

# Barra Resources Limited

Mt Thirsty Cobalt  
PFS Progressing

Burbanks Gold  
Inventory Building

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Sean Gregory

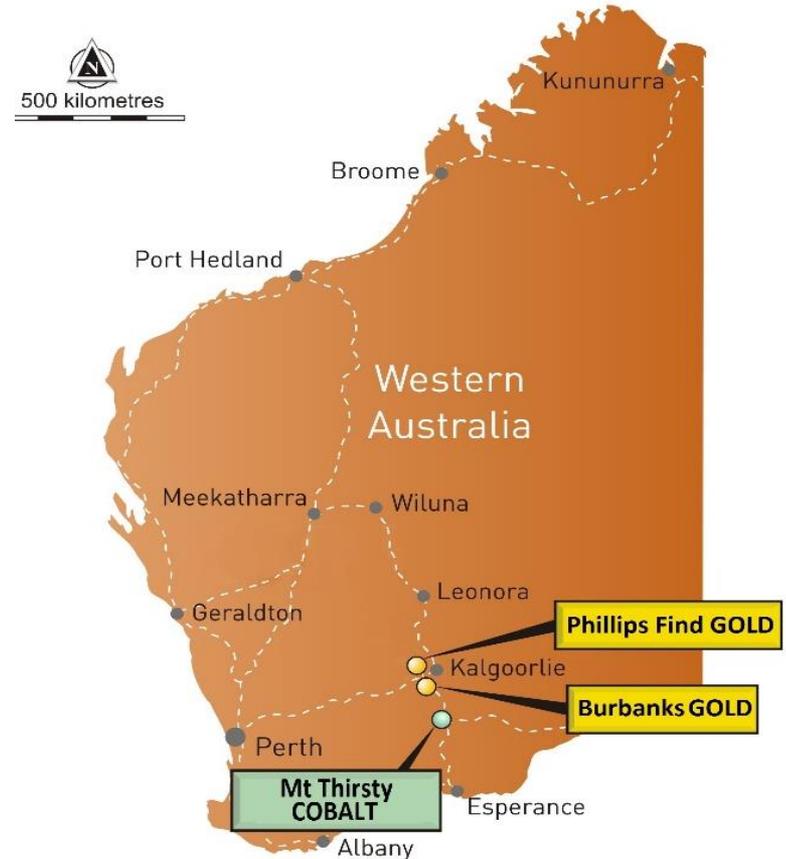
Managing Director & CEO

AMEC Investor Series Presentation

25<sup>th</sup> August 2018

# Key Messages

- Mt Thirsty Pre-Feasibility Study underway
  - Advanced, high grade, low capex, undervalued cobalt nickel project
  - Highly leveraged to long term cobalt market dynamics
  - Norseman emerging as ‘Cobalt Valley’
- Dual commodity strategy in play with Coolgardie gold projects
  - Burbanks– Resource Modelling underway for Main Lode
  - Phillips Find – Aircore drilling planned at Truth
- Projects all located in WA’s stable and ethical goldfields



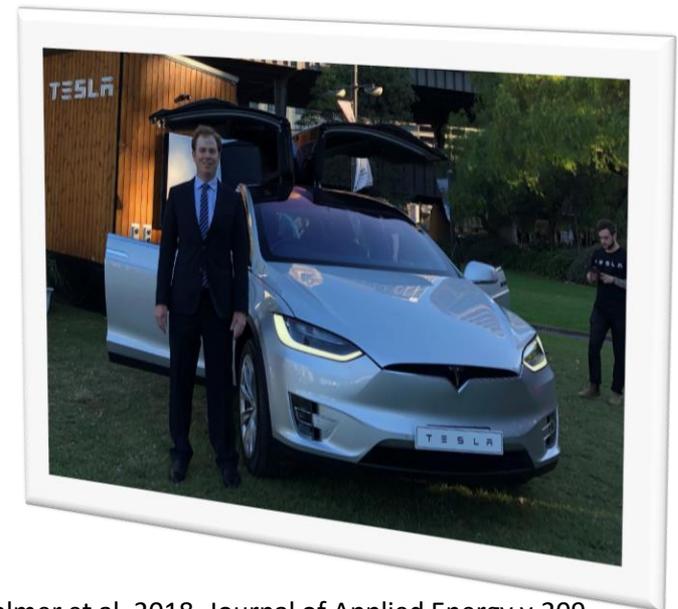
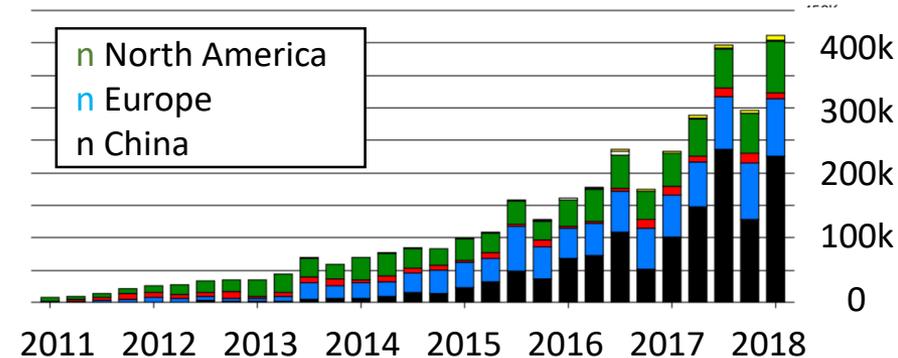
# Cobalt



