ul style="list-style-type: none">• Inferred Mineral Resource• Scoping Study• Indicated Mineral Resource• Aerial Geophysical Program Target Date: 1 April 2018	Minimum expenditure A\$2.5m in ground Deliver: Preliminary Feasibility Study Target Date: 30 June 2018	Minimum expenditure A\$5.0m in ground – Measured Mineral Resource + Ore Reserves Target Deliver: Bankable Feasibility Study + Project Approvals Target Date: 30 June 2019	Decision to Mine Project Finance

Source: Cobalt Blue Holdings

Thackaringa - processing summary



Source: June 2017 Scoping Study – Cobalt Blue Holdings

Minimum target payment terms: 100% LME cobalt pricing

High-grade cobalt sulphate crystals possible for 5-10% premium margin

Processing - Concentrate



Testwork material - 820 kg of ore composited in August 2017.

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 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

Processing – Calcine & Leach



100 kg of concentrate produced in November is being treated through the calcine and leach unit operations.

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:

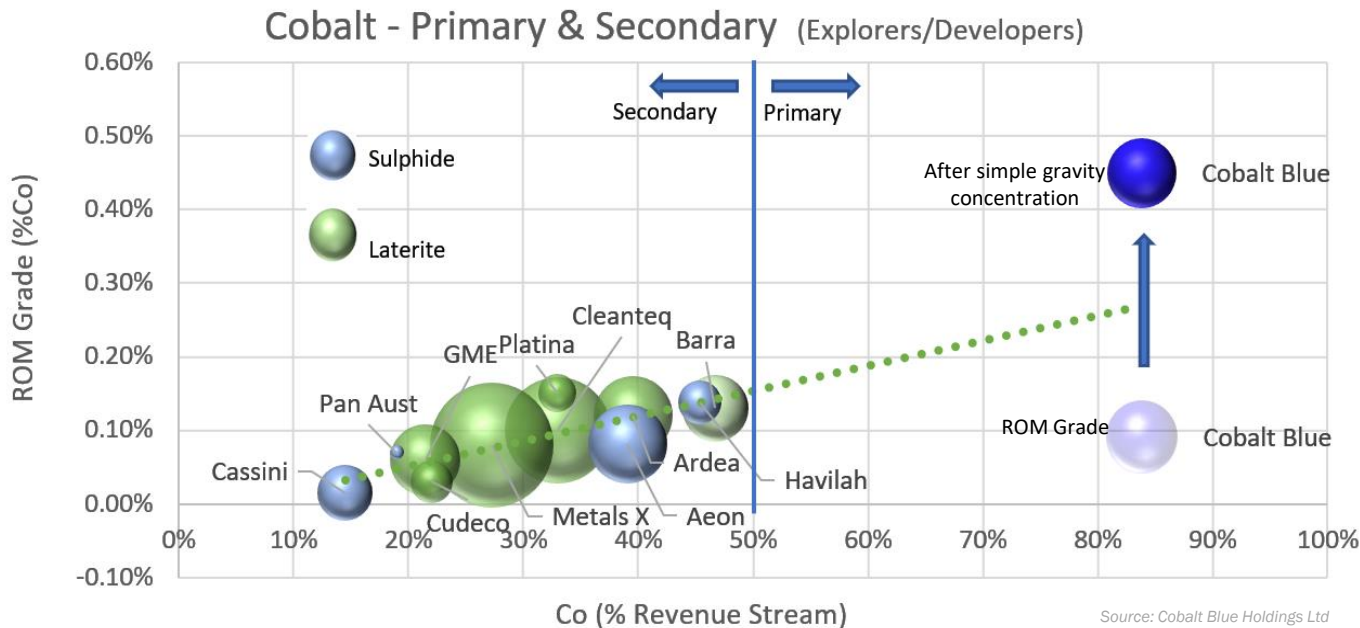
- ❑ Calcining the gravity concentrate typically removes ~35% of the sulphur from the pyrite
- ❑ The resulting elemental sulphur condensed from the gas phases averaged 97.5% Sulphur. Improved engineering design is expected to improve the quality of the sulphur in future testwork
- ❑ There are no losses of cobalt to the gas phases in the thermal treatment step
- ❑ Leaching of the calcine achieved cobalt recoveries ranging from ~70% 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.

