



SheffieldResources  
LIMITED

# BFS Results, Financing & Project Update

## Investor Presentation

Bruce Griffin – Executive Chair



March 2022

ASX:SFX | [sheffieldresources.com.au](http://sheffieldresources.com.au)

# Notice and Disclaimer

**IMPORTANT: You must read the following in conjunction with this document.**

## Summary information in relation to Sheffield

This document contains summary information about Sheffield Resources Limited (ACN 125 811 083) (Company or Sheffield), its subsidiaries and their activities which is current as at the date of this document, unless otherwise indicated. The information in this document remains subject to change without notice, and Sheffield is not responsible for updating, nor does it undertake to update, it. This document should be read in conjunction with Sheffield's periodic and continuous disclosure announcements lodged with the Australian Securities Exchange (ASX), which are available at <http://www.sheffieldresources.com.au/irm/content/asx-announcements1.aspx?RID=398> or [www.asx.com.au](http://www.asx.com.au), including and in particular the "Kimberley Mineral Sands Bankable Feasibility Study", "Thunderbird BFS, Financing and Project Update" and "KMS Executes EPC Construction and Offtake Agreements" announcements (the "BFS Announcements") which set out the relevant assumptions, key risks and other information to consider when assessing information contained in this document. The Company confirms that all material assumptions underpinning any production target and any forecast financial information derived from any production target that is disclosed in this announcement continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings are presented and have not been materially modified from the original market announcements

## Industry data

Certain market and industry data used in connection with or referenced in this document, including in relation to other companies in Sheffield's peer group, may have been obtained from public filings, research, surveys or studies made or conducted by third parties, including as published in industry-specific or general publications. Neither Sheffield or their respective representatives have independently verified any such market or industry data.

## Compliance Statements

Information and documentation which forms the basis of the Kimberley Mineral Sands Bankable Feasibility Study (KMS BFS) announced by Sheffield on 24 March 2022 and related information in this document in relation to Mineral Resources, Ore Reserves and metallurgy and process design has previously been reported as detailed below. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of the 24 September 2019 Thunderbird Mineral Resource and Ore Reserve Statement, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. In the case of the announcement entitled "Thunderbird BFS Results, Financing and Project Update" dated 24 March 2022, the Company confirms that all material assumptions underpinning any production target and any forecast financial information derived from any production target that is disclosed in this announcement continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings are presented and have not been materially modified from the original market announcements.

## Not financial product advice

This document does not constitute, and is not intended to constitute, investment or financial product advice (nor tax, accounting or legal advice). This document should not be relied upon as advice to investors or potential investors and has been prepared without taking account of any person's individual investment objectives, financial situation or particular needs. Any investment decision should be made based solely upon appropriate due diligence.

## Financial data

A number of figures, amounts, percentages, estimates, calculations of value and fractions in this document are subject to the effect of rounding. Accordingly, the actual calculation of these figures may differ from the figures set out in this document. All currency amounts are in Australian Dollars (\$) or US Dollars (\$) unless otherwise stated.

## Future performance, forward-looking statements and key risks

This document contains certain "forward-looking statements". Forward-looking statements can generally be identified by the use of forward looking words such as "forecast", "likely", "believe", "future", "project", "opinion", "guidance", "should", "could", "target", "propose", "to be", "foresee", "aim", "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", "indicative" and "guidance", and other similar words and expressions, which may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production dates, expected costs or production outputs for the Company, based on (among other things) its estimates of future production of the Thunderbird Project and the future operation of Sheffield and the Thunderbird Project.

To the extent that this document contains forward-looking information (including forward-looking statements, opinions or estimates), the forward-looking information is subject to a number of risk factors, including those generally associated with the mineral sands industry. Any such forward-looking statement also inherently involves known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated. These factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations, general economic and share market conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development (including the risks of obtaining necessary licenses and permits and diminishing quantities or grades of reserves), changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, geological and geotechnical events, and environmental issues, and the recruitment and retention of key personnel.

## Estimates of Mineral Resources and Ore Reserves and Exploration Results

This document and the KMS BFS contains estimates of Ore Reserves and Mineral Resources and information that relates to exploration results.

The Mineral Resources and Ore Reserves have been extracted from Sheffield's ASX releases;

"THUNDERBIRD ORE RESERVE UPDATE" 24 March 2022

"SHEFFIELD DOUBLES MEASURED MINERAL RESOURCE AT THUNDERBIRD" 5 July 2016

"HIGH GRADE MAIDEN MINERAL RESOURCE AT NIGHT TRAIN" 31 January 2019

"MINERAL RESOURCE AND ORE RESERVE STATEMENT" 24 September 2019

"THUNDERBIRD ORE RESERVE UPDATE" 31 July 2019

"THUNDERBIRD ORE RESERVE UPDATE" 16 March 2017

The exploration results have been extracted from Sheffield's ASX releases;

"NEW LARGE HIGH GRADE DISCOVERY SOUTH OF THUNDERBIRD" 13 November 2018

"EXCEPTIONAL RESULTS CONFIRM MAJOR DISCOVERY AT NIGHT TRAIN" 9 October 2018

A copy of these announcements is available at <http://www.sheffieldresources.com.au/irm/content/asx-announcements1.aspx?RID=398> or [www.asx.com.au](http://www.asx.com.au)

## Bankable Feasibility Study ("BFS")

This document contains information that relates to a Bankable Feasibility Study. This information was extracted from the following ASX releases by Sheffield:

"THUNDERBIRD BFS RESULTS, FINANCING AND PROJECT UPDATE" dated 24 March 2022

"THUNDERBIRD BFS DELIVERS OUTSTANDING RESULTS" 24 March, 2017

"KMS BANKABLE FEASIBILITY STUDY PRESENTATION" 24 March 2022

"BFS UPDATE MATERIALLY IMPROVES PROJECT ECONOMICS" 31 July 2019

## Other Extracted Information

In addition to those ASX releases referred to above, this document contains information extracted from the following ASX releases:

"KMS EXECUTES EPC CONSTRUCTION AND OFFTAKE AGREEMENTS" 24 March 2022

"BINDING OFFTAKE SECURED FOR THUNDERBIRD ZIRCON CONCENTRATE" 8 June 2021

"SHEFFIELD AND YANSTEEL EXECUTE BINDING JV AGREEMENTS" 6 January 2021

"TRANSFORMATIONAL THUNDERBIRD JOINT VENTURE" 11 August 2020

"MINING LEASE GRANTED OVER THUNDERBIRD MINERAL SANDS PROJECT" 26 September 2018

"QUARTERLY ACTIVITIES REPORT" and "APPENDIX 5B CASHFLOW REPORT" 25 January 2022

"JOINT VENTURE COMPLETION AND BOARD RESTRUCTURE" 12 March 2021

"FIRB ENABLES \$130M THUNDERBIRD INVESTMENT BY YANSTEEL" 15 December 2020

"NATIVE TITLE AGREEMENT SIGNED BY TRADITIONAL OWNERS" 1 November 2018

"FEDERAL ENVIRONMENTAL APPROVAL GRANTED FOR THUNDERBIRD" 28 September 2018

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



## Not financial product advice

The Kimberley Mineral Sands Bankable Feasibility Study (KMS BFS) announced by Sheffield on 24 March 2022 and related information in this document, and the information provided in it, does not constitute, and is not intended to constitute, investment or financial product advice (nor tax, accounting or legal advice). This document should not be relied upon as advice to investors or potential investors and has been prepared without taking account of any person's individual investment objectives, financial situation or particular needs. Any investment decision should be made based solely upon appropriate due diligence. Before making an investment decision, prospective investors should consider the appropriateness of the information having regard to their own investment objectives, financial situation and needs and seek legal, accounting and taxation advice appropriate to their jurisdiction. Recipients of this document are advised to consult their own professional advisers. An investment in any listed company, including Sheffield, is subject to significant risks, both known and unknown and including (without limitation) risks of loss of income and capital. A number of risks are beyond the control of Sheffield.

## Effect of rounding

A number of figures, amounts, percentages, estimates, calculations of value and fractions in this document are subject to the effect of rounding. Accordingly, the actual calculation of these figures may differ from the figures set out in this document.

## Financial data

All currency amounts are in Australian Dollars (\$) or A\$) unless otherwise stated.

## Future performance, forward-looking statements and key risks

This document is to be read in conjunction with the information contained in the "Thunderbird Ore Reserve Update", "Thunderbird BFS, Financing and Project Update" and "KMS Executes EPC Construction and Offtake Agreements" announcements dated 24 March 2022.

The "Thunderbird BFS, Financing and Project Update" announcement dated 24 March 2022 discloses risk factors relevant to Sheffield, Kimberley Mineral Sands Pty Ltd and the Thunderbird Mineral Sands Project which are relevant to making an assessment of this document.

This document contains certain "forward-looking statements". Forward-looking statements can generally be identified by the use of forward looking words such as "forecast", "likely", "believe", "future", "project", "opinion", "guidance", "should", "could", "target", "propose", "to be", "foresee", "aim", "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", "indicative" and "guidance", and other similar words and expressions, which may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production dates, expected costs or production outputs for the Company, based on (among other things) its estimates of future production of the Thunderbird Project and the future operation of Sheffield, the Thunderbird Project and the Kimberley Mineral Sands Joint Venture.

To the extent that this document contains forward-looking information (including forward-looking statements, opinions or estimates), the forward-looking information is subject to a number of risk factors, including those generally associated with the mineral sands industry. Any such forward-looking statement also inherently involves known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated. These factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations, general economic and share market conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development (including the risks of obtaining necessary licenses and permits and diminishing quantities or grades of reserves), changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, geological and geotechnical events, and environmental issues, and the recruitment and retention of key personnel.

Any forward-looking statements are also based on assumptions and contingencies which are subject to change without notice and which may ultimately prove to be materially incorrect, as are statements about market and industry trends, which are based on interpretations of current market conditions. Investors should consider the forward-looking statements contained in this document in light of those disclosures and not place reliance on such statements. The forward-looking statements in this document are not guarantees or predictions of future performance and may involve significant elements of subjective judgment, assumptions as to future events that may not be correct, known and unknown risks, uncertainties and other factors, many of which are outside the control of Sheffield. As a result, there can be no assurance that actual outcomes will not materially differ from these forward-looking statements. The forward-looking statements are based on information available to Sheffield as at the date of this document. Except as required by law or regulation, Sheffield undertakes no obligation to provide any additional or updated information or update any forward-looking statements, whether as a result of new information, future events or results or otherwise.