# Electric Vehicles to Drive Demand

- Electric vehicles are already cheaper than petrol vehicles in USA, UK & Japan on a total cost of ownership basis and after subsidies<sup>1</sup>
- Other markets have emerged, driven by falling battery unit costs and government mandates
  - China 12% EV new sales by 2020
  - India 100% EV new sales by 2030
- Automakers respond<sup>3</sup>
  - Tesla – Innovation leader
  - BMW – 100,000 EV sales achieved in 2017
  - Volvo – 100% EVs and Hybrids by 2019
  - Ford – will invest US\$11 Bn by 2022
  - Volkswagen – 2-3 M EVs per annum by 2025
  - GM – 1,000,000 EVs by 2026

Qtly EV Sales Growth - led by China<sup>2</sup>



<sup>1</sup> Palmer et al, 2018, Journal of Applied Energy v.209

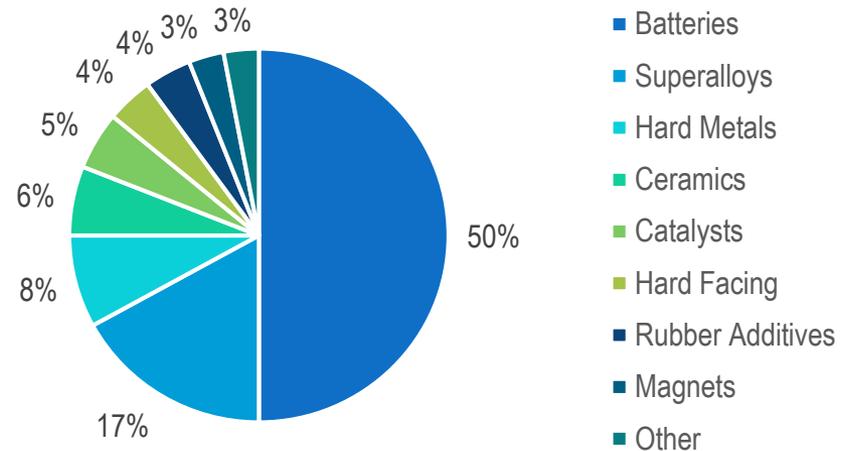
<sup>2</sup> Bloomberg

<sup>3</sup> Auto Company Announcements

# Solid Base of Established Demand

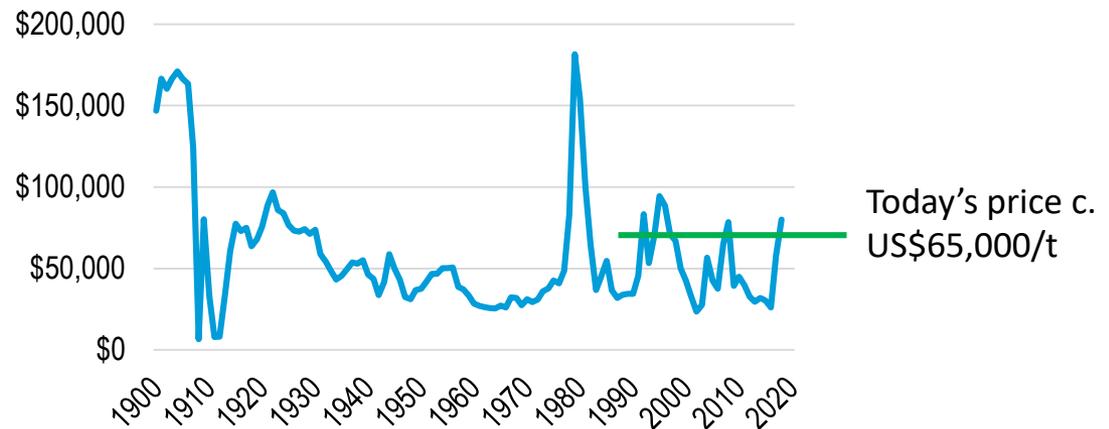
- Batteries half of current consumption
- Over 34 other uses with no ready substitutes
- Cobalt a small proportion of final product prices
- Recent cobalt price increases are not out of step with 100 year history

