

# Element 25 Limited

## (E25 \$0.80) Speculative Buy - Initiation of Coverage

EUROZ

Analyst	Date	Price Target
Steven Clark	25 <sup>th</sup> September 2020	\$1.08/sh

### Australia's Largest Onshore Manganese Resource

#### Key points

- E25's Butcherbird Manganese Project has a short lead time to the commencement of production and accordingly the penetration of the fastest growing segment of the Mn ore market;
- The Butcherbird Project's low capital hurdle is equivalent to 16% of E25's EV and 10% of our conservative NPV estimate;
- Avg. annual operating cash flow in the first 5 years of the LoM is guided at >2x pre-production capex, implying a payback period of 6 months;
- Our investment case is bifurcated between the upside of what we view to be two distinct stages of the development of the Butcherbird project:
  - Mn concentrate export operation commencing at ~360ktpa in FY22 prior to a twofold increase in capacity and production in FY23;
  - An inevitable expansion to high purity Mn production via E25's established hydrometallurgical process flowsheet which has demonstrated the capacity to produce EMM at a purity of 99.95%Mn from Butcherbird ore;
- Our NPV<sub>10</sub> valuation of \$1.08/sh excludes the material upside of the production of battery grade Mn sulphate;
- We apply a risk-adjustment factor of 70% to our valuation, largely owing to the binary nature of whether or not ore sorting can repeatedly beneficiate the Butcherbird ore to a concentrate grading at 33%Mn;
- We derive confidence in successful execution from the third party affirmation provided by OM Holdings Ltd's (ASX:OMH) clear interest in the project (see here);
- The orebody is unique in that it comprises flat-lying interlayered bands of Mn and non-Mn bearing clays and shales (see page 12), and as such it is not unreasonable to liken the beneficiation of Butcherbird ore to a simple separation exercise;
- Tesla's announcement of the elimination of cobalt from its battery cathodes and planned cathode chemistry composition containing 33% Mn provides a highly supportive backdrop to our investment case;
- We anticipate the surety of supply offered via the Butcherbird Project's >40-year mine life in a Tier-1 jurisdiction proximal to Asian smelters to warrant premium pricing under offtake agreements;
- We flag the following as key near term catalysts:
  - Execution of offtake agreements;
  - Commencement of production and repeatable beneficiation of Butcherbird ore to a concentrate grading at 33%Mn;
  - An expansion in concentrate production capacity;
  - Development of a hydrometallurgical processing facility and in turn the genesis of high purity Mn production;
  - M&A activity;
- We Initiate Coverage with a Speculative Buy recommendation and Price Target of \$1.08/sh in line with our NPV<sub>10</sub> Valuation.

Element 25 Limited	Year End 30 June	
Share Price	0.80	A\$/sh
Price Target	1.08	A\$/sh
Valuation	1.08	A\$/sh

Shares on issue	126	m (dil)
Market Capitalisation	101	A\$m
Enterprise Value	93	A\$m
Debt	-	A\$m
Cash	8	A\$m
Largest Shareholder	Directors	9.8%

Production F/Cast	2021f	2022f	2023f
33%Mn Concentrate (kt)	31	362	715

Assumptions	2021f	2022f	2023f
33%Mn FOB PH (US\$/dmtu)	4.38	4.55	4.63
AISC (US\$/dmtu)	2.83	2.88	3.02
AUD/USD (x)	0.70	0.71	0.71

Key Financials	2021f	2022f	2023f
Revenue (A\$m)	6	77	154
EBITDA (A\$m)	2	27	53
NPAT (A\$m)	0	22	37
Cashflow (A\$m)	0	22	38

CFPS (Ac)	-0.1	18.3	31.8
P/CFPS (x)	na	4.4	2.5

EPS (Ac)	0.2	18.4	30.6
EPS growth (%)	na	90	66
P/E	na	4.4	2.6

EV/EBITDA (x)	59.0	3.8	2.0
EV/EBIT (x)	61.4	3.9	2.0

#### Share Price Chart



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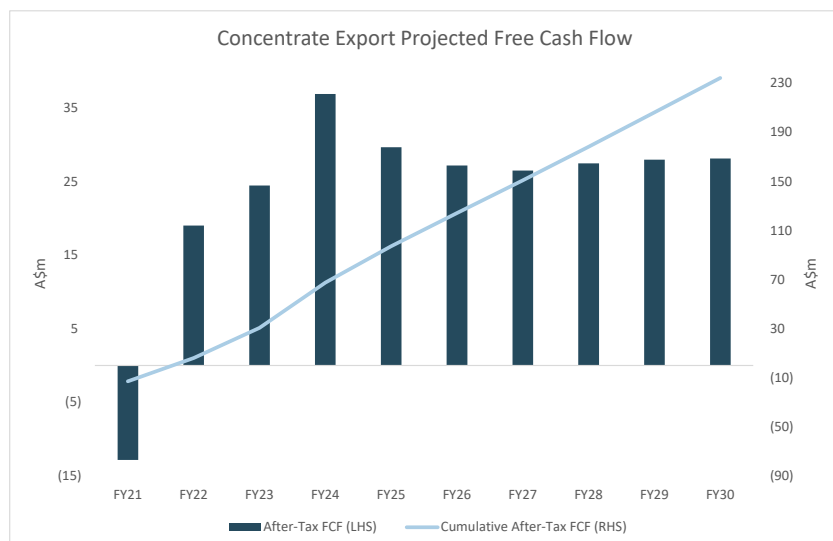
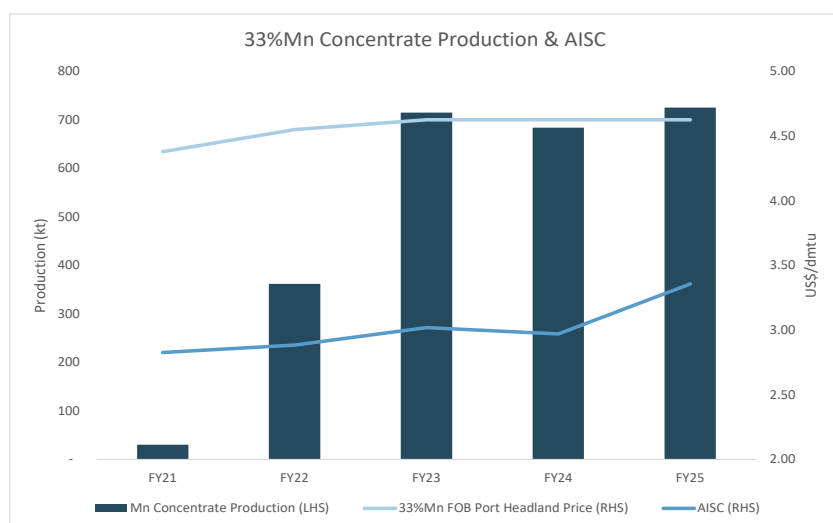
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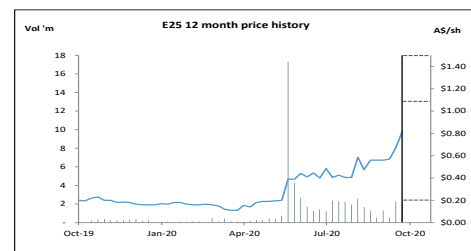
### Key Variables