Indications of, and guidance on, future performance are also forward-looking statements, and include statements in this document regarding anticipated mine life, expected or indicative costs, indicative revenues, indicative production outputs and anticipated production dates. To the maximum extent permitted by law, Sheffield, and its respective directors, officers, employees, advisers, agents, affiliates and intermediaries (together, "Relevant Parties") disclaim any obligation or undertaking to release any updates or revisions to the information to reflect any change in expectations or assumptions, or any change in events, conditions or circumstances on which any such information or statement is based. Nothing in this document will, under any circumstances (including by reason of this document remaining available and not being superseded or replaced by any other document or publication with respect to Sheffield or the subject matter of this document), create an implication that there has been no change in the affairs of Sheffield since the date of this document.

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## Investment risk

As noted above, an investment in Sheffield securities is subject to investment and other known and unknown risks, a number of which are beyond the control of Sheffield. Sheffield (nor its related bodies corporate) does not guarantee any particular rate of return or the performance of the Company, Kimberley Mineral Sands Pty Ltd or the Thunderbird Project, nor does it guarantee the repayment of capital from Sheffield or any particular tax treatment. Prospective investors should make their own enquiries and investigations regarding all information in this document, including but not limited to the assumptions, uncertainties and contingencies which may affect future operations of Sheffield and the Thunderbird Project and the impact that different future outcomes may have on Sheffield and the Thunderbird Project.

## Not an Offer

This document is for information purposes only and does not constitute or form any part of any offer or invitation to sell or issue, or any solicitation of any offer to purchase or subscribe for, any securities in the Company in any jurisdiction. This document and its contents must not be distributed, transmitted or viewed by any person in any jurisdiction where the distribution, transmission or viewing of this document would be unlawful under the securities or other laws of that or any other jurisdiction.

## LTR removed – leveraging Yansteel investment in China

- Lowers capex, increases returns
- 100% of LoM Stage 1 mag con contracted to Yansteel – 5 years fixed price per % TiO<sub>2</sub> then market price

## Stage 1 Upfront Capex = \$361m

- Stage 2 capex \$258m

## Robust Stage 1 & 2 economics

- Post Tax NPV<sub>8</sub> \$1.28b – \$640m SFX share
- IRR post-tax 27.5%

## Total funding required for Stage 1 = \$484m

## NAIF + Commercial Debt facility → targeting ~ 60% gearing + \$40m cost overrun facility

- Approval processes in progress

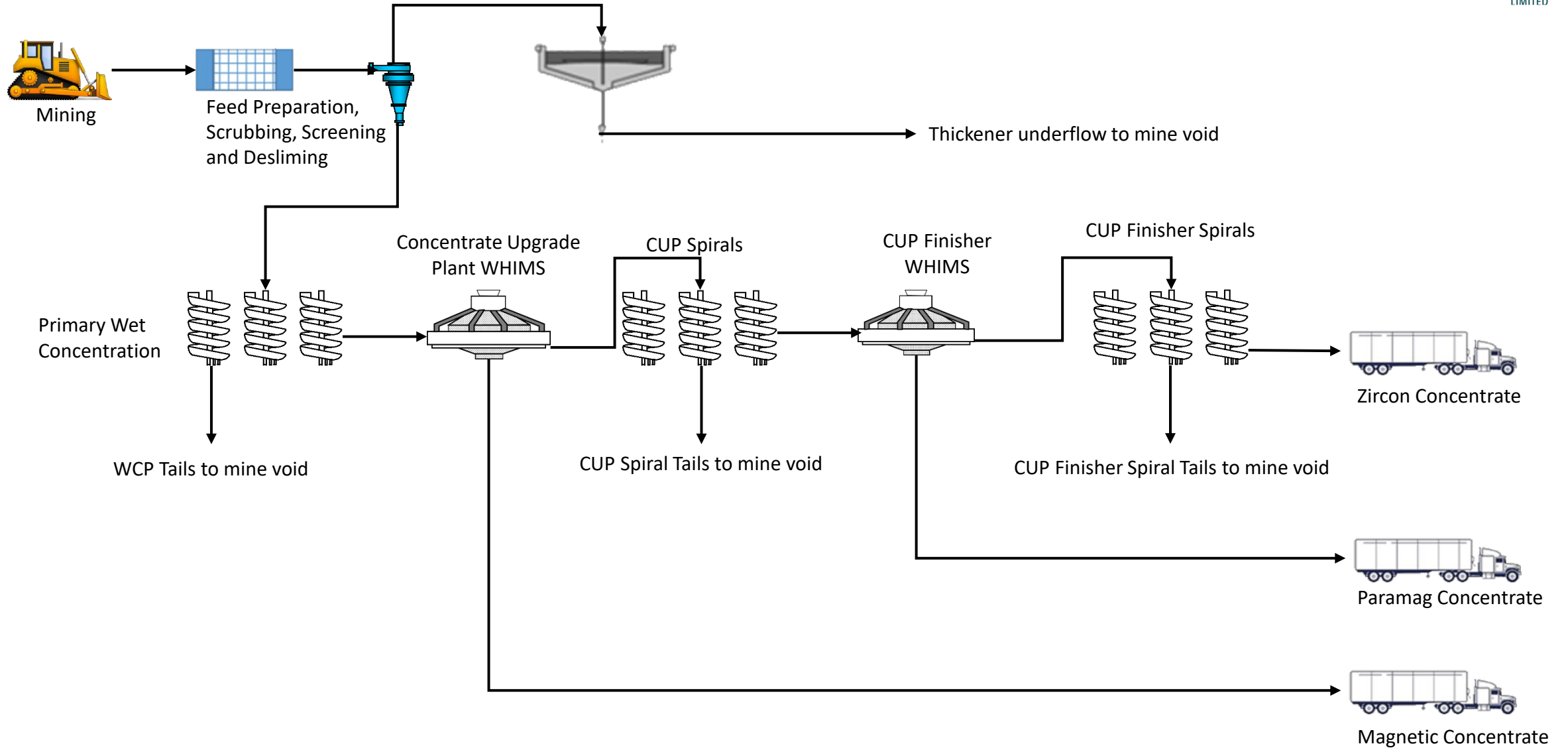
## Net of KMS sunk equity and cash, \$62m in forecast new equity required

SFX forecast equity required \$36m (= \$10m + 50% of JV balance)

- Fully funded from existing cash

## Financial close expected late Q2 2022 – first production target of Q1 2024 maintained

# LTR Removed – Simplified flowsheet utilising proven equipment



# Leveraging Yansteel Downstream Capability



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- Yansteel is part of Tangshan Yanshan Iron & Steel Co., Ltd, a privately owned Chinese steel manufacturer
- Construction of Yansteel's vertically integrated smelter/pigment complex in China is well advanced
- Feed preparation plant (FPP) includes fluidised bed roasters and magnetic separation
- Removing LTR avoids duplication of capital investment
- Yansteel magnetic concentrate offtake
  - 100% Stage 1 LoM, FRoR for expansions
  - Market based pricing for an ilmenite/iron oxide blend
  - Fixed price for 5 years (adjusted for  $\text{TiO}_2$ )
- Margin neutral vs LTR
- NPV and IRR accretive vs LTR



**Magnetic separation plant  
construction activities**

*Source: Yansteel*

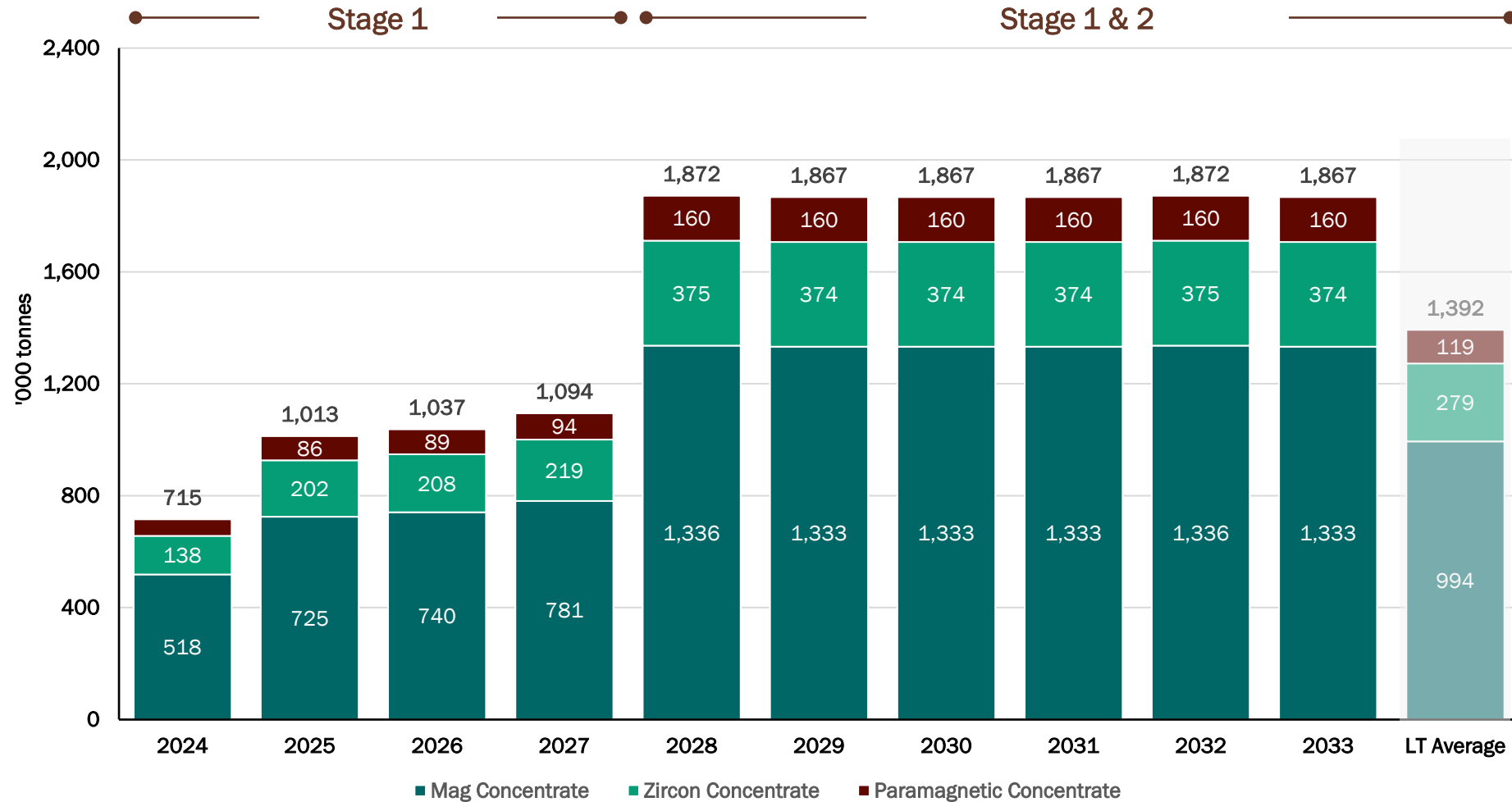


**Feed storage silo**

*Source: Yansteel*

# Production Volumes

Production averages 1.4mt per annum for all products over a 36 year mine life





# Total Funding Requirement – Stage 1

Stage 1 capital investment of \$361m and total funding requirement of A\$484 million