2017 Cobalt Uses <sup>1</sup>



<sup>1</sup> Darton Commodities, Cobalt 27

Long Term Real US\$/t Cobalt Price <sup>2</sup>

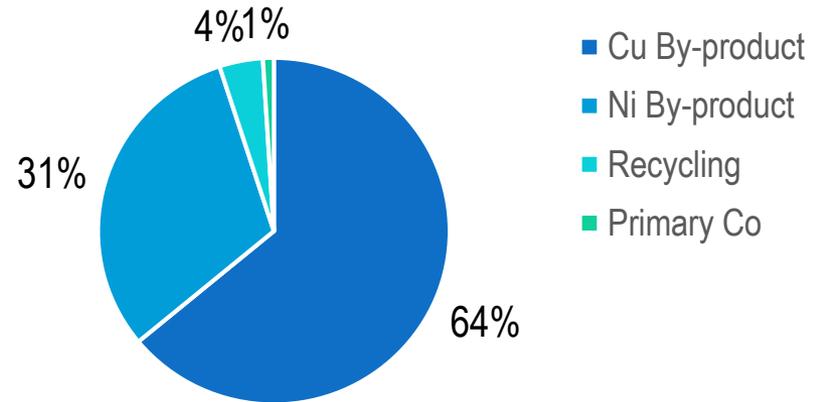


<sup>2</sup> US Geological Survey

# Cobalt Supply Scarce

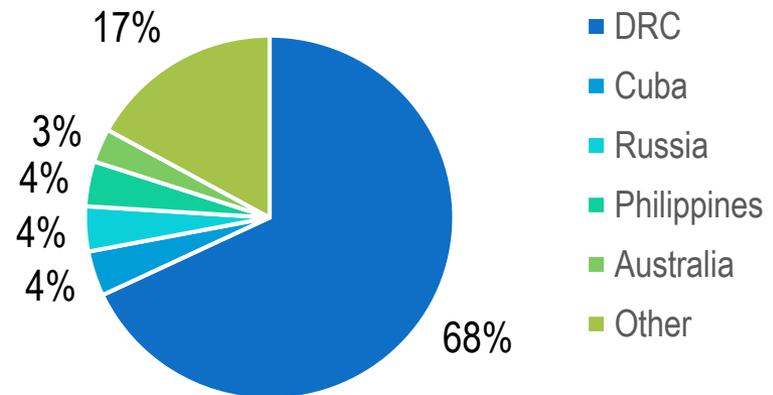
- 99% of cobalt is mined as a by-product
- Other new mines require higher Cu and Ni price
- HPAL capital cost is a barrier to entry for others
- 68% of cobalt sourced from DRC with sustainability concerns