Val/ Sh		33%Mn Concentrate Price Sensitivity (US\$/dmu)								
AUD/USD	\$1.08	\$3.80	\$4.00	\$4.20	\$4.40	\$4.60	\$4.80	\$5.00	\$5.20	\$5.40
	15%	\$0.04	\$0.18	\$0.32	\$0.45	\$0.59	\$0.73	\$0.87	\$1.00	\$1.14
	10%	\$0.16	\$0.30	\$0.45	\$0.59	\$0.74	\$0.88	\$1.02	\$1.17	\$1.31
	5%	\$0.29	\$0.44	\$0.59	\$0.74	\$0.89	\$1.04	\$1.19	\$1.34	\$1.49
	0%	\$0.43	\$0.59	\$0.75	\$0.91	\$1.07	\$1.22	\$1.38	\$1.54	\$1.70
	-5%	\$0.59	\$0.76	\$0.93	\$1.09	\$1.26	\$1.42	\$1.59	\$1.76	\$1.92
	-10%	\$0.77	\$0.94	\$1.12	\$1.30	\$1.47	\$1.65	\$1.82	\$2.00	\$2.17
	-15%	\$0.97	\$1.15	\$1.34	\$1.52	\$1.71	\$1.90	\$2.08	\$2.27	\$2.45

Val/ Sh		FOB Unit Operating Cost (A\$/t)								
\$1.08	\$117	\$125	\$132	\$139	\$146	\$154	\$161	\$168	\$176	
	\$1.57	\$1.44	\$1.32	\$1.20	\$1.08	\$0.94	\$0.82	\$0.70	\$0.56	



### Our Share Price Sensitivity



### Our Market Sensitivity

Valuation - \$1.08/sh

Price Target - \$1.08/sh

#### Bull Scenario - \$1.50/sh

E25 successfully transitions from exploration to a 360ktpa operation and Mn prices exceed ESL forecasts by 20%. E25 subsequently expands into high purity manganese production following a twofold expansion in capacity and production at the beginning of FY23.

#### Base Scenario - \$1.08/sh

Our risk-adjusted base case assumes the commencement of production at a run rate of 360ktpa prior to a twofold expansion in capacity and production in FY23. Mn prices align with our LT forecast of US\$4.60/dmu, with the FOB unit operating cost profile of the Butcherbird Project consistent with our estimates.

#### Bear Scenario - \$0.20/sh

Manganese ore prices fall below ESL forecasts by 20%. Beneficiation fails to consistently deliver the assumed 33%Mn concentrate grade.

### Company Summary

Element 25 Ltd (ASX:E25) is an ASX listed resource company which is developing its 100% owned Butcherbird Project in Western Australia to produce manganese concentrate and high purity manganese products for traditional and new energy markets.

### Disclaimer

The projections and information above is based on the set assumptions outlined. Due care and attention has been used in the preparation of this information. However actual results may vary from forecasts and any variation may be materially positive or negative. Forecasts by their very nature, are subject to uncertainty and contingencies, many of which are outside the control of Euroz.

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Market Statistics		Year End 30 June			
<b>Share Price</b>	<b>\$0.80 A\$/sh</b>	<b>Directors</b>			
Issued Capital		Seamus Cornelius	Chair		
Fully Paid Ordinary	113 m	Justin Brown	MD		
Options	13 m	John Ribbons	NED		
<b>Total Dil. FPOrd</b>	<b>126 m</b>	<b>Shareholders</b>			
<b>Market Cap (dil)</b>	<b>\$101 m</b>	Directors	9.8%		
Enterprise Value	\$93 m	JP Morgan	9.6%		
Cash (est. Sept 20)	\$8 m				
Debt (est. Sept 20)	\$- m				
Asset Valuation		A\$m	A\$/sh		
Butcherbird Project (70% Risk Adj.)		142	1.02		
Corporate Overheads		(7)	(0.05)		
Listed Investments		4	0.03		
Cash and ITM Options		11	0.08		
<b>Total</b>		<b>151</b>	<b>1.08</b>		
F/Cast Production		2021f	2022f	2023f	2024f
33%Mn Concentrate	kt	31	362	715	684
33%Mn FOB PH Price	US\$/dmtu	4.38	4.55	4.63	4.63
AISC	US\$/dmtu	2.83	2.88	3.02	2.97
Ratio Analysis (A\$m)		2021f	2022f	2023f	2024f
CF (A\$m)		-0.2	22.3	38.3	37.7
CFPS (Ac/sh)		-0.1	18.3	31.8	32.5
CF Ratio (x)		na	4.4	2.5	2.5
Earnings (A\$m)		0.3	22.4	36.8	36.2
EPS (Ac/sh)		0.2	18.4	30.6	31.3
EPS Growth (%)		na	na	66%	2%
P/E Ratio (x)		na	4.4	2.6	2.6
Enterprise Value (A\$m)		103	103	103	103
EV/EBITDA (x)		59.0	3.8	2.0	2.0
EV/EBIT (x)		61.4	3.9	2.0	2.1
EBIT Margin (%)		27%	34%	33%	34%
ROE (%)		1%	64%	106%	104%
ROA (%)		1%	45%	73%	72%
Profit and Loss (A\$m)		2021f	2022f	2023f	2024f
Manganese Concentrate Revenue		6	77	154	147
Interest Revenue		-	-	-	-
Other Revenue		-	-	-	-
<b>Total Revenue</b>		<b>6</b>	<b>77</b>	<b>154</b>	<b>147</b>
Operating Costs		4	48	100	94
D&A		0	1	2	2
Corporate Overheads		1	1	1	1
Exploration		-	-	-	-
<b>EBITDA</b>		<b>2</b>	<b>27</b>	<b>53</b>	<b>52</b>
<b>EBIT</b>		<b>2</b>	<b>26</b>	<b>50</b>	<b>50</b>
Interest Expense		(1)	(1)	(1)	(1)
<b>Net Profit Before Tax</b>		<b>0</b>	<b>28</b>	<b>52</b>	<b>51</b>
Tax		-	(5)	(15)	(15)
<b>Net Profit</b>		<b>0</b>	<b>22</b>	<b>37</b>	<b>36</b>
Cash Flow (A\$m)		2021f	2022f	2023f	2024f
Net Profit		0	22	37	36
(+/-) D&A		0	1	2	2
(+/-) Tax Expense		-	(5)	(15)	(15)
(-) Tax Paid		-	5	15	15
(+/-) Other		(1)	(1)	(1)	(1)
<b>Operating Cashflow</b>		<b>(0)</b>	<b>22</b>	<b>38</b>	<b>38</b>
(-) Capital Expenditure		(15)	(1)	(14)	(1)
(-) Exploration		-	-	-	-
(+/-) Other		-	-	-	-
<b>Investing Cashflow</b>		<b>(15)</b>	<b>(1)</b>	<b>(14)</b>	<b>(1)</b>
(-) Equity Issues		10	-	-	-
(+/-) Loan Drawdown		14	-	-	-
(-) Loan Repayment		-	-	-	-
(-) Dividends		-	-	-	-
<b>Financing Cashflow</b>		<b>24</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Net Cashflows</b>		<b>9</b>	<b>21</b>	<b>24</b>	<b>37</b>
(+/-) Fx Adj.		-	-	-	-
<b>Closing Cash Balance</b>		<b>12</b>	<b>33</b>	<b>57</b>	<b>94</b>
Balance Sheet (A\$m)		2021f	2022f	2023f	2024f
<b>Assets</b>					
Cash		12	33	57	94
Current Receivables		6	6	6	6
Other Current Assets		8	8	8	8
Non-Current Assets		24	24	36	34
<b>Total Assets</b>		<b>50</b>	<b>72</b>	<b>108</b>	<b>143</b>
<b>Liabilities</b>					
Borrowings		14	14	14	14
Current Accounts Payable		1	1	1	1
Other Liabilities		0	0	0	0
<b>Total Liabilities</b>		<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>
<b>Net Assets</b>		<b>35</b>	<b>56</b>	<b>92</b>	<b>127</b>
Reserves and Resources		Tonnes	Grade	Contained Mn	
<b>Butcherbird Reserves</b>		<b>Mt</b>	<b>Mn %</b>	<b>Mt</b>	
Proved		14.4	11.5%	1.7	
Probabale		36.2	9.8%	3.6	
<b>Total</b>		<b>50.6</b>	<b>10.3%</b>	<b>5.2</b>	
<b>Butcherbird Resources</b>					
Measured		16.0	11.6%	1.9	
Indicated		41.0	10.0%	4.1	
Inferred		206.0	9.8%	20.2	
<b>Total</b>		<b>263.0</b>	<b>10.0%</b>	<b>26.1</b>	