Cost	A\$m	Comments
Processing	171	• Fixed price EPC contract
Infrastructure	51	
Owners Costs	107	
Contingency	33	
<b>Stage 1 Upfront Capex</b>	<b>361</b>	• Includes 10% contingency
Working Capital	20	• Start-up & commissioning
Financing Costs	62	• Interest during construction, fees & costs
Cost Overrun Facility	40	
<b>Total Other Requirements</b>	<b>123</b>	
<b>Total Uses</b>	<b>484</b>	



# Strong Stage 1 & 2 Economics

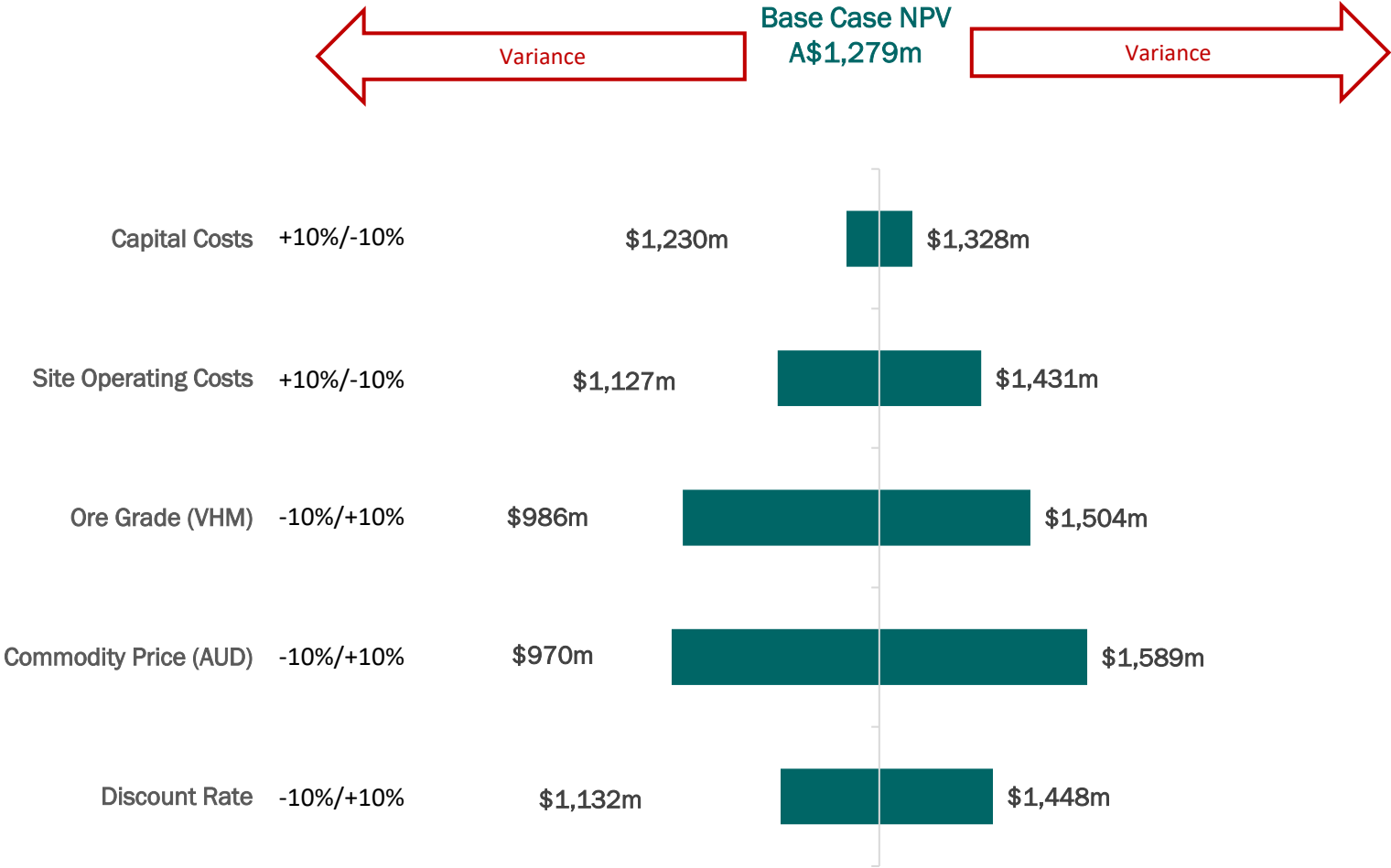
Metric	2022 BFS <sup>1</sup>	2019 BFSU <sup>2</sup>	2017 BFS <sup>3</sup>
NPV <sub>8</sub> post-tax	<b>A\$1.28B</b>	A\$0.98B	A\$0.62B
IRR post-tax	<b>27.5%</b>	24.0%	20.6%
Revenue to Cost Ratio (first 10 yrs)	<b>2.4</b>	2.3	2.1
Project Capital (Stage 1)	<b>A\$361m</b>	A\$392m	A\$463m
Total Funding Requirement (Stage 1)	<b>A\$484m</b>	A\$478m	A\$579m
Process rate (Stage 1 tonnes per hour)	<b>1,085</b>	1,085	788
Production (kt pa all products)	<b>1,395</b>	1,163	775
Mine Life	<b>36 years</b>	37 years	42 years
LT Average FX (A\$/US\$)	<b>0.75</b>	0.75	0.75
Long Term Zircon Price – FOB (TZMI)	<b>US\$1,516</b>	US\$1,469	US\$1,387

Reference:

1. ASX Announcement: "KMS Bankable Feasibility Study Presentation" 24 March 2022
2. ASX Announcement: "BFS Update Materially Improves Project Economics" 31 July 2019
3. ASX announcement: "Thunderbird BFS Delivers Outstanding Results" 24 March 2017

# Robust Stage 1 & 2 NPV

Pre-finance, post-tax NPV<sub>8</sub> of A\$1.3B compared to 10% shifts in key variables

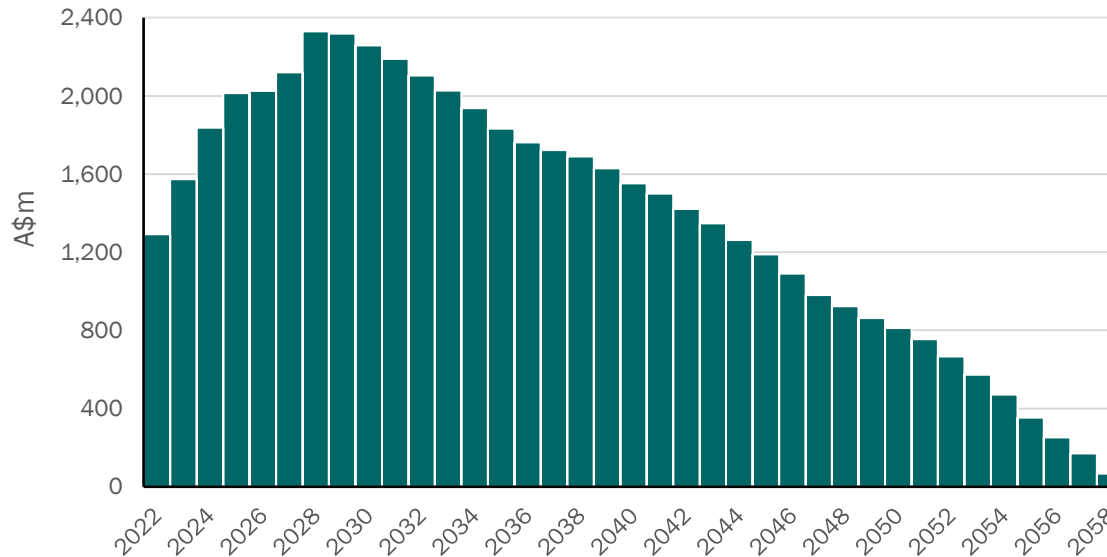


# Long life with sustained value generation

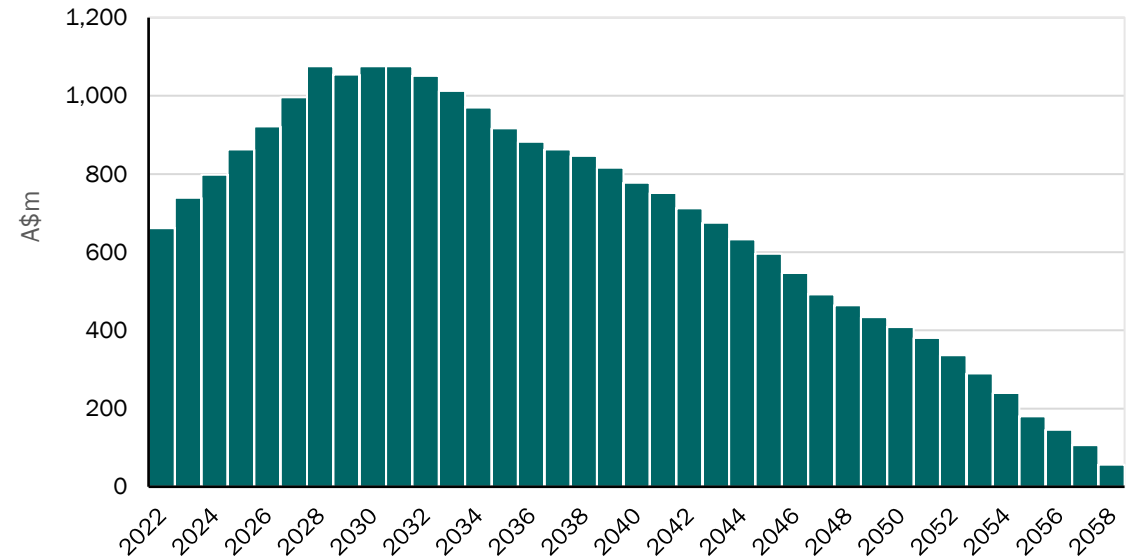
Project NPV peaks at \$2.3B in 2028 and is forecast to remain above \$1B until 2046

NPV of forecast Sheffield cash dividends from KMS peaks at \$1.1B from 2028 to 2032 and remains above \$0.5B until 2046

Rolling NPV – Stage 1 & 2 (Post-tax, Pre-finance)