2017 Global Mined Cobalt <sup>1</sup>



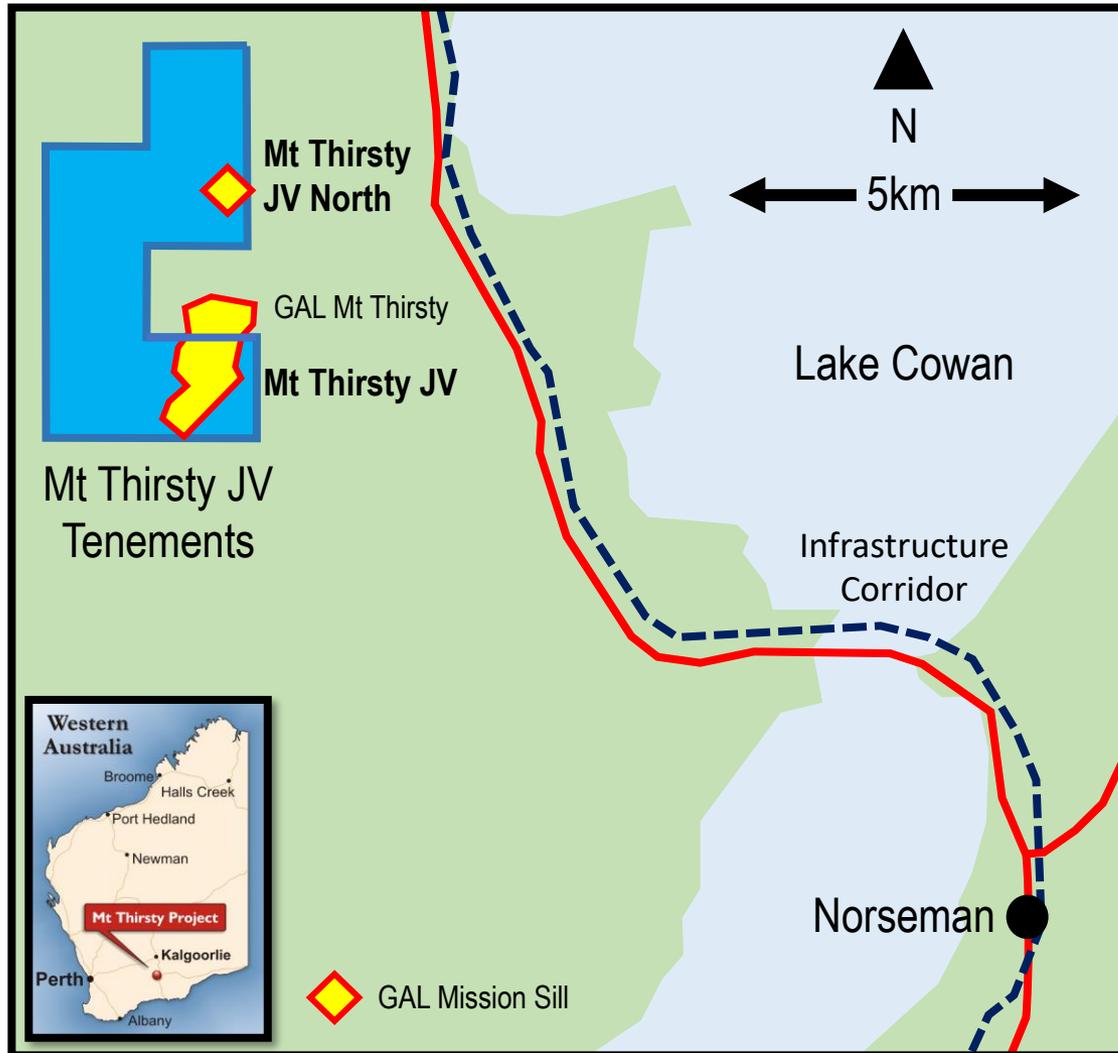
Global Cobalt Mine Production

2017 Total: 120 kt<sup>1</sup>



<sup>1</sup> Darton Commodities, CRU, Cobalt 27

# 'Cobalt Valley' – Regional Development Play



- Project is only 16km NW from Norseman town
- Infrastructure all available locally
  - Road
  - Rail
  - Gas
  - Water
  - Town
  - Workforce
- Mt Thirsty JV Scoping Study identifies 21 year mine life
- 50/50 JV with Conico Ltd
- Galileo Ltd listing highlights additional regional potential

# Mt Thirsty Scoping Study <sup>1</sup>

Parameter	Value
NPV <sub>8</sub>	A\$ 290 M
Co Price	US\$ 72,000 /t
Ni Price	US\$ 15,500 /t
USD:AUD FX	0.74
Co Recovery	73 %
Ni Recovery	21.5 %
Capital Cost	A\$ 212 M incl A\$ 34 M contingency
Operating Cost	A\$ 43 /t
Feed Rate	1.5 Mtpa
MSP Product	6,000 tpa
Life of Mine	21 Years

- Many iterations of design over many years
- Appropriately conservative assumptions
- Robust result: breakeven life of mine cobalt price:
  - US\$44,000/t including capital
  - US\$34,000/t after capital sunk<sup>2</sup>
- A very solid base case to optimise during the PFS
- Opportunities to significantly increase Co and Ni recoveries with simple additions to flowsheet

<sup>1</sup> Refer to ASX Announcement 6/10/17 for full details of the Scoping Study

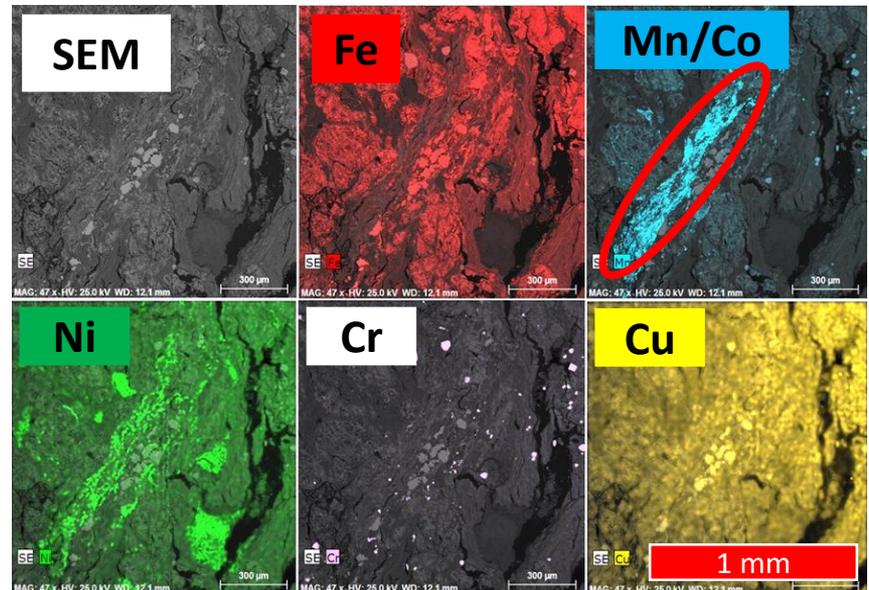
<sup>2</sup> Breakeven analysis includes Ni credits. See disclaimer on final slide.

# Mt Thirsty Co-Ni Mineralogy

- Indicated and Inferred JORC 2004 Mineral Resource<sup>1</sup> 32 Mt @ 0.13% Co  
0.55% Ni
- Cobalt grade is double that of most nickel laterites
- Deep weathering has cobalt in asbolane mineral easily liberated by agitated atmospheric leaching
- Flat lying and low strip ratio (1.5:1)
- Soft and friable - minimal blasting and crushing