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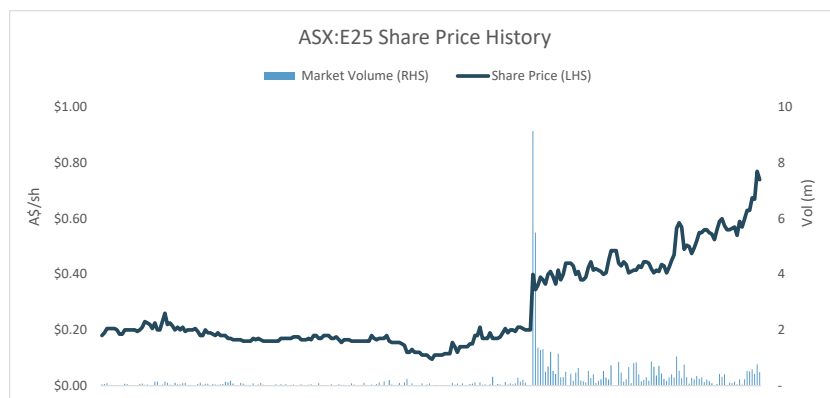
## Element 25 Limited

### (E25 \$0.80) Speculative Buy - Initiation of Coverage

#### Discussion

The Butcherbird Project's May'20 PFS delineates a robust project commencing at a scale amenable to the execution of offtake agreements with a tolerable capital hurdle of \$14.5m.

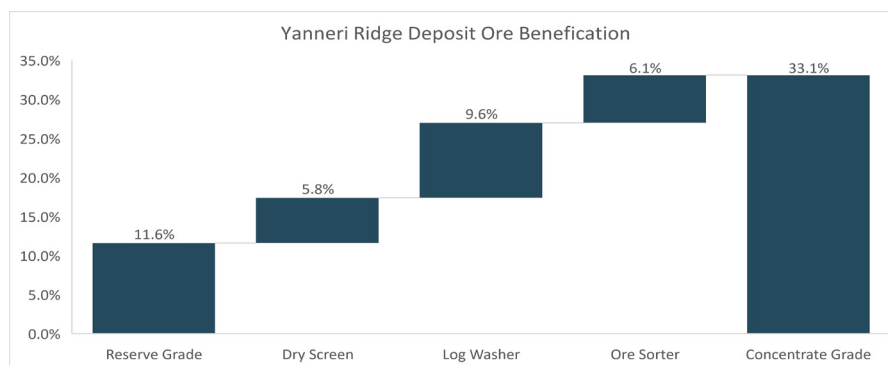
Headlined by a pre-tax NPV<sub>8</sub> of A\$283m and IRR of 223%, the concentrate export PFS received a strong reception from the market upon its May'20 release, resulting in a twofold increase in E25's share price. E25's May'20 rerating is indicative of strong interest in a long-life manganese project located in a Tier-1 jurisdiction with significant growth potential and early cash flow generation. We highlight that E25 raised more than twice the value of funds sought under the heavily oversubscribed Jul'20 Share Purchase Plan.



Source: IRESS

These favourable attributes of the Butcherbird Project have already culminated in the execution of a non-binding MOU with OM Holdings Ltd (ASX:OMH) for the provision of up to 100% of production from Butcherbird. The offtake of Butcherbird ore serves as a logical solution to Bootu Creek's diminishing resource and declining grades (YTD20 27%Mn vs FY19 33%Mn) as feedstock for OMH's Sarawak smelter.

The deposit's 10%Mn Resource grade is not characteristic of a commercial deposit. The orebody contains flat-lying interlayered bands of manganese and non-manganese bearing clays and shales, making the deposit highly conducive to beneficiation to an economic concentrate via a simple process flowsheet. The incorporation of induction and optical sorting into the Butcherbird process flowsheet under the PFS is responsible for beneficiation of Butcherbird ore to an economic grade previously unachieved by density-based ore sorting using x-ray transmission.



Source: ESL estimates, Butcherbird Project PFS

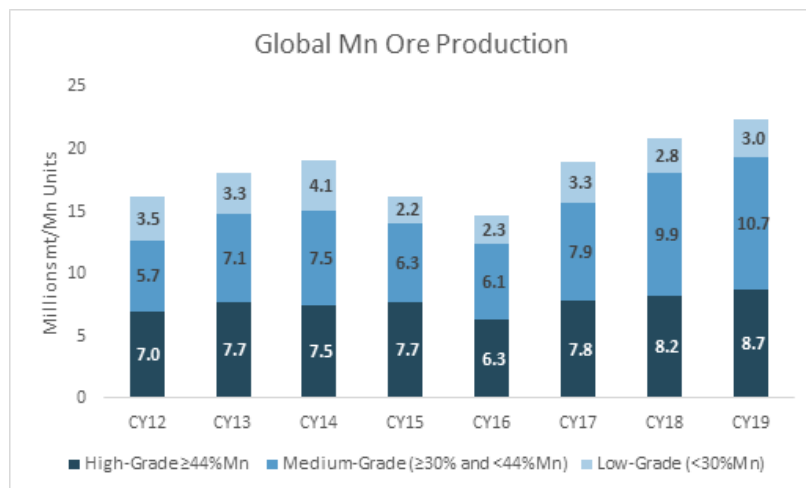
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The medium grade segment of the manganese market is the fastest-growing segment of the manganese market. We anticipate the high SiO<sub>2</sub> content (22%) of Butcherbird ore to warrant premium pricing under offtake pricing negotiations, which we anticipate to finalise in Sep'20. Considering sub-30%Mn Malaysian concentrates have historically received sizeable premiums to South African concentrates with equivalent Mn grades on account of greater SiO<sub>2</sub> content, we expect Butcherbird ore to realise prices more closely aligned with concentrates grading at 37%Mn.



Source: IMnI

Jupiter Mines Ltd's (ASX:JMS) Apr'18 IPO was the biggest resources sector IPO subsequent to BHP Billiton's May'15 spin-off of the world's largest producer of Manganese ore in South 32 Ltd (ASX:S32). Being a pure play manganese producer analogously selling medium grade manganese lump ore into seaborne markets, we consider JMS a tenable peer from which a relative valuation of the Butcherbird Project can be derived.