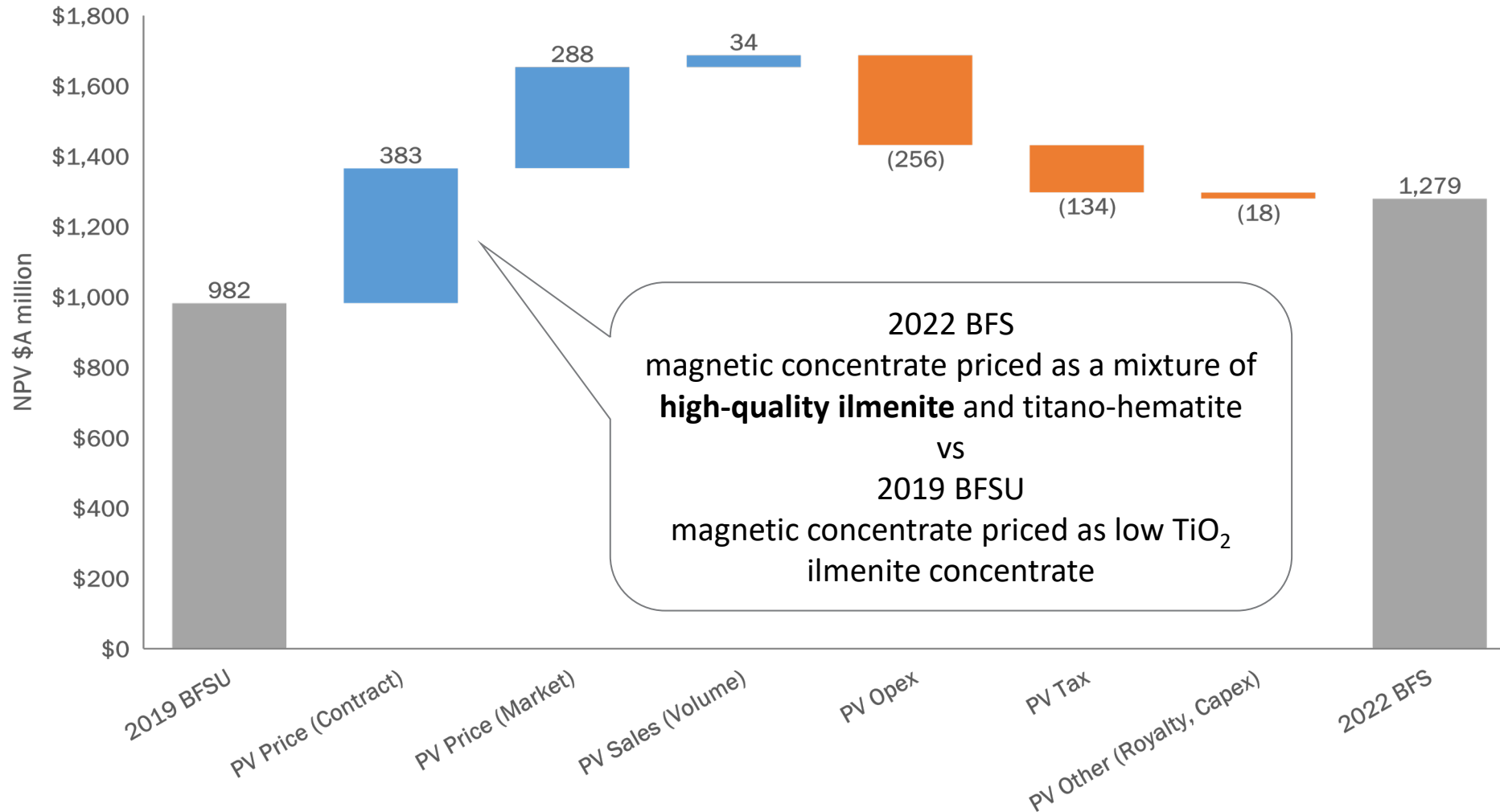


Rolling NPV - SFX's share of Dividend Distribution - Stage 1 & 2



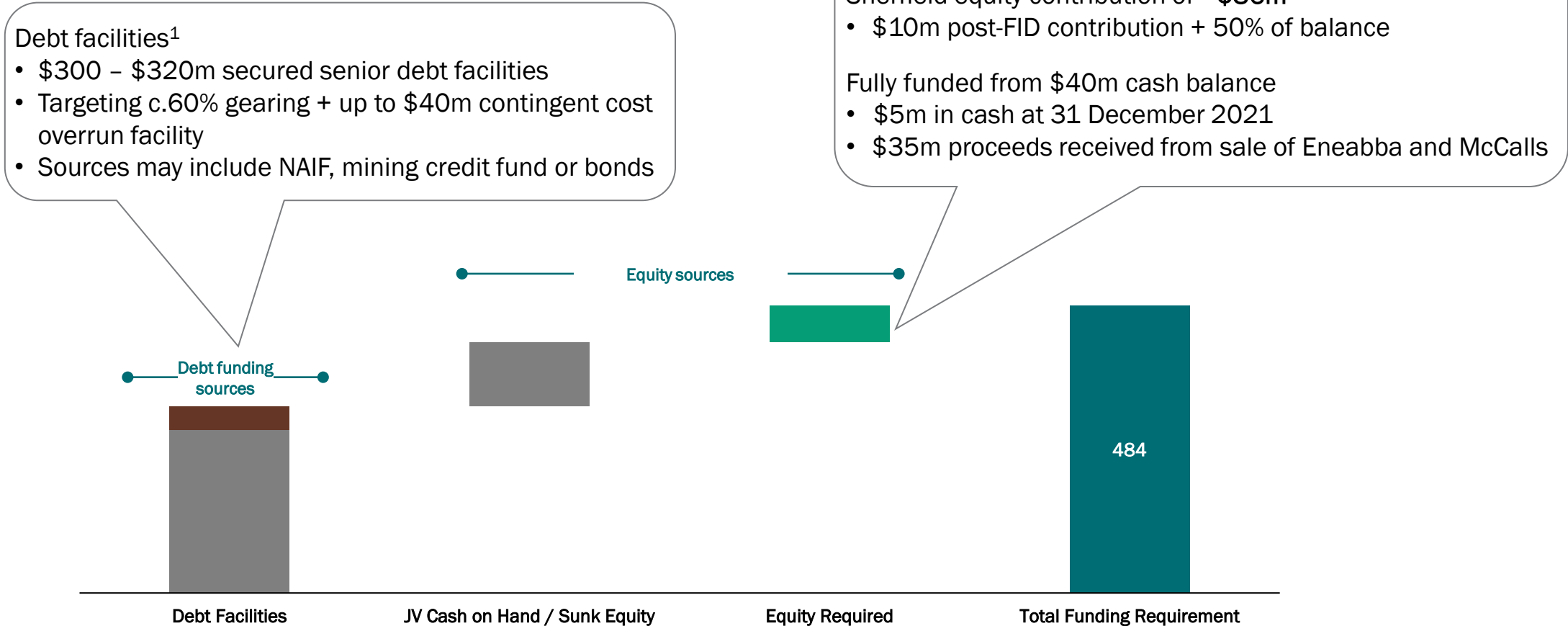
Source: "Thunderbird BFS Results, Financing And Project Update" and "KMS Bankable Feasibility Study Presentation" dated 24 March 2022

# Improved project economics vs 2019 BFSU



# Funding Strategy for Stage 1

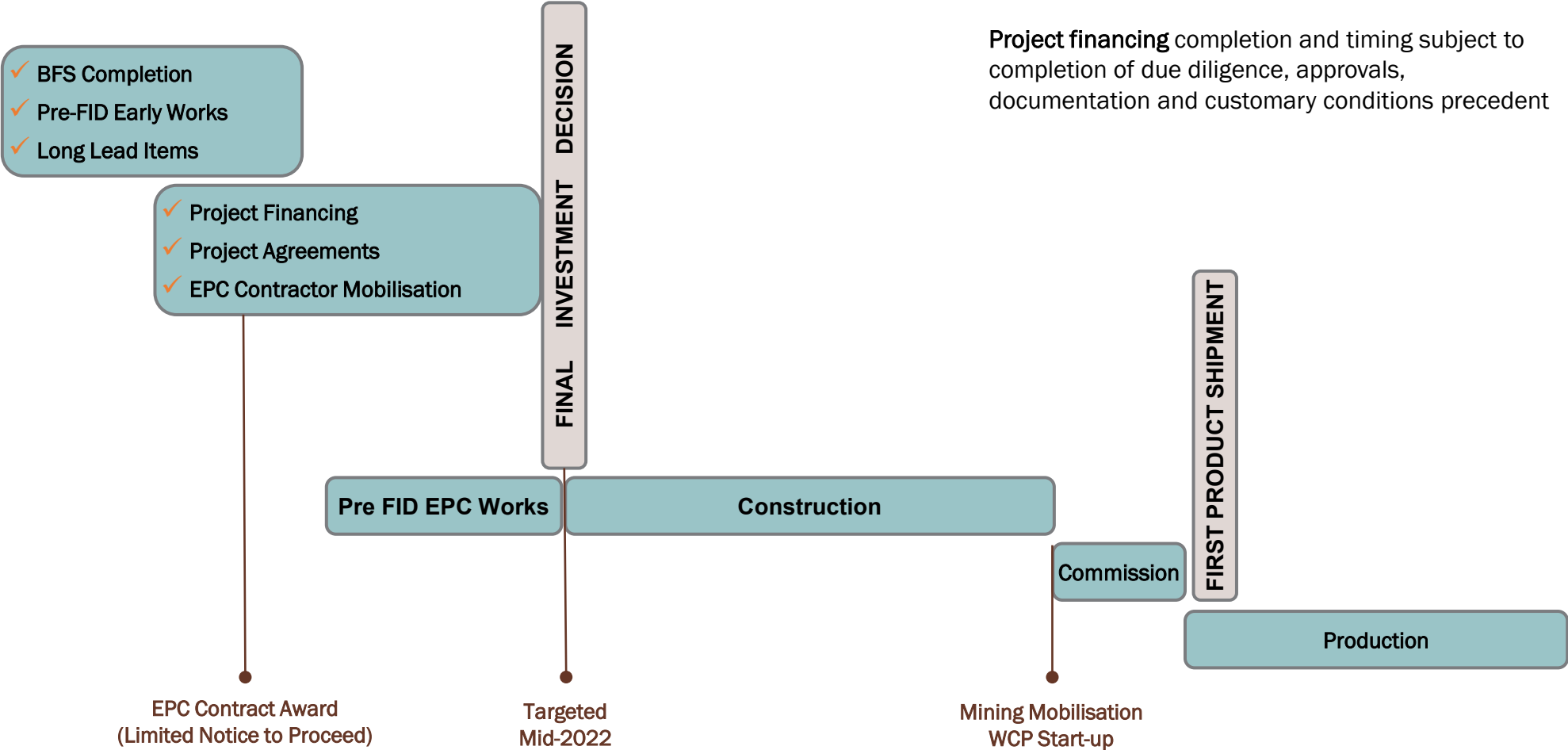
## Sheffield equity contribution fully funded from existing cash