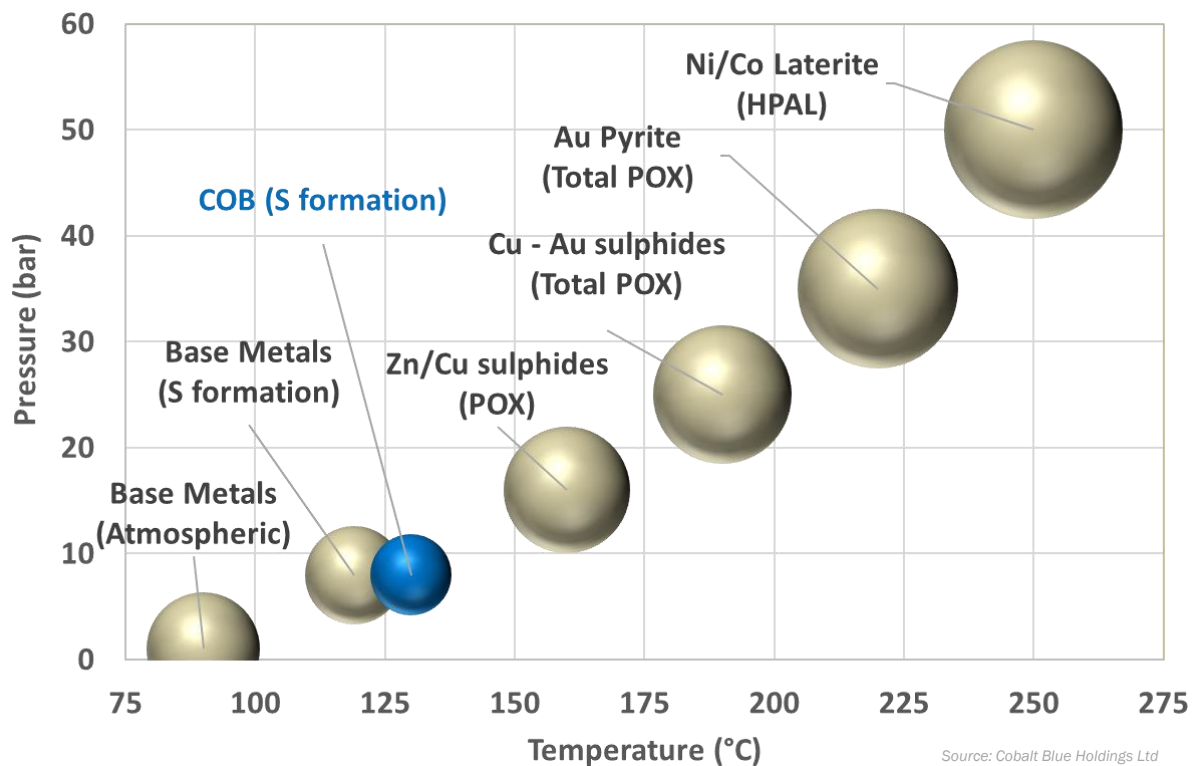
Source: Metallurgical testwork – Cobalt Blue Holdings