		E25	JMS
Project		Butcherbird	Tshipi Borwa
Location		Western Australia	South Africa
Project Stake	%	100	49.9
Reserves (100% basis)	Mt	51	94
Reserve Grade	Mn%	10%	36%
Resources (100% basis)	Mt	263	432
Resource Grade	Mn%	10%	33%
Contained Mn	Mt	26	143
Concentrate Grade	Mn%	33%	36.5%
Share Price	A\$/sh	0.80	0.28
Shares on Issue	m	113	1,959
Market Capitalisation	A\$m	90	539
Cash	A\$m	8	87
Debt	A\$m	0	0
Enterprise Value	A\$m	83	452
JMS gross up to equiv. 100% Tshipi stake	A\$m	n/a	905
EV/Reserves (contained Mn)	A\$/t Mn	15.9	26.3
EV/Resources (contained Mn)	A\$/t Mn	3.1	6.3

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A proxy valuation of the Tshipi Borwa Project (obtained by grossing up JMS' enterprise value to reflect a 100% stake in the project) indicates that E25 is currently trading at a disproportionate discount on an EV/Resource (contained Mn) basis. Although Tshipi is favoured by a marginally higher concentrate grade (36.5%Mn vs. 33%Mn), the Butcherbird project benefits from infrastructure advantages of its location in a Tier-1 mining jurisdiction proximal to Asian smelters in addition to the impurities of its ore. Considering the upside associated with a potential expansion to high purity manganese production, we would expect this discrepancy to close as the Butcherbird project's execution risk is assuaged subsequent to the commencement of production.

In CY17 E25 established a metallurgical flowsheet in conjunction with the CSIRO for the purposes of extracting Mn from Butcherbird ores to produce electrolytic manganese metal (EMM) and battery grade manganese sulphate, the latter of which would see E25 leveraged to the EV thematic as the only downstream processing operation in Australia. Subsequent bulk test yields have produced electrolytic manganese at a purity well above the industry standard for EMM of 99.7%Mn at 99.95%Mn. We anticipate cash flows from the export of Butcherbird concentrate to partially facilitate an inevitable expansion to high purity production, and although premature, we flag the potential of a downstream processing facility to deliver an NPV significantly greater than the concentrate export PFS on account of the cost advantages of the Butcherbird project.

Sub-sampling of diamond core from historical drilling at the Coodamudgi deposit has delineated a potential high grade zone of manganese, with manganese values of up to 42.3% intercepted 1m from surface. Whilst the focus of the Company will be on the Yanneri Ridge deposit under the initial phase of production (largely due to the opportunity cost associated with further drilling and studies), we highlight further upside via the potential for E25 to produce a concentrate grading at ~39% Mn as the Butcherbird Project advances.

## Valuation

**Valuation: \$1.08/sh**

**Price Target: \$1.08/sh**

Our SOTP Valuation is outlined below:

SOTP Valuation	Risky		Unrisky	
	A\$m	A\$/sh	A\$/sh	A\$/sh
Butcherbird Manganese Project	142	1.02	203	1.36
Corporate Overheads	(7)	(0.05)	(9)	(0.06)
Listed Investments	4	0.03	4	0.04
Cash and ITM Options	11	0.08	11	0.11
<b>Total</b>	<b>151</b>	<b>1.08</b>	<b>209</b>	<b>1.44</b>

We assume a traditional debt-to-equity split of 60/40 in funding the development of the Butcherbird deposit and accordingly dilute our SOTP valuation for a hypothetical capital raising to fund the equity component of pre-production capex and working capital requirement. Although we anticipate the debt component of funding to most likely be satisfied under offtake negotiations (i.e. trade/equipment financing, establishment of a prepayment facility and/or royalty streams), we assume a traditional debt financing arrangement for the \$14.3m debt component at an interest rate of 10% p.a. for the purpose of our financial modelling.

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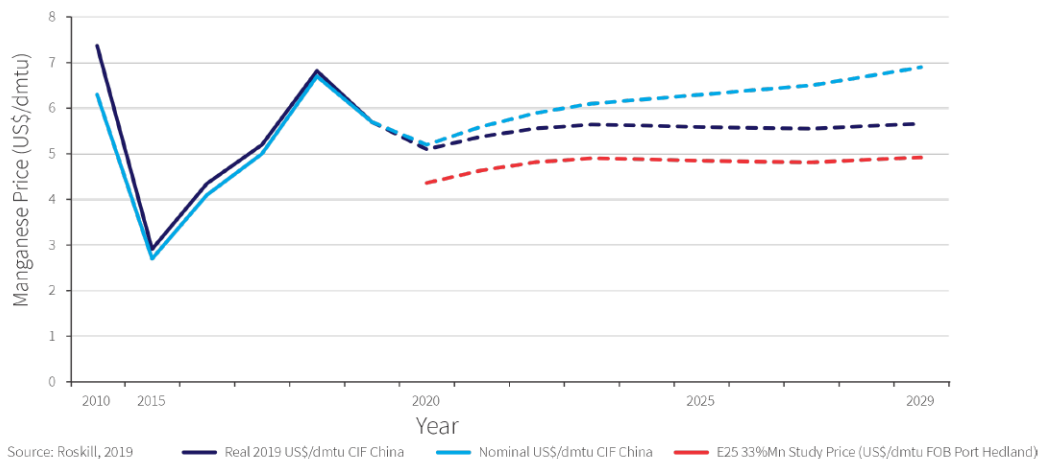
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Funding Assumptions		
PFS pre-production capex	A\$m	14.5
PFS working capital requirement	A\$m	9.3
<b>Target</b>	<b>A\$m</b>	<b>23.8</b>
Assumed Debt-to-Equity split	%	60%
Debt component	A\$m	14.3
Equity component	A\$m	9.5
Assumed capital raising dilution	m	13.2
Existing diluted SOI	m	126.2
Assumed capital raising dilution	m	13.2
<b>Assumed Diluted SOI</b>	<b>m</b>	<b>139.5</b>

We conservatively apply a risk adjustment factor of 70% to our NPV<sub>10</sub> valuation of the Butcherbird project on account of E25's pending transition from exploration to production. Given the quantum of funding required for pre-production capex at \$14.5m, we consider the financing of the project a formality, particularly in light of the extent to which the project has been de-risked over the last 6 months. Looking forward, we view the balance of downside risk to our valuation to relate to execution risk, which we view to be partially mitigated by the simple nature of both the orebody and predominantly mobile/semi-mobile process flowsheet. We highlight that the Butcherbird flowsheet has successfully beneficiated the ore to a commercial grade lump product under a 40t bulk sample programme.

We adopt a similar production profile to that of the PFS in assuming production of a 33%Mn concentrate in the first 12 months of production prior to a linear twofold expansion in capacity and accordingly concentrate production. We assume a higher average mined grade of ~12% in the first 3 years of the mine life prior to a steady decline to the Reserve grade of 10.3% Mn from FY26 onwards (whilst assuming twice the mining and processing rate to that outlined in the PFS).

The key departure from the concentrate export PFS under our DCF Valuation is our assumption of a lower price for 33%Mn concentrate. The Butcherbird Project PFS adopts a nominal LoM price of US\$4.87/dmtu for a 33%Mn Product FOB Port Headland based on the application of a manganese content based discount to Roskill's forecast CIF China benchmark price for 37%Mn concentrate, normalised for freight and insurance costs. We conservatively assume a LT 33%Mn FOB Port benchmark price of US\$4.60/dmtu, equivalent to a >20% discount to Roskill's forward price curve.