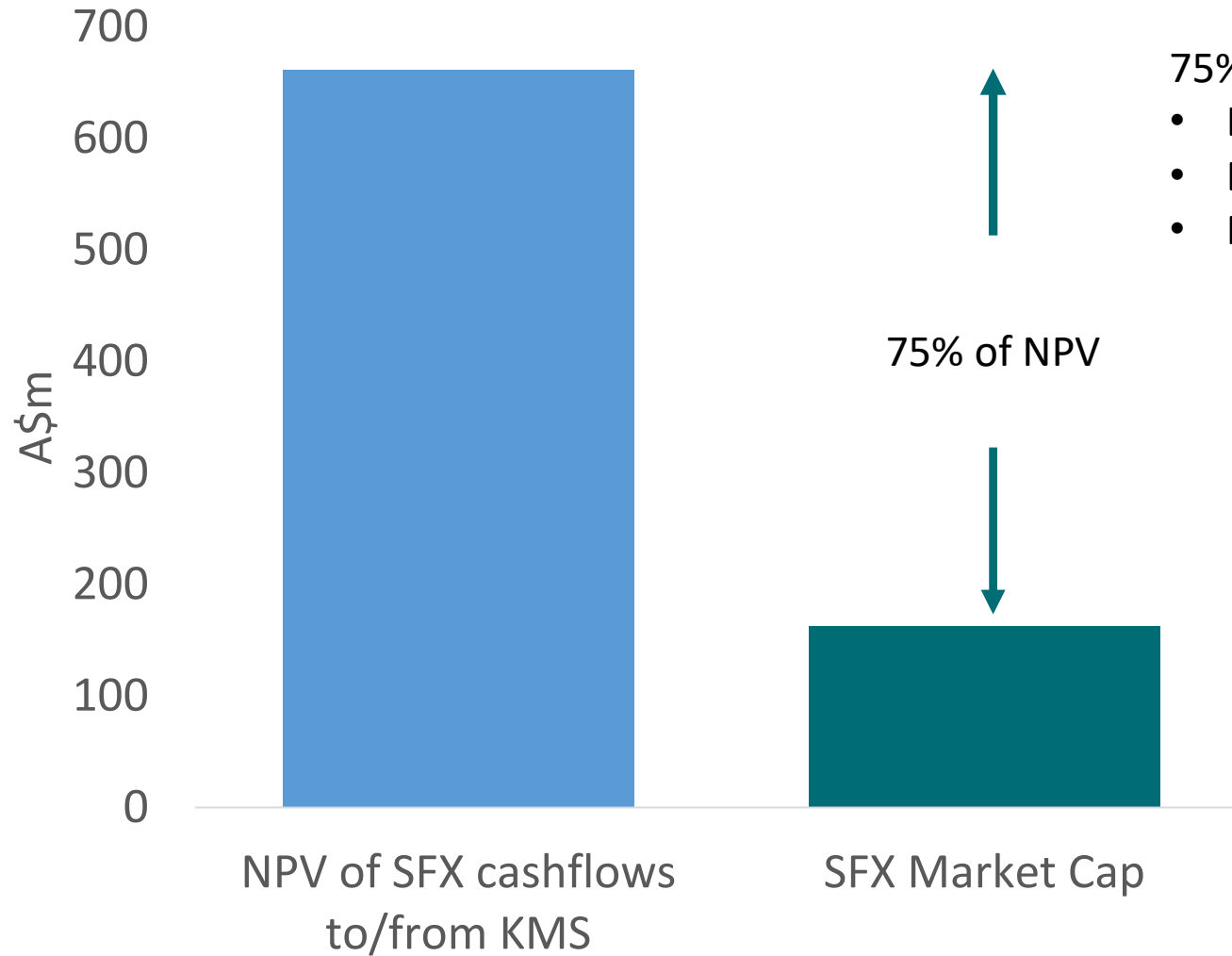
Note:

1. Targeted senior secured project finance facilities are indicative, non-binding and subject to due diligence, approvals and definitive documentation.
2. Equity Requirement remains subject to ITE consent and lender review of Base Case Financial Model upon financial closing.

# Stage 1 Development Timeline



# Deep discount to asset value



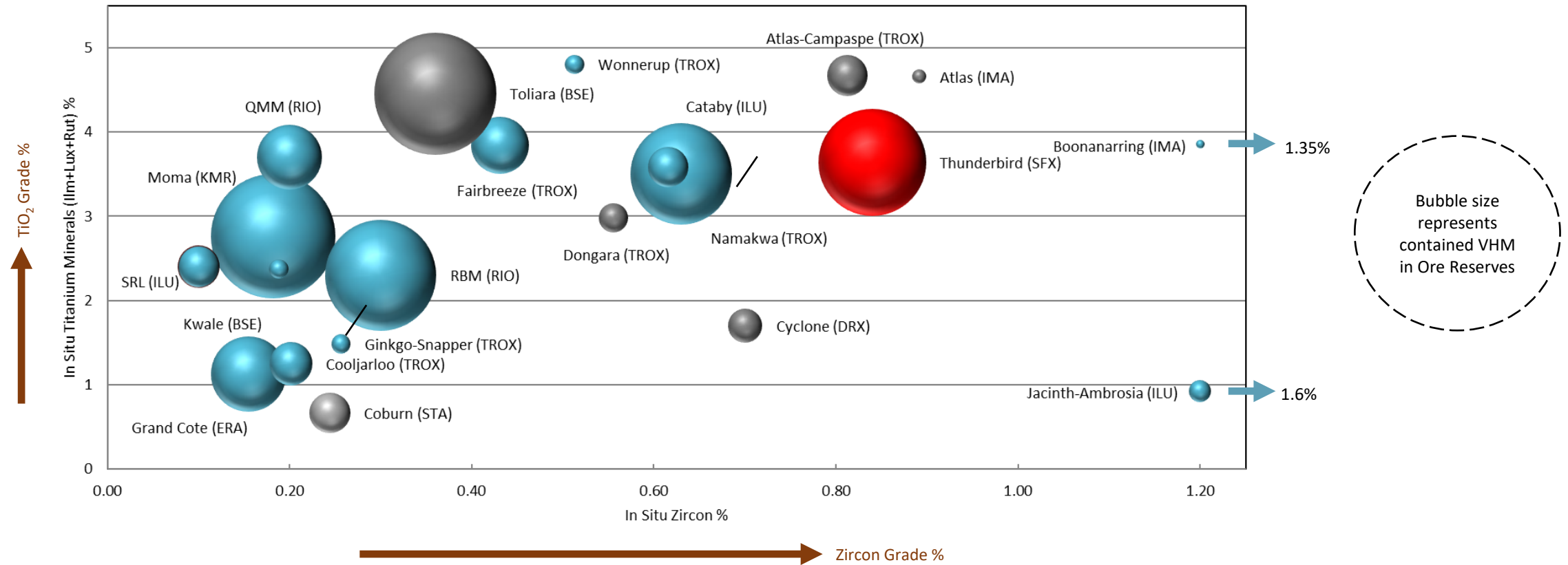
75% discount to NPV of SFX interest in KMS despite:

- Low risk jurisdiction
- BFS complete
- Funding in final stages of approval



# Thunderbird – large, high grade ore body ... in a low risk jurisdiction

## Ore Reserves and Grade for selected mineral sands deposits 1,2,3



Note:

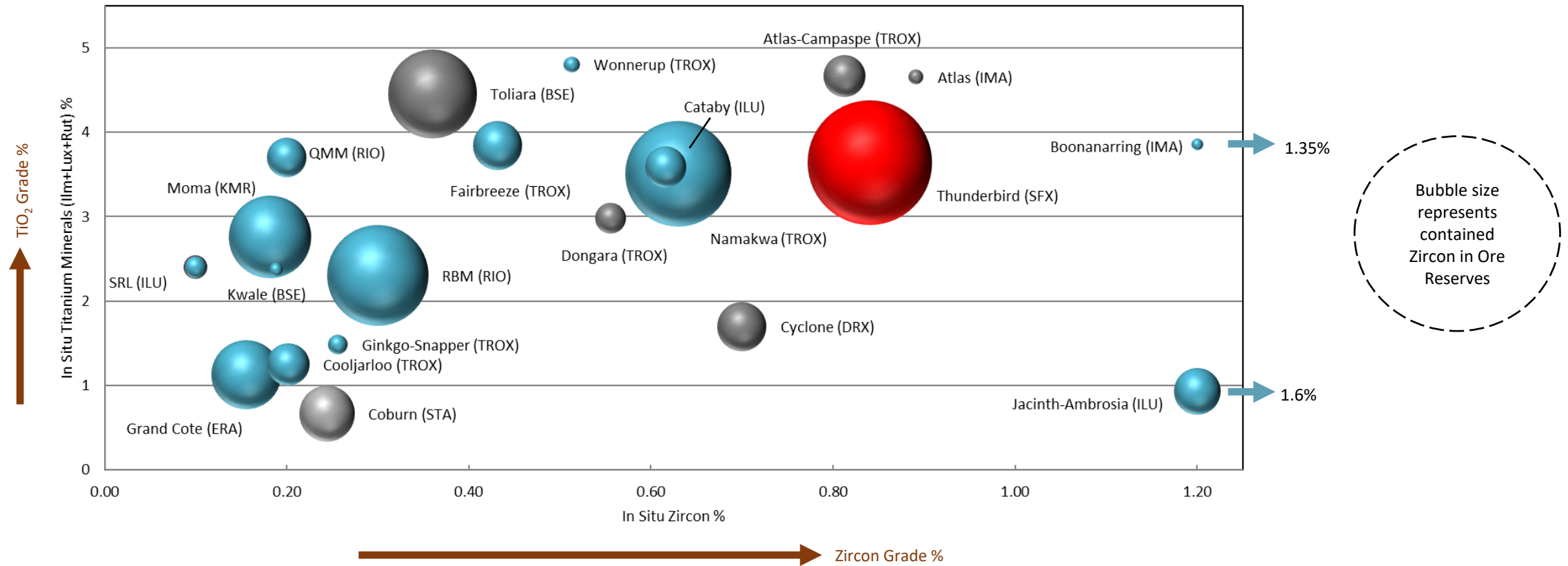
1. Thunderbird Ore Reserve as published on the ASX on 24 March 2022. Thunderbird Ore Reserves ranked against latest published Ore Reserves of current mineral sands operations and projects under investigation globally. Accordingly, for the operating projects, no account is made for any volumes of product already produced
2. Blue bubbles are operating mines, grey bubbles are Ore Reserves reported but the project is not operating
3. Data compiled by Sheffield from public sources. This analysis does not illustrate the variance in product value between rutile, leucoxene and ilmenite