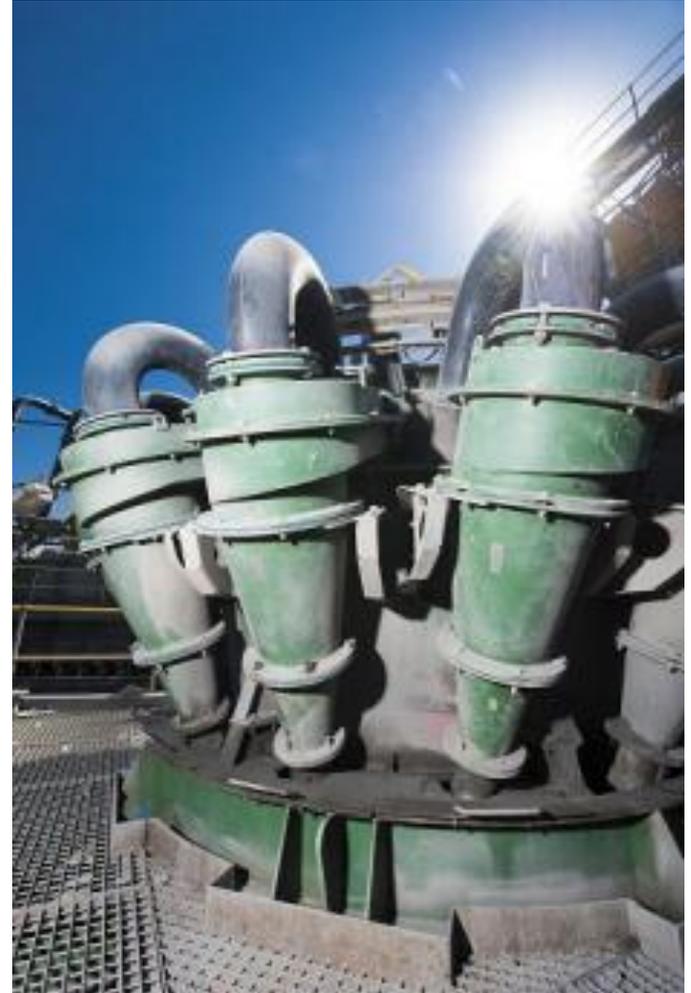
<sup>1</sup> Refer to appendix for full details of the Mineral Resource

Cobalt in Mn Oxide - Asbolane



# Pre-Feasibility Study in Full Swing

- Base case confirmed as SO<sub>2</sub> agitated atmospheric leaching
- Testwork results flowing in
- Beneficiation expected to increase NPV and IRR
  - Asbolane concentrate to increase leach yields
  - Reject clays to pump higher % solids
  - Reduce capex of hydromet circuit
- Sulphuric acid addition – yield vs cost trade off
- Permitting progression
  - Mining Lease application in place
  - Native Title negotiations initiated
  - Spring biological surveys planned

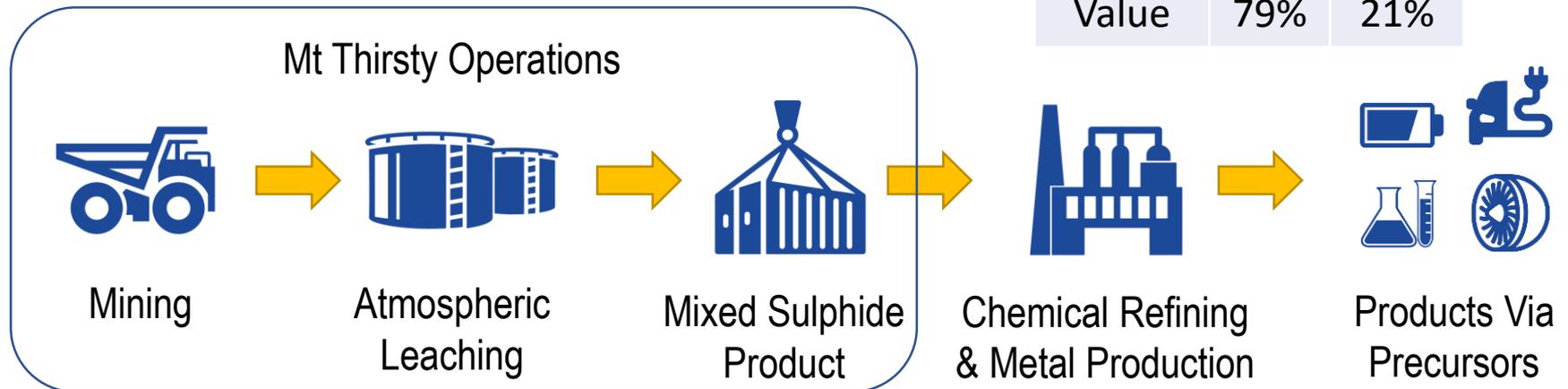


# Product Value Chain

- Mixed Sulphide Product (MSP) selected
- 6,000 tpa = 1 shipping container per day
- Expected payables > 80% of LME metal price
- Suitable for metal, chemical and battery markets
- MSP a preferred intermediary step in all cases
- Does not preclude value-add investment within WA
- Product of strategic interest to many multinationals