Source: Butcherbird PFS

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With reference to the location of the Butcherbird deposit and impurities of the Butcherbird ore (namely the 21.8% SiO<sub>2</sub> content of the sorted product), we hold the expectation that E25's manganese concentrate will ultimately fetch a premium to an equivalent grade based discount derived from 37%Mn concentrate pricing as outlined in the PFS. Despite this, we conservatively assume a LoM price of US\$4.40/dmtu on account of the opacity and volatility of manganese markets; we await substantiation of E25's product achieving premium prices prior to the incorporation of PFS-aligned pricing into our DCF valuation. We highlight the sensitivity of our SOTP Valuation to various pricing scenarios for Butcherbird's 33%Mn concentrate against alternative LT AUD/USD exchange rate scenarios:

Val/ Sh		33%Mn Concentrate Price Sensitivity (US\$/dmtu)								
AUD/USD	\$1.08	\$3.80	\$4.00	\$4.20	\$4.40	\$4.60	\$4.80	\$5.00	\$5.20	\$5.40
	15%	\$0.04	\$0.18	\$0.32	\$0.45	\$0.59	\$0.73	\$0.87	\$1.00	\$1.14
	10%	\$0.16	\$0.30	\$0.45	\$0.59	\$0.74	\$0.88	\$1.02	\$1.17	\$1.31
	5%	\$0.29	\$0.44	\$0.59	\$0.74	\$0.89	\$1.04	\$1.19	\$1.34	\$1.49
	0%	\$0.43	\$0.59	\$0.75	\$0.91	\$1.07	\$1.22	\$1.38	\$1.54	\$1.70
	-5%	\$0.59	\$0.76	\$0.93	\$1.09	\$1.26	\$1.42	\$1.59	\$1.76	\$1.92
	-10%	\$0.77	\$0.94	\$1.12	\$1.30	\$1.47	\$1.65	\$1.82	\$2.00	\$2.17
	-15%	\$0.97	\$1.15	\$1.34	\$1.52	\$1.71	\$1.90	\$2.08	\$2.27	\$2.45

The sensitivity of our valuation of the Butcherbird Project to various LoM A\$/t FOB unit cost scenarios is included below:

Val/ Sh	FOB Unit Operating Cost (A\$/t)								
\$1.08	\$117	\$125	\$132	\$139	\$146	\$154	\$161	\$168	\$176
	\$1.57	\$1.44	\$1.32	\$1.20	\$1.08	\$0.94	\$0.82	\$0.70	\$0.56

Corporate overheads are derived from historical actual outflows and our expectation of the profile of such outflows under an operational Butcherbird project.

The listed investments component of our valuation has been determined with reference to market prices as at 25 September 2020 as follows:

Company	Ticker	Shares Held (m)	Share Price (A\$/sh)	Market Value (A\$m)
Anova Metals Ltd	AWV.ASX	7.0	\$0.03	0.2
Buxton Resources Ltd	BUX.ASX	0.4	\$0.09	0.0
Duketon Mining Ltd	DKM.ASX	1.5	\$0.23	0.3
Danakali Ltd	DNK.ASX	6.8	\$0.44	3.0
Vox Royalty Group	VOX.TSXV	0.1	\$3.00	0.4
<b>Total</b>				<b>3.9</b>

The cash balance assumed within our SOTP Valuation is our expectation of cash held as at 25 September 2020.

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## Element 25 Limited

### (E25 \$0.80) Speculative Buy - Initiation of Coverage

#### Valuation Upside

We consider E25 to be materially undervalued based on the merits of the Butcherbird concentrate export operation alone. We reiterate that our valuation of the Butcherbird project does not account for the significant upside of an expansion to high purity manganese production.

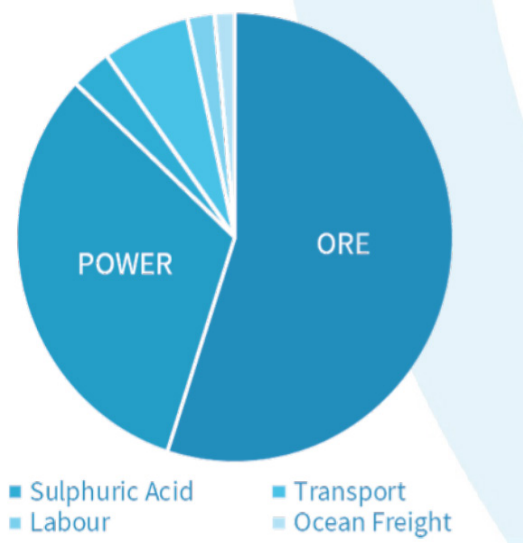
Although economics are yet to be quantified (given the transition in E25's focus to the export of a manganese lump product as a low capex start-up alternative), the production of High Purity Electrolytic Manganese Metal (HPEMM) and High Purity Manganese Sulphate Monohydrate (HPMSM) presents significant upside to our Valuation and Price Target. This upside is manifested in the cost advantages of the Butcherbird Project, de-risked metallurgy and positive macro outlook.

E25's hydrometallurgical flowsheet has demonstrated the ability to produce HPEMM at a purity of 99.95%Mn from Butcherbird ore. This purity level exceeds the industry standard for EMM of 99.7%Mn and was achieved on E25's first attempt in scaling up the flowsheet originally developed with the CSIRO.

Butcherbird ores are able to be leached into solution at ambient temperature and atmospheric pressure with c. 95% of Mn extracted in ~30 minutes. This compares favourably to the energy consumption of reduction roasting to 800-1000°C (for oxide ores) under Chinese EMM production.

Cost effective power sources in the form of wind and solar energy and inexpensive Butcherbird ore further enhance a strong case for first quartile costs of production. Electricity comprises a significant portion of EMM production costs, with the potential to leverage ~90% renewable energy in intermittent dynamic electrowinning (as opposed to an already strong base case of 100% natural gas – note a gas pipeline runs through the project) expected to exert downward pressure on E25's cost base. Chinese producers are currently reliant on either high grade imported African ore or very low grade domestic ore on account of declining domestic production.

**Average End-Product Cost Breakdown of Chinese EMM Plants**



Source: CRU Group

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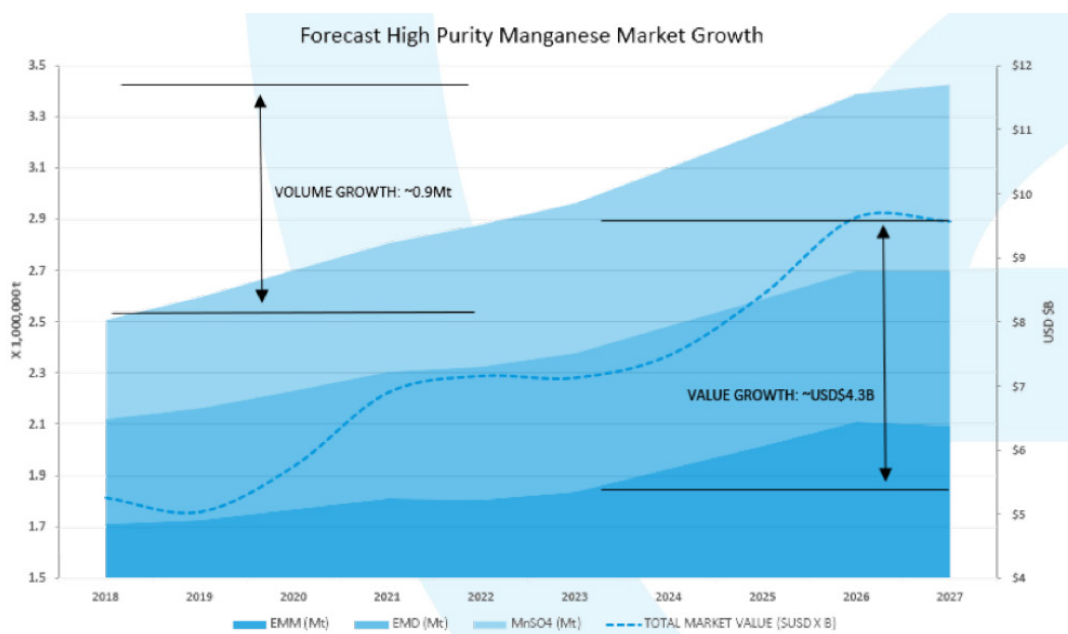
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Having accounted for 94% of global production in CY19 (IMnI), China currently dominates global EMM production. We flag the strategic value of the Butcherbird project in that non-Chinese EMM supply is limited, and we highlight the clear potential for EMM produced at Butcherbird to displace Japanese and South Korean imports of Chinese EMM.