# Thunderbird – the world’s largest zircon reserves ... in a low risk jurisdiction



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## Contained zircon in Ore Reserves and Grade for selected mineral sands deposits <sup>1,2,3</sup>



- Note:
1. Thunderbird Ore Reserve as published on the ASX on 24 March 2022. Thunderbird Ore Reserves ranked against latest published zircon contained in Ore Reserves of current mineral sands operations and projects under investigation globally. Accordingly, for the operating projects, no account is made for any volumes of product already produced
  2. Blue bubbles are operating mines, grey bubbles are Ore Reserves reported but the project is not operating
  3. Data compiled by Sheffield from public sources. This analysis does not illustrate the variance in product value between rutile, leucoxene and ilmenite

## Environmental

**Full State and Federal environmental approvals granted following a detailed Public Environmental Review ("PER") process**

- ❖ PER concluded all risks can be adequately managed
- ❖ Approvals contain standard industry conditions and controls
- ❖ Specific Greater Bilby management plans in place
- ❖ Environmental offset fund established
- ❖ Restrictions on speeds and travel times for haulage of products to Port of Derby

**Rehabilitation throughout mine life – minimises disturbed area**

**Environmental practices & protocols mirror Equator Principles**

**Addressing the Climate Change challenge**

- ❖ CO<sub>2</sub> baseline emissions estimated 11mt CO<sub>2</sub>e (40+ year life of project)\*
- ❖ Significant reduction expected following removal of Low Temperature Roaster
- ❖ Thunderbird village accommodation converted to solar/battery solution of 2MW
- ❖ Independent third-party validation of emissions commissioned for 2022 BFS
- ❖ Opportunity to add renewable energy to gas generation
- ❖ Longer term initiatives to reduce emissions being identified (e.g. electric haul trucks)
- ❖ 2030 target and target date for net zero to be set prior to FID

## Social

**Co-existence Agreement (Native Title Agreement) in place**

- ❖ Targeted 40% Aboriginal Employment by year 8 of operations
- ❖ Aboriginal Training Fund to support employment
- ❖ Aboriginal Business support via supply and contract opportunities
- ❖ Cash royalties to Traditional Owners over 36 year mine life

**High standards in safeguarding the environment, water, diversity and Aboriginal heritage**

**Local Employment**

- ❖ 300 regional jobs on a Drive In Drive Out basis

**Intergenerational Employment over 36 year mine life**

**State and Federal Tax Contribution of >A\$1B over 36 year mine life**

## Governance

**Compliant with ASX recommended governance framework**

**Commitment to increase Board and management diversity**

# Highlights: BFS, Financing & Project Update

LTR removed – leveraging Yansteel investment in China

Stage 1 Upfront Capex \$361m

Robust Stage 1 & 2 economics

- Post Tax NPV<sub>8</sub> \$1.28b – \$640m SFX share
- IRR pre-tax 27.5%

Total funding required for Stage 1 \$484m

NAIF + Commercial Debt facility ~ 65% gearing

Net of KMS sunk equity and cash \$62m in new equity is required

SFX equity required \$36m – \$10m + 50% of balance

- Fully funded from existing cash

Financial close expected late Q2 2022 – first production target of Q1 2024 maintained

Sheffield market cap @ 75% discount to NPV of Sheffield cashflows to/from KMS

Thunderbird has the world's largest zircon reserves

# THANK YOU

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## Registered and Corporate Office

**Sheffield Resources Limited**

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41-47 Colin Street

West Perth WA 6005

**p.** +61 8 6555 8777

**e.** [info@sheffieldresources.com.au](mailto:info@sheffieldresources.com.au)

# Appendix: Sheffield Resources Corporate Overview



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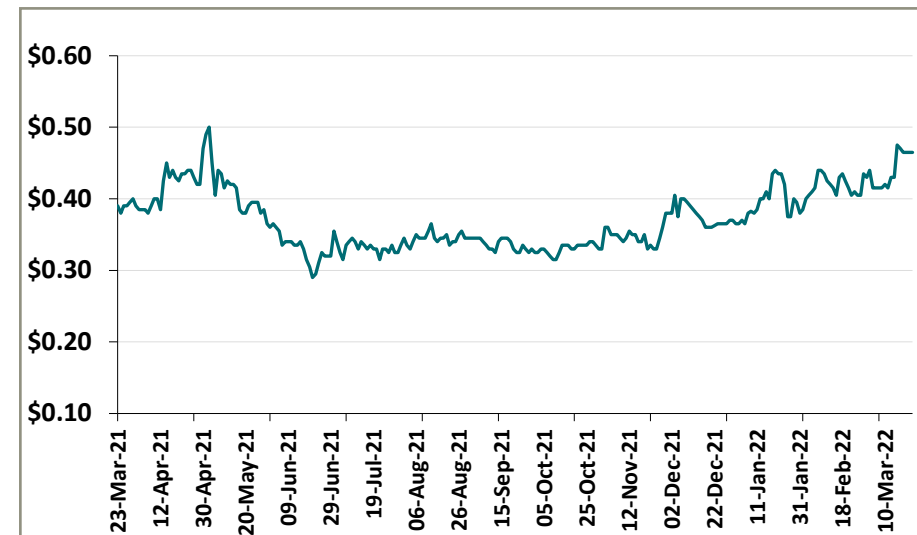
Sheffield Resources is an ASX listed mineral sands developer which has a 50% joint venture interest in the large scale Thunderbird Mineral Sands Project

- Sheffield Resources Limited (“Sheffield” or the “Company”) is an ASX listed mineral sands developer and explorer based in Perth, Western Australia (ASX:SFX)
- Sheffield is focused on the development of the 50% owned Thunderbird Mineral Sands Project (“Thunderbird” or the “Project”) located on the Dampier Peninsula in Northern Western Australia.
- Thunderbird has been developed as a greenfield project since discovery in 2012 and is one of the largest and highest grade zircon rich discoveries in the last 30 years and is one of a few greenfield mineral sands deposits globally in a secure jurisdiction
- Experienced and skilled Board and management with strong in-house intellectual property and knowledge and capable of developing and delivering Thunderbird

## Capital structure<sup>1</sup>

Item	Unit	Value
Ordinary Shares	#m	347
Share Price (as at 23 Mar 2022) <sup>1</sup>	A\$/sh	0.47
<b>Market Capitalisation</b>	<b>A\$m</b>	<b>163</b>
Cash Balance (23 Mar 2022)	A\$m	40
Debt Balance (23 Mar 2022)	A\$m	-
<b>Enterprise Value</b>	<b>A\$m</b>	<b>123.0</b>

## Share Price Information



1. Market data as at 23 March 2022 and sourced from ASX market based data and reports published by Sheffield Resources

# Appendix: Sheffield Executive and Board



**Bruce Griffin**  
*Executive Chair*

- Most recently held the position of Senior Vice President Strategic Development of Lomon Billions Group, the world's third largest producer of high-quality titanium dioxide pigments.
- Held executive management positions in several resource companies, including acting as the Chief Executive Officer and a director of TZ Minerals International Pty. Ltd. (TZMI), the leading independent consultant on the global mineral sands industry, World Titanium Resources, a development stage titanium project in Africa and as Vice President Titanium for BHP Billiton.



**Vanessa Kickett**  
*Non-Executive Director*

- Extensive experience and involvement with Aboriginal engagement, native title and heritage matters throughout Western Australia.
- Currently Deputy Chief Executive Officer of the South West Aboriginal Land and Sea Council, responsible for the recent implementation and operation of the South West (Western Australia) native title settlement.



**Ian Macliver**  
*Non-Executive Director*

- Executive Chairman of Grange Consulting Group Pty Ltd & Grange Capital Partners. Prior to establishing Grange, Ian held positions in various listed and corporate advisory companies with experience covering all areas of corporate activity including capital raisings, acquisitions, divestments, takeovers, business and strategic planning, debt and equity reconstructions, operating projects and financial review and valuations.
- Non-Executive Chairman of Western Areas Ltd and Non-Executive Chairman of MMA Offshore Limited.



**Mark Di Silvio**  
*Chief Financial Officer & Company Secretary*

- Mr Di Silvio is a CPA and MBA qualified finance professional with over 30 years' resources industry experience including operations and project development experience both in Australia and overseas, including project financing, commercial agreement structuring and product offtake agreements
- Held senior finance roles with Woodside Petroleum Limited in Australia and Africa prior to his engagement as CFO with Central Petroleum Limited, and Centamin Plc and Mawson West Limited.



**Gordon Cowe**  
*Non-Executive Director*

- A qualified mechanical engineer with over 30 years' experience, Gordon has had significant involvement in leading business start-up, planning and delivery of multiple complex projects including Mining & Mineral Processing, Oil & Gas and Resources based infrastructure projects globally.
- Extensive career with leading contractors (including Bechtel and Worley Parsons) and project owners on a wide range of projects.



**John Richards**  
*Non-Executive Director – Lead Independent Director*

- An economist with more than 35 years' experience in the resources industry; holding various positions within mining companies, investment banks and private equity groups.
- Mr Richards has held previous positions at Normandy Mining Ltd, Standard Bank, Buka Minerals and Global Natural Resources Investments
- Non-Executive Director of Northern Star Limited and Sandfire Resources Limited.