MSP	CoS	NiS
Volume	50%	50%
Value	79%	21%

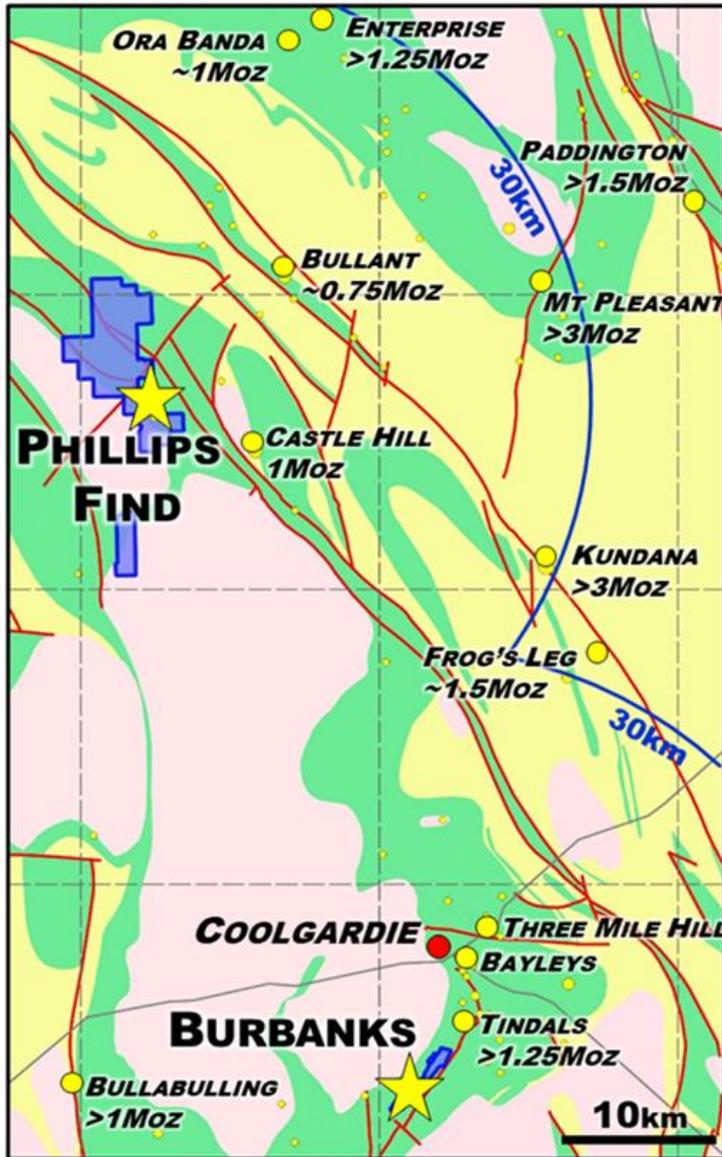


# Gold

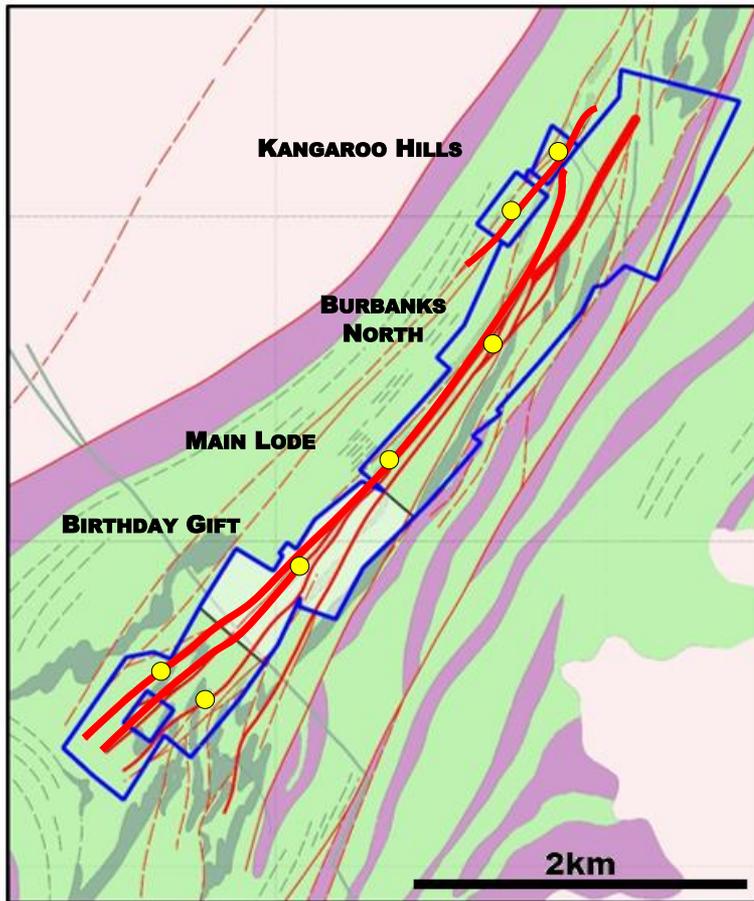


# Coolgardie Gold Projects

- Burbanks – brownfields
  - Resource modelling at Main Lode
- Phillips Find – greenfields
  - Aircore drilling at Truth next step
- Multi-million ounce gold camps within 30km
- Aim to define critical mass of 500,000oz Au ahead of mining



# Burbanks – High Grade Gold Endowment



**420koz**

Historical Production (Au)

**95koz**

Indicated and Inferred Mineral Resource (Au)