The market for EMM is well established at ~1.8Mtpa (equivalent to ~US\$4bn), with a very clear appetite for ex-China supply. EMM is a bankable product with established demand given its use in series 200 stainless steel and specialty alloys.

HPMSM is a secondary product with significant growth potential on account of its application in lithium-ion batteries. Despite the relative immaturity of the HPMSM market at ~0.1Mtpa (equivalent to ~US\$0.2bn), demand for battery grade manganese sulphate is expected to increase dramatically given the requirement of reliable, high purity manganese supply to meet increasing demanding performance, safety and durability standards in the manufacture of Li-ion batteries that utilise manganese in the cathode. With the exception of NMC 811 cathodes, we highlight that there is more manganese in an NMC battery than there is lithium.



Source: Metal Bulletin

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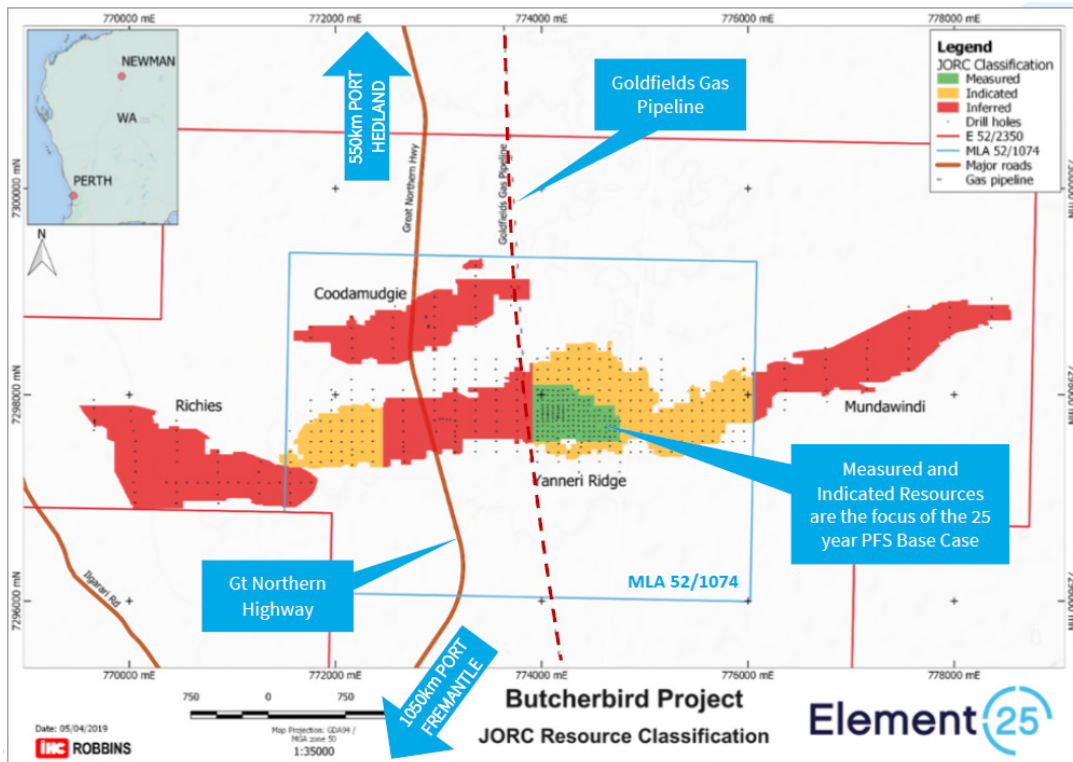
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### Butcherbird Manganese Project

The Butcherbird Manganese project is located in the southern Pilbara region of Western Australia, approximately 1,050km north of Perth and 130km south of Newman. The project area comprises eight known manganese deposits spread over approx. 600km<sup>2</sup>, with the PFS mine plan solely including the Yanneri Ridge deposit.



The project is advantaged by its proximity to existing infrastructure in the Goldfields Gas Pipeline and Great Northern Highway, which pass directly adjacent to and through the mineralised envelope. Butcherbird concentrate will be trucked from the mine site to the Utah Point at Port Headland by the largest super quad road trains permissible under the Main Road PBS system.

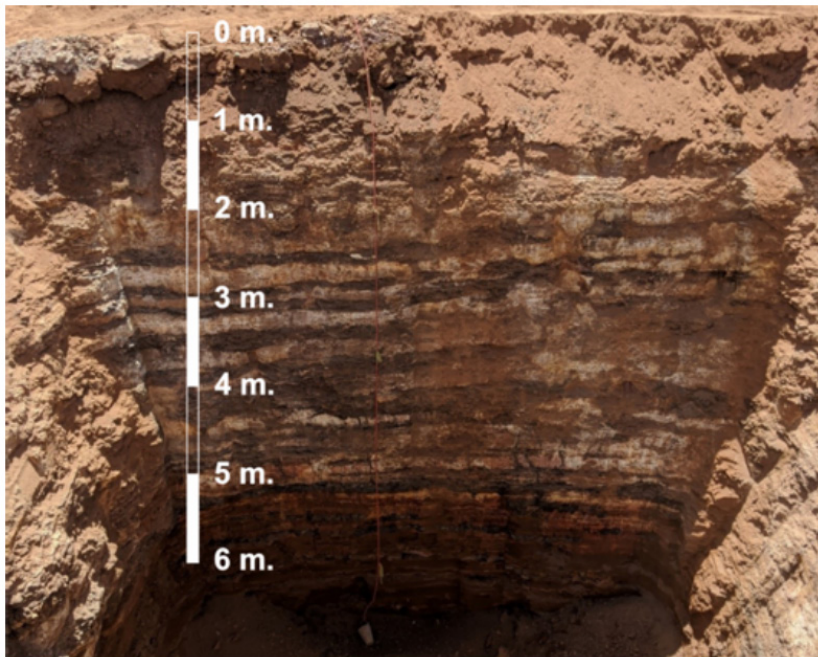
The orebody is unique on account of its layer cake nature, comprising manganese bands interlayered with bands of clay that have virtually no manganese. Washing out the clays and sorting the remnant shales delivers an economic lump product, and as such we highlight that it is not unreasonable to liken beneficiation via the Butcherbird process flowsheet to a separation exercise.