# Appendix: Thunderbird Ore Reserves

## Thunderbird Ore Reserves: Valuable Heavy Mineral in-situ grade<sup>1</sup>

Ore Reserve Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade (%)	Valuable Heavy Mineral Grade (In-situ) <sup>2</sup>					
				Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Proved	239	31	12.9	0.96	0.29	0.28	3.4	14	16
Probable	514	52	10.1	0.79	0.26	0.27	2.9	11	15
<b>Total</b>	<b>754</b>	<b>83</b>	<b>11.0</b>	<b>0.84</b>	<b>0.27</b>	<b>0.27</b>	<b>3.1</b>	<b>12</b>	<b>15</b>

## Thunderbird Ore Reserves: Mineral assemblage as percentage of HM grade<sup>1</sup>

Ore Reserve Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade (%)	Mineral Assemblage <sup>3</sup>					
				Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Proved	239	31	12.9	7.5	2.2	2.2	27	14	16
Probable	514	52	10.1	7.8	2.6	2.6	28	11	15
<b>Total</b>	<b>754</b>	<b>83</b>	<b>11.0</b>	<b>7.7</b>	<b>2.4</b>	<b>2.5</b>	<b>28</b>	<b>12</b>	<b>15</b>

Notes:

- Ore Reserves are presented both in terms of in-situ VHM grade, and HM mineral assemblage. Tonnes and grades have been rounded to reflect the relative accuracy and confidence level of the estimate, thus the sum of columns may not equal. Ore Reserves reported for the Dampier Project were prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX Announcement dated 24 March 2022 titled "Thunderbird Ore Reserve Update" for further detail. Ore Reserve is reported to a design overburden surface with appropriate consideration for modifying factors, costs, mineral assemblage, process recoveries and product pricing
- The in-situ grade is determined by multiplying the HM Grade by the percentage of each valuable heavy mineral within the heavy mineral assemblage

# Appendix: Thunderbird Mineral Resources

## Thunderbird Mineral Resources: Valuable Heavy Mineral in-situ grade<sup>1</sup>

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade <sup>2</sup> (%)	Valuable Heavy Mineral Grade (In-situ) <sup>3</sup>					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Slimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	0.71	0.20	0.19	2.4	18	12
	Indicated	2,120	140	6.6	0.55	0.18	0.20	1.8	16	9
	Inferred	600	38	6.3	0.53	0.17	0.20	1.7	15	8
	<b>Total</b>	<b>3,230</b>	<b>223</b>	<b>6.9</b>	<b>0.57</b>	<b>0.18</b>	<b>0.20</b>	<b>1.9</b>	<b>16</b>	<b>9</b>
>7.5% HM	Measured	220	32	14.5	1.07	0.31	0.27	3.9	16	15
	Indicated	640	76	11.8	0.90	0.28	0.25	3.3	14	11
	Inferred	180	20	10.8	0.87	0.27	0.26	3.0	13	9
	<b>Total</b>	<b>1,050</b>	<b>127</b>	<b>12.2</b>	<b>0.93</b>	<b>0.28</b>	<b>0.26</b>	<b>3.3</b>	<b>15</b>	<b>11</b>

## Thunderbird Mineral Resources: Mineral assemblage as percentage of HM grade<sup>1</sup>

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade <sup>2</sup> (%)	Mineral Assemblage <sup>4</sup>					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Slimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	8.0	2.3	2.2	27	18	12
	Indicated	2,120	140	6.6	8.4	2.7	3.1	28	16	9
	Inferred	600	38	6.3	8.4	2.6	3.2	28	15	8
	<b>Total</b>	<b>3,230</b>	<b>223</b>	<b>6.9</b>	<b>8.3</b>	<b>2.6</b>	<b>2.9</b>	<b>28</b>	<b>16</b>	<b>9</b>
>7.5% HM	Measured	220	32	14.5	7.4	2.1	1.9	27	16	15
	Indicated	640	76	11.8	7.6	2.4	2.1	28	14	11
	Inferred	180	20	10.8	8.0	2.5	2.4	28	13	9
	<b>Total</b>	<b>1,050</b>	<b>127</b>	<b>12.2</b>	<b>7.6</b>	<b>2.3</b>	<b>2.1</b>	<b>27</b>	<b>15</b>	<b>11</b>

Notes:

- The Thunderbird Mineral Resources are reported inclusive of (not additional to) Ore Reserves. The Mineral Resource reported above 3% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off. All tonnages and grades have been rounded to reflect the relative accuracy and confidence level of the estimate and to maintain consistency throughout the table, therefore the sum of columns may not equal. The Mineral Resource estimate was prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX announcement dated 5 July 2016 titled "Sheffield Doubles Thunderbird Measured Mineral Resource" for further detail
- Total heavy minerals (HM) is within the 38µm to 1mm size fraction and has been reported as a percentage of the total material quantity
- The Valuable HM in-situ grade is reported as a percentage of the total material quantity and is determined by multiplying the percentage of total HM by the percentage of each valuable heavy mineral within the HM assemblage at the resource block model scale
- The Mineral Assemblage is represented as the percentage of HM grade. Estimates of mineral assemblage are determined by screening and magnetic separation. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: >90% liberation; ilmenite 40-70% TiO<sub>2</sub>; leucoxene 70-94% TiO<sub>2</sub>; high titanium leucoxene (HiTi Leucoxene) >94% TiO<sub>2</sub> and zircon 66.7% ZrO<sub>2</sub>+HfO<sub>2</sub>. The non-magnetic fraction was analysed by XRF and minerals determined as follows: Zircon ZrO<sub>2</sub>+HfO<sub>2</sub>/0.667 and HiTi Leucoxene TiO<sub>2</sub>/0.94

# Appendix: Night Train Mineral Resources

## Night Train Mineral Resources: Valuable Heavy Mineral in-situ grade<sup>1</sup>

Mineral Resource Category	Cut off (HM%)	Ore Tonnes (Mt)	HM Grade (%)	Valuable Heavy Mineral Grade (In-situ) <sup>2,3</sup>					
				Zircon (%)	HiTi Leucoxene & Rutile (%)		Ilmenite (%)	Slimes (%)	Oversize (%)
					Leucoxene (%)				
Inferred	1.2	130	3.3	0.45	0.18	1.5	0.71	8.7	2.2
Inferred	2.0	50	5.9	0.82	0.33	2.9	1.06	10.2	2.2

## Night Train Mineral Resources: In-Situ Tonnes<sup>1</sup>

Mineral Resource Category	Cut off (HM%)	HM Tonnes (Mt)	In-situ Tonnes <sup>4</sup>				
			Zircon (kt)	HiTi Leucoxene & Rutile (kt)		Ilmenite (kt)	Total VHM (kt)
				Leucoxene (kt)			
Inferred	1.2	4.2	560	220	1,900	900	3,590
Inferred	2.0	3.0	420	170	1,500	540	2,600

Notes:

1. Refer to ASX Announcement on 31 January 2019 titled "High Grade Maiden Mineral Resource at Night Train" for further information, explanations and qualifications. The Mineral Resource estimate was prepared by Optiro Pty Ltd and disclosed under the JORC Code (2012). Total HM is within the 38µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -38µm fraction and oversize is the +1mm fraction. Tonnes and grades have been rounded to reflect the relative accuracy and confidence level of the estimate, thus the sum of columns may not equal
2. In-situ assemblage grade is determined by multiplying the percentage of total HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale
3. Estimates of Mineral Assemblage are presented as percentages of the Total Heavy Mineral (THM) component of the deposit, as determined by magnetic separation, QEMSCANTM and XRF for one of 12 composite samples. Magnetic fractions were analysed by QEMSCANTM for mineral determination as follows: ilmenite: 40-70% TiO<sub>2</sub> >90% liberation; leucoxene: 70-90% TiO<sub>2</sub> >90% liberation; high titanium leucoxene (HiTi leucoxene) and rutile combined > 90% TiO<sub>2</sub> liberation, and zircon: 66.7% ZrO<sub>2</sub>+HfO<sub>2</sub> >90% liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO<sub>2</sub>+HfO<sub>2</sub>/0.667 and high titanium leucoxene (HiTi leucoxene): TiO<sub>2</sub>/0.94. HM assemblage determination was by the QEMSCANTM process for 11 of 12 composite samples which uses observed mass and chemistry to classify particles according to their average chemistry, and then report mineral abundance by dominant % mass in particle. For the TiO<sub>2</sub> minerals the following breakpoints were used to distinguish between ilmenite 40% to 70% TiO<sub>2</sub>, leucoxene 70% to 90% TiO<sub>2</sub>, high TiO<sub>2</sub> leucoxene and rutile > 90%
4. The contained in-situ tonnes for the valuable heavy minerals were derived from information from the in-situ grades and tonnes of the Mineral Resource

# Appendix: Significant Regional Exploration Upside

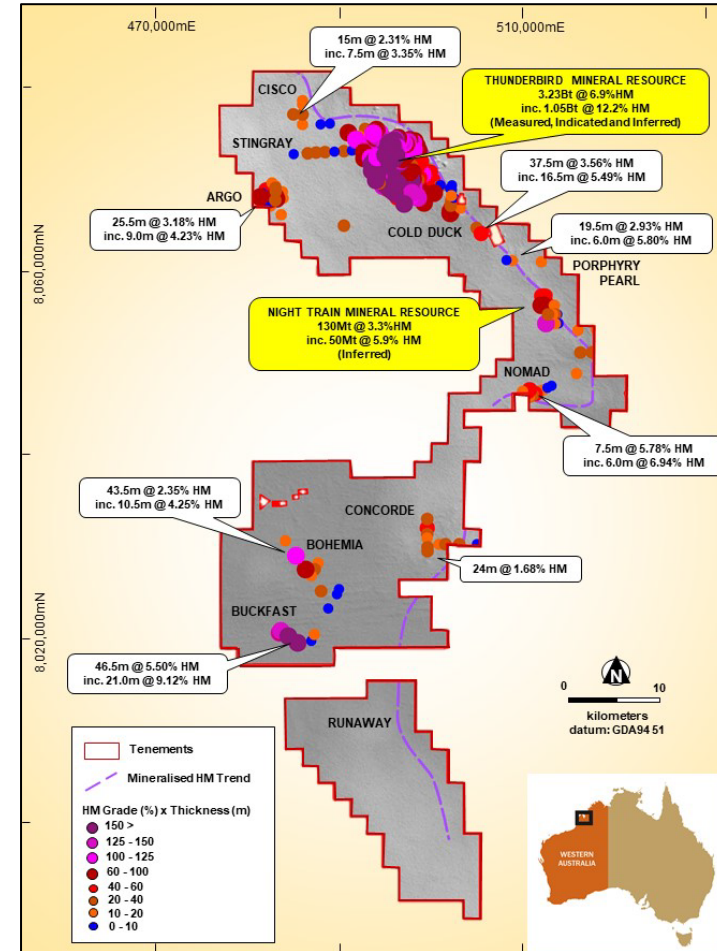


SheffieldResources  
LIMITED

Strategic value demonstrated through multiple discoveries made along a 120km long trend

- Exploration has delineated 14 zones of significant mineralisation along a 120km long highly mineralised trend
- High grade Mineral Resource<sup>1</sup> at Night Train
  - 130Mt @ 3.3% HM, containing 3.6Mt of VHM including 50Mt @ 5.9% HM, containing 2.6Mt of VHM
  - In-situ grades of 0.82% zircon, 0.33% HiTi leucoxene and rutile, 2.9% leucoxene, 1.06% ilmenite
- Three substantial new mineral sands discoveries have been outlined at Buckfast, Bohemia and Concorde
  - Mineral assemblages with high proportions of VHM dominated by leucoxene, altered ilmenite and zircon with low to moderate levels of trash
- Opens up a new 60km long highly prospective corridor south of Thunderbird
- Thick high grade intervals<sup>2</sup> have been intersected, including:
  - 46.5m @ 5.50% HM from 57.0m (NLAC025), including 21.0m @ 9.12% HM from 64.5m (Buckfast)
  - 37.5m @ 5.01% HM from 67.5m (NLAC027), including 25.5m @ 5.74% HM from 75m (Buckfast)
- Numerous zircon-rich targets identified for follow-up drilling