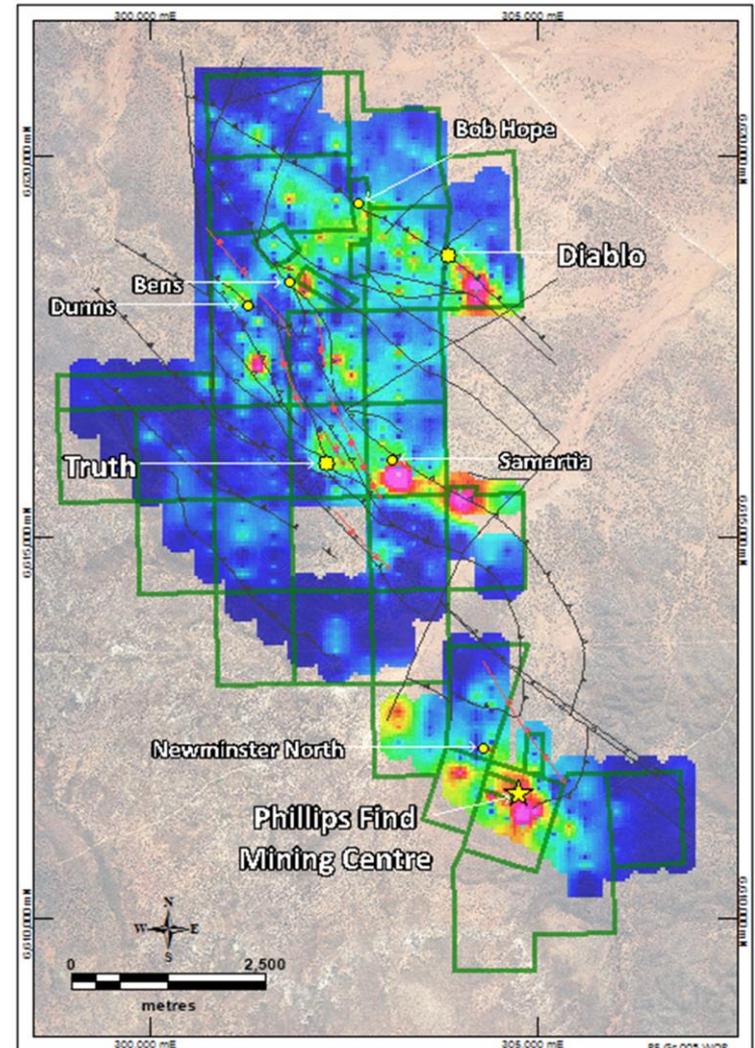
**223–564koz**

Exploration Target (Au)

The potential quantity and grade of the Exploration Target is conceptual in nature as there has been insufficient exploration to estimate a Mineral Resource beyond Birthday Gift. It is uncertain if further exploration will result in an estimation of a Mineral Resource. Refer to appendix for further details on Mineral Resource and Exploration Target.

# Phillips Find – Greenfields Potential

- Tenement package at an early stage of exploration away from Phillips Find Mining Centre (PFMC)
- Successful mining campaigns in 3 open pits from 1995-2015 at PFMC
- Underground potential poorly tested
- Co-located structural and geochemical targets at Truth and Diablo
- Next step 10,000m air core drilling at Truth



# Barra's Value Proposition

- Barra has the **lowest capex**
- Barra has the **highest cobalt grade**
- Barra has a **very high proportion of revenue from cobalt**
- Barra is **significantly undervalued** compared to other cobalt developers

	Galileo	Mt Thirsty JV	Ardea 1.0Mtpa	Ardea 2.25Mtpa	Cobalt Blue	Australian Mines	Cleanteq
Study Completed	Exploration	Scoping	PFS	Scoping	PFS	PFS	DFS
Study Underway	-	PFS	-	-	-	BFS	Financing
Capex	-	<b>A\$ 212 M</b>	A\$ 599 M	A\$1,165 M	A\$550 M	Not disclosed	<del>A\$ 912 M</del> A\$1,988M
Mine Life	-	> 20 Years	> 20 Years	>20 Years	> 20 Years	> 20 Years	> 20 Years
Resource	20 Mt	32 Mt	108 Mt		72 Mt	101 Mt	89 Mt
Co Grade	0.11%	<b>0.13%</b>	0.10%		0.09%	0.11%	0.13%
Ni Grade	0.53%	0.55%	0.81%		-	0.81%	0.59%
Proportion of Co Revenue*	77%	<b>79%</b>	37%		86%^	32%	51%
Market Cap 23/8/18	A\$ 30 M	<b>BAR A\$ 17 M</b> CNJ A\$ 9M	A\$ 85 M		A\$ 65 M	A\$ 194 M	A\$ 432 M

\*Co Grade x Co Recovery X Co Price US\$90,000/t / (Co Grade x Co Recovery X Co Price US\$72,000/t + Ni Grade x Ni Recovery x Ni Price US\$15,500/t)

^COB revenue proportion from ASX:COB PFS 4/7/2018

# Thank You

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# Appendix – Corporate Overview

- 473M shares outstanding
- Market cap \$17m @ 3.6c
- Cash @ 30 June \$1.3M
- Shareholders
  - FMR Investments Pty Ltd 17.3%
  - >3000 Other shareholders
- Experienced board and management
  - Sean Gregory, MD & CEO
  - Gary Berrell, Chairman
  - Grant Mooney, NED & Co Sec
  - Jon Young, NED
  - Gary Harvey, Exploration Manager



# Appendix – JORC Tables

Mt Thirsty Mineral Resource				
Category	Tonnes	Co %	Ni %	Mn %
Indicated	16.6 Mt	0.14	0.60	0.98
Inferred	15.3 Mt	0.11	0.51	0.73
<b>Total</b>	<b>31.9 Mt</b>	<b>0.13</b>	<b>0.55</b>	<b>0.86</b>

This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported. Refer to ASX announcement 8/3/2011.