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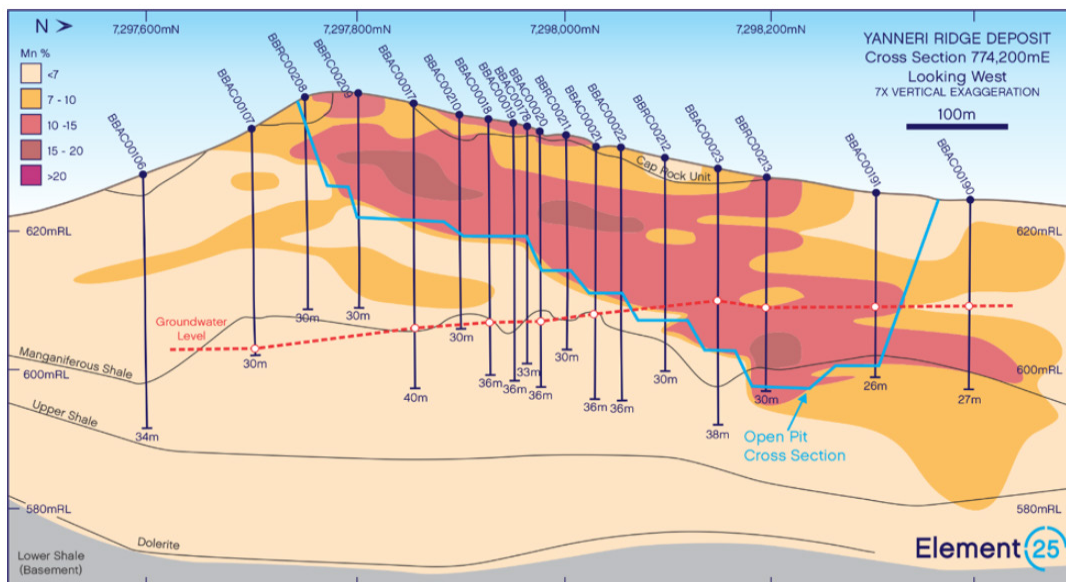
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Bulk sample trial pit showing Mn lithology. Source: Butcherbird PFS

The mineralisation occurs as supergene enrichment of a regional scale basal manganese shale which underlies much of the Project area. The shale beds are gently folded and where the folds approach the surface topography, supergene processes have significantly upgraded the manganese content to form a potential feedstock for further upstream processing.



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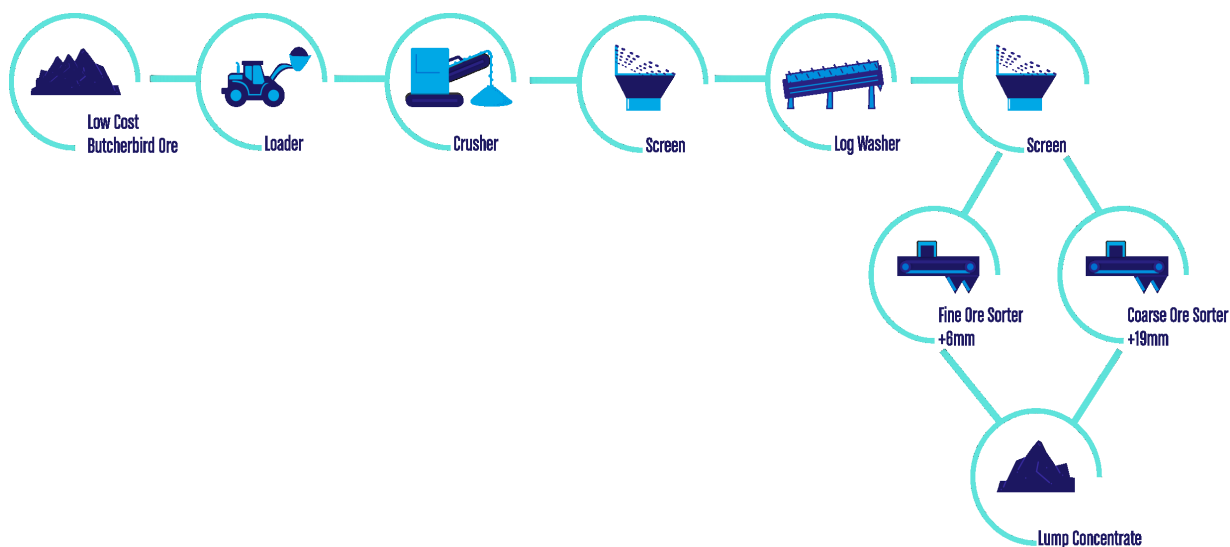
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In Dec'19 an exploration program at Yanneri mined approximately 40t of ore over seven pits, which were excavated and bulk sampled in nominal 1t lots to a maximum depth of 7m below the surface caprock. The pits provided material representative of the first four years of mining for subsequent test work and for large-scale hydrometallurgical pilot testing at the planned EMM facility.

Testwork exceeded expectations in maximising hydrometallurgical feed grade (33% concentrate grade, 82% recovery and favourable impurity levels) and confirming the Butcherbird ore as suitable for hydrometallurgical leaching and/or as export as a concentrate product to provide early cash flow.

The process flowsheet utilises predominantly mobile or semi-mobile equipment such that operating installation maintains a degree of flexibility for management of the advancing mining face, whilst minimising civils, structure and set-up investment costs. The flowsheet is simple in that it upgrades the ore to a medium-grade concentrate by crushing, wet scrubbing, screening and ore sorting technology to reject waste material and increase the concentrate grade. The Butcherbird Project is now significantly de-risked, with all long lead items ordered and sufficient process water supply now confirmed.



Source: Element 25 Ltd

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#### Manganese Market

Approximately 90% of manganese ore is consumed in the production of steel. Given the absence of a satisfactory substitute in the primary use of manganese as an alloying agent that increases both the strength and flexibility of steel, we anticipate global steel production volume to remain the key driver of manganese ore demand in the long term.

The balance of global manganese consumption pertains to the production of high purity manganese products including Electrolytic Manganese Metal, Electrolytic Manganese Dioxide and Manganese Sulphate. A key end-use of manganese is in batteries, including both rechargeable lithium-ion batteries and non-rechargeable alkaline cells. Looking forward, a substantial increase in demand for high purity manganese metal and sulphate is anticipated to be driven by electric vehicle penetration.

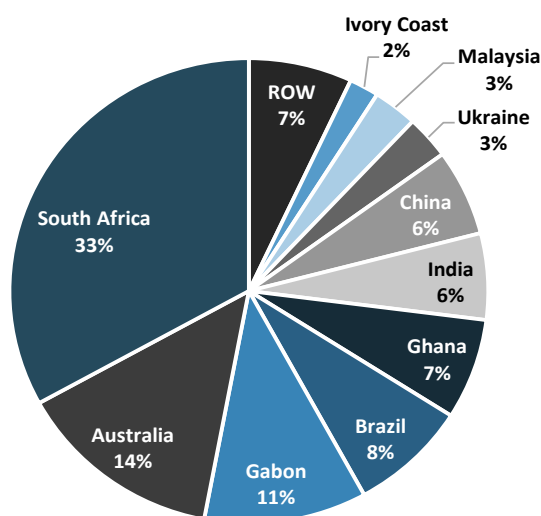
Manganese ore is not exchange traded, with prices largely determined by supply and demand dynamics linked to global steel production levels. Manganese ore is priced in US dollars per dry metric tonne unit (US\$/dmu), and consequently ore grade is directly reflected in the price per tonne of ore.

Contract prices are negotiated based on grade, levels of impurities and deleterious elements in addition to physical characteristics of the ore. Using a concentrate grade of 33.1%Mn and price of US\$5.00/dmtu as an example, the USD price for a tonne of Mn is determined by the product of concentrate grade and price ( $33.1 \times 5.00 = \text{US\$166/t}$ ).

#### Supply

Manganese is deemed a critical mineral by the USGS, defined as being essential to the economy, as well as being at significant risk of incurring supply interruptions. Five countries dominate production with South Africa (~33%) and Australia (~14%) being the largest producers, while the riskier jurisdictions of Gabon, Brazil and Ghana comprise the balance of major manganese ore suppliers.