Thackaringa – Comparison with ASX peers



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

COB – Position in POX Industry

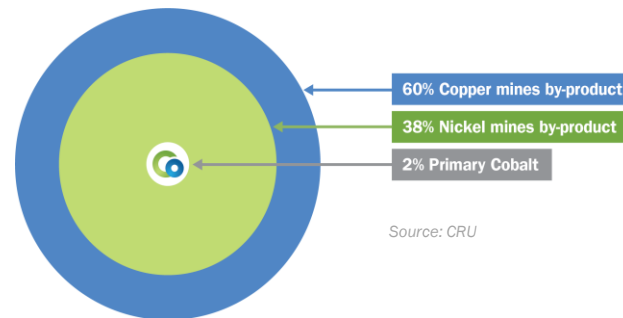


Source: Cobalt Blue Holdings Ltd

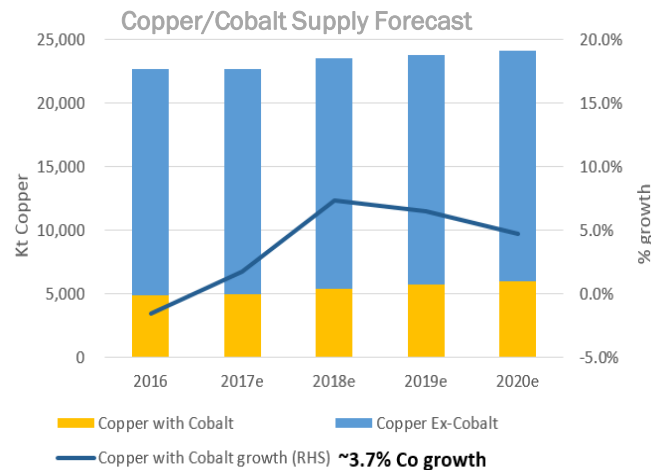
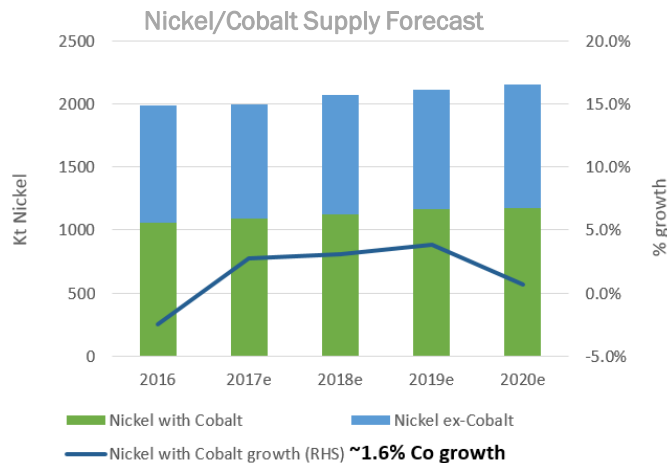
Cobalt – less growth

Cobalt supply constrained

- Cobalt supply growth in copper/nickel by-product will average 3-4% to 2020.
- Cobalt demand growth will average 9% to 2020.
- Forecast cobalt shortage of 10-20Kt by 2020.
- Cobalt Blue tonnes are required for market balance in the longer term.



Source: CRU



Cobalt – the new energy revolution

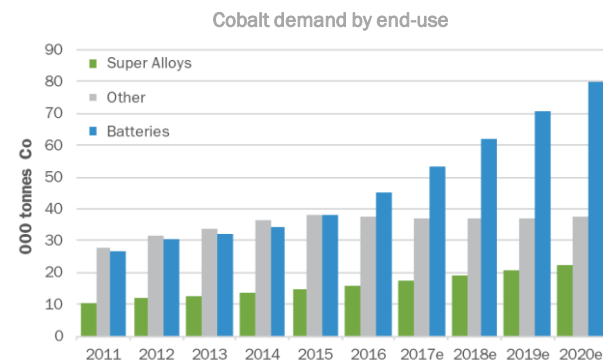
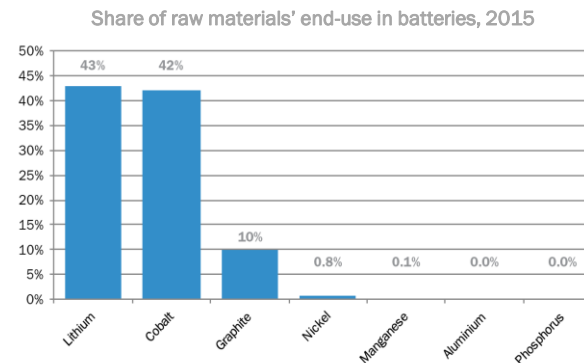
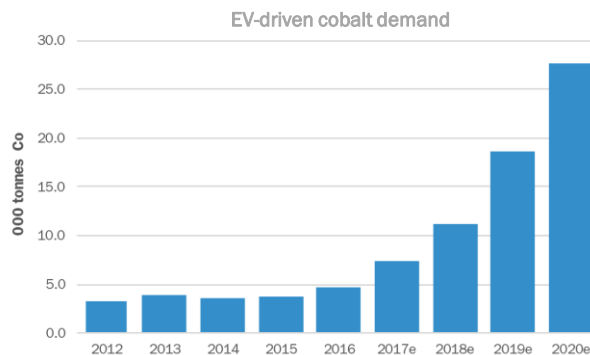
The New Energy sector is disruptive, rapidly evolving, and delivering returns

INCREASINGLY INVESTABLE:

- Cyclical winners and losers as the sector progresses.

RAW MATERIALS:

- Cobalt is a vital component in rechargeable batteries
- EV penetration rate of 1% by 2020 increases auto battery cobalt demand by 44% CAGR



Source: CDI, USGS, company data, Hillcrest Consulting research estimates