Dampier Project – Regional Plan<sup>1</sup>



Notes:  
1. Refer to ASX announcement 31 January 2019 titled "High Grade Maiden Mineral Resource at Night Train"

## All necessary State and Federal environmental approvals received

- Strong social licence to operate is supported by **full State and Federal environmental approvals** following an extensive Public Environmental Review ("PER")
- The PER process required full environmental impact assessment, with **detailed public consultation** and identification of key environmental concerns for the community. The key issues identified were:
  - Impact on the Greater Bilby
  - Impact on ground water resources
  - Haulage of mineral sands products through Derby
  - Impact of ocean going vessels on marine animals
- The **Environmental Protection Authority ("EPA") conducted a detailed review**, including a site visit by the EPA Board and two periods of public comment and consultation
- **All environmental approvals were received** on the following basis:
  - PER concluded all risks can be adequately managed
  - Approvals contain **standard industry conditions and controls**
  - Specific **Greater Bilby management plans** in place
  - **Environmental offset fund** established
  - **Restrictions on speeds and travel times** for haulage of products to Port of Derby
- **Practices to mirror Equator Principles**

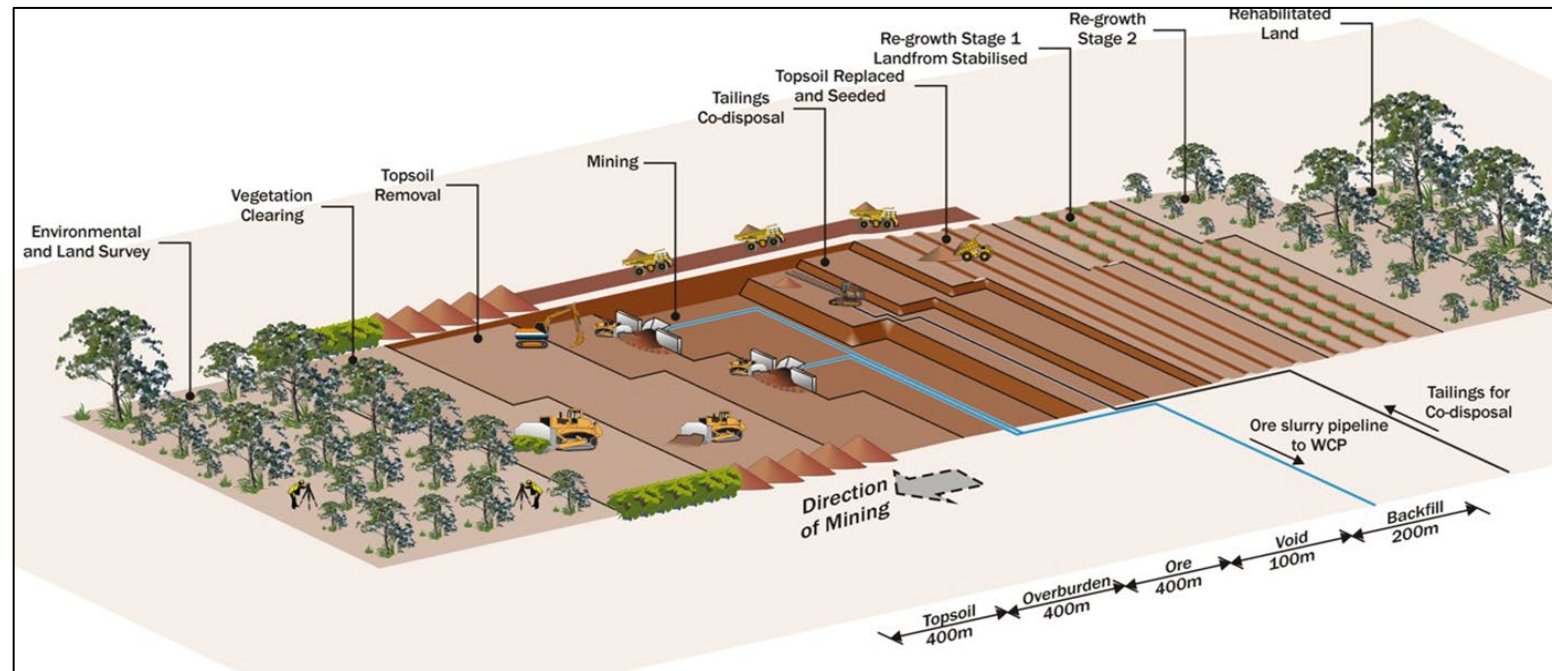


*Thunderbird personnel receive training in Bilby management as part of our Bilby Management Program (2018)*



## Continuous Rehabilitation

- Proposed dry mining via conventional dozer trap mineral sand mining
- Topsoil and overburden excavated and transported using truck and excavators
- Topsoil is deposited and seeded following completion of mining within each zone
- Active rehabilitation of mined areas occurs continuously throughout the mine life
- Progressive mining limits active mining to a maximum of 16km<sup>2</sup>
- Continuous rehabilitation limits maximum disturbed area during mine life to 60km<sup>2</sup>



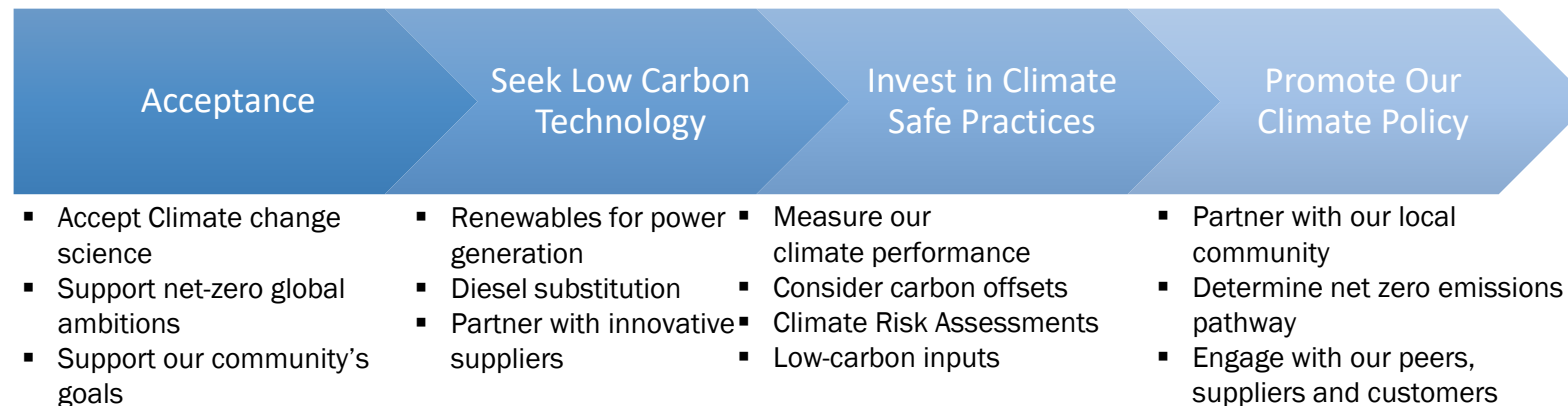
## Embracing the Climate Change challenge

- CO<sub>2</sub> baseline Scope 1 emissions estimated in BFS 2017 at 11mt CO<sub>2</sub>e (c.40 year life of project)\*
- Significant reduction expected following removal of Low Temperature Roaster
- Independent third-party validation of emissions commissioned for 2022 BFS

## *CO<sub>2</sub> reduction opportunities across a 36 year mine life*

- ✓ Introduction of renewable electricity to complement LNG gas generation
- ✓ BFS assumes Thunderbird village accommodation converted to solar/battery solution of 2MW
- ✓ Innovation within the process plant value chain
- ✓ Logistics at the mine site and to port (e.g. electric fleet solutions)
- ✓ Agree 2030 target and target date for net zero emission

## Our goals for a Sustainable future





## Actively working with community stakeholders to create and maintain a robust relationship

- Central to the Kimberley regional strategy is our social licence to operate
  - **Built over ten years** and based on formal and informal community relations practices
- Strategy focuses on:
  - **Aboriginal engagement** and advancement
  - **Local content employment** and workforce on a **drive-in and drive-out** basis (as opposed to fly-in, fly-out)
  - Low environmental and Aboriginal Heritage impact
  - **Regional economic opportunities** and local business development
- Community engagement practices to date are **built on strong stakeholder, social and community support for Thunderbird** and ensures a positive foundation for project development, land access, construction and project operation
- Achieved through **development and implementation of communication and consultation** strategies which ensure stakeholders to the ports, Traditional Owners, pastoralists, local shires, government authorities, local businesses and local communities are informed and engaged positively
- **Strongly supported by State and Federal Government**, Thunderbird has a 36-year mine life which will see opportunity flow within the Kimberley region for future generations



*Kimberley Mineral Sands community consultations (Broome, 2021)*



# Appendix: ESG – Native Title Agreement

## Native Title agreement signed and is irrevocably binding on both Sheffield and the Traditional Owners

- Signed the Co-existence Agreement (Native Title Agreement) for Thunderbird on 31 October 2018
- The Traditional Owners authorised the Named Applicants to sign the Co-existence Agreement for Thunderbird, making it binding on both the Company and the Traditional Owners
- Details of the Co-existence Agreement are confidential, however the final agreement is in line with the Company's commitment to the community and contains:
  - Royalty payments to the Traditional Owners across mine life
  - Local and Aboriginal employment and business commitments
  - Protection for Aboriginal heritage and the environment
- The Co-existence Agreement establishes the framework by which the Company can work with the Traditional Owners to protect Aboriginal heritage and the environment while delivering sustainable employment and business outcomes for Traditional Owners and the wider Aboriginal community
- Jombarn-Buru native title claim formally determined by Federal Court in Oct 2021



*Jombarn-Buru native title claim formally determined by Federal Court (Perth, October 2021)*

## Aboriginal Employment Strategy

- Previous success in building a strong locally based workforce to be replicated during 36 year operation, particularly in the area of Aboriginal employment
- Strong commitment to training and development which results in ongoing employment
- In addition, key strategy targets include:
  - To achieve 40% Aboriginal employment by year 8 of operations
  - To commit to Aboriginal businesses during construction and operations