Exploration Target for the Burbanks Gold Project						
Area	Low Range			High Range		
	Tonnes	Au g/t	Au Oz	Tonnes	Au g/t	Au Oz
Main Lode to Burbanks North Exploration Target	185,000	8.0	47,600	2,170,000	5.0	348,800
Birthday Gift Exploration Target	625,000	4.0	80,000	650,000	6.0	120,000
Birthday Gift Mineral Resource	514,700	5.8	95,400	514,700	5.8	95,400
<b>Total</b>			<b>223,000</b>			<b>564,000</b>

The potential quantity and grade of the Exploration Target is conceptual in nature as there has been insufficient exploration to estimate a Mineral Resource beyond Birthday Gift. It is uncertain if further exploration will result in an estimation of a Mineral Resource. Refer to ASX:BAR Announcement 21/3/18.

In Situ Mineral Resource for the Burbanks Gold Project							
Area	Cut-Off	Indicated			Inferred		
		Tonnes	Grade	Ounces	Tonnes	Grade	Ounces
Christmas Open Pit	1.0	5,700	6.2	1,100	4,000	7.8	1,050
Birthday Gift Underground Mine	2.5	180,000	6.0	34,750	325,000	5.6	58,500
<b>Total Mineral Resource</b>	<b>1.0/2.5</b>	<b>185,700</b>	<b>6.0</b>	<b>35,850</b>	<b>329,000</b>	<b>5.6</b>	<b>59,550</b>

For full details of the Birthday Gift Mineral Resource refer to Kidman Resources Limited's ASX announcement 25/11/15 and then updated for mining depletion in Kidman's 2016 Annual Report. The information has not materially changed since then.

# Disclaimer and CP Statements

## **Competent Persons Statement**

*The information in this report which relates to Exploration Targets, Exploration Results and Mineral Resources for the Phillips Find and Burbanks Projects is based on and fairly represents information compiled by Mr Gary Harvey who is a Member of the Australian Institute of Geoscientists and a full-time employee of Barra Resources Ltd. Mr Harvey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which 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" (the JORC Code). Mr Harvey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this report which relates to Exploration Targets is based on information compiled by Mr. Allan Kneeshaw who is an independent consultant and is a Fellow of the Australian Institute of Geoscientists (FAIG) and a Fellow of the Australian Institute of Mining and Metallurgy. Mr. Kneeshaw has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which 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". Mr. Kneeshaw consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this report which relates to the Mt Thirsty Oxide Deposit Mineral Resource is based on information compiled by Mr Alan Miller, a Competent Person and former full time employee of Golder Associates Pty Ltd, who is a member of the Australasian Institute of Mining and Metallurgy. Mr Miller has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (the JORC Code). Mr Miller consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.*

## **Birthday Gift Exploration Targets**

The information in this diagram that relates to the Birthday Gift Exploration Target has been extracted from Kidman Resources Limited's KDR:ASX Release dated 25/08/2015 "Initial 99,000oz Resource for Burbanks gold mine in WA", available to view at [www.kidmanresources.com.au](http://www.kidmanresources.com.au). The Company is not aware of any new information or data that materially affects the information included in the previous reports and that all the previous assumptions and technical parameters underpinning the estimates in Kidman's ASX Release dated 25/08/2015, have not materially changed. For full details of the Birthday Gift Mineral Resource, refer to Kidman's 2016 Annual Report.

## **Cobalt Sensitivity and Breakeven Disclaimer**

*Refer ASX Announcement 5/10/2017 for details of the Scoping Study including cautionary statements. The Scoping Study referred to in this report is based on low-level technical and economic assessments and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised. Cobalt price is one of many key sensitivities to the project. Other sensitivities including but not limited to nickel price, foreign exchange, land access, capital cost, availability of funding, operating cost, metal recoveries and resource inventory also present risks and opportunities to the economics of the project. The Scoping Study is based on an Inferred and Indicated JORC 2004 Mineral Resource. Further work is required during the Pre-Feasibility Study to move this through higher Mineral Resource and Ore Reserve categories under JORC 2012. Investors should form their own view on long-term cobalt prices. Given the uncertainties involved, investors should not make any investment decisions based solely around the outcomes of the Scoping Study or this sensitivity analysis.*

## **Forward Looking Statements Disclaimer**

*This report contains forward-looking statements that involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this report. No obligation is assumed to update forward-looking statements if these beliefs, opinions and estimates should change or to reflect other future developments*