Top 10 Mn Ore Producing Countries (CY19)



Source: IMnI

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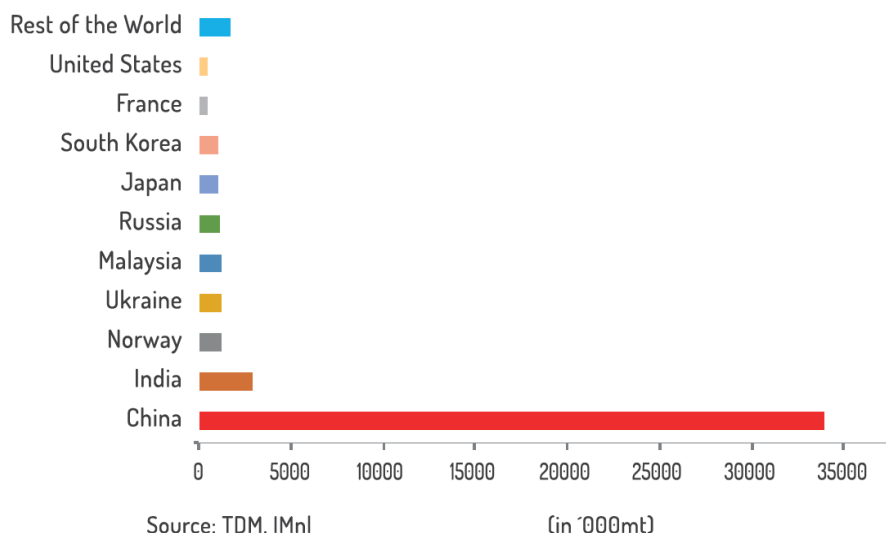
The International Manganese Institute estimates that medium-grade manganese ore production ( $\geq 30\%$  and  $< 44\%$  Mn content) comprised 48% of global Mn ore production in CY19, followed by high-grade ore ( $\geq 44\%$  Mn content) at 39% and low-grade ore ( $< 30\%$  Mn content) at 13%. Medium-grade Mn ore is currently the fastest-growing section of the manganese market, with CY19 production up 75% from CY16.

While the bulk of the world's manganese alloy is produced in China and India in support of respective domestic steel production capacities, China's diminishing primary manganese ore supply is typically of low grade and is insufficient to meet domestic demand, while India relies on imported manganese ore feedstock to augment constrained domestic ore sources. Declining Chinese manganese ore production is altering the supply and demand profile of manganese markets, with a clear opportunity emerging for production of lithium ion battery grade manganese products outside of China.

#### Demand

Falling domestic production, elevated extraction costs (on the back of stricter environmental regulations) and heightened demand is anticipated to sustain China's growing reliance on manganese ore imports. We highlight that Europe, North America, Japan and Korea (among many other countries) import 100% of their manganese requirements.

#### Top 10 Mn Ore Importing Countries in 2019



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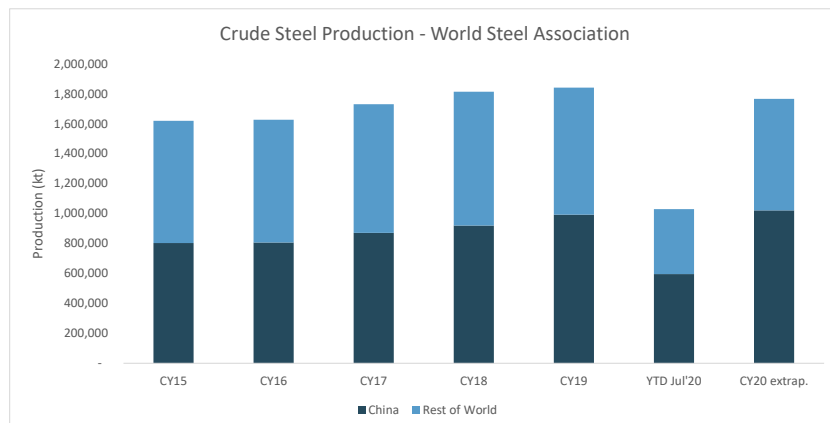
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Manganese ore demand is largely aligned with global steel production. An increase in steel recycling has little impact on primary manganese demand as it is lost in the recycling process. While divergent steel demand forecasts predict a decline in demand, historical downtrend forecasts have often proved incorrect, as demonstrated below. We highlight a contraction in YoY crude steel production in CY20 (based on extrapolated YTD Jul'20 World Steel Association production figures) is primarily driven by the impact of weakened demand under COVID-19, partially offset by stimulus measures.



Stricter standards for rebar production have been implemented by China's central government in a bid to curtail inferior steel products following earthquakes among other factors affecting the quality of construction in China. This has resulted in increased manganese intensity of a significant portion of Chinese production.



Demand for high purity manganese metal and high purity manganese sulphate is expected to increase dramatically in the foreseeable future, driven by growth in traditional end use markets but also a rapid expansion in electric vehicle production and grid storage devices capacity in Asia, Europe and North America. Nickel-Cobalt-Manganese (NMC) and Lithiated Manganese (LMO) battery cathode chemistries both contain significant amounts of manganese and are widely anticipated to be the dominant formulations in the rapidly growing market for electric vehicles and grid-storage.

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#### Risks

E25 is an exploration company currently undertaking the transition from exploration to production. The key risks to our investment thesis include but are not limited to:

**Commodity Price Risk** – E25 is a resource exploration company. Market valuation is inextricably linked to the prevailing resource sector macro and to the relevant commodity price. Volatility in manganese pricing has previously resulted in sustained periods of uneconomical pricing and in turn the mothballing of Australian manganese mines.

**Sovereign Risk** – E25's Butcherbird deposit is located in Western Australia. Consequently, we view sovereign risk to be very low.

**Funding and Dilution Risk** – As outlined under the Valuation section above, we assume a debt to equity split of 60% in funding the aggregate \$24m pertaining to pre-production capex and working capital allowance. Both the ability to attract funding, the form it takes and accordingly potential dilution encountered under an equity issue represent risks to our valuation. Although inexpensive NAIF funding presents as a potential source of debt funding, we expect the Butcherbird project's aggressive timeline for commencement of production in Q3 FY20 to necessitate securing of debt funding under offtake arrangements. Note that we have diluted our NPV<sub>10</sub> Valuation for a hypothetical capital raising as outlined under the Valuation section.

**FX Risk** – E25 is A\$ denominated with all costs currently incurred in AUD. Given manganese concentrate sales will be denominated in USD, continued appreciation of the AUD against the USD will impact E25's revenue. Note that we forecast a LT AUD/USD rate of 0.72, which diverges from the concentrate export PFS rate of 0.70.

**Operational Execution Risk** – Execution risk remains the key risk faced by E25 and is chiefly accountable for the risk adjustment of our NPV<sub>10</sub> Valuation. Given ore grade is directly reflected in the price per tonne of ore, a failure of the Butcherbird process flowsheet to consistently beneficiate the ore to a concentrate grading at 33%Mn represents a key risk to our valuation. Whilst acknowledging that a ~27%Mn concentrate is still economic in the event that ore sorting proves unsuccessful in repeatable beneficiation to a concentrate grading at 33%Mn, failure of the ore sorter to beneficiate to the 33%Mn concentrate grade assumed as our base case will materially impact our Butcherbird NPV estimate. Detailed work on engineering and costs (among other facets of the project) will be undertaken in the absence of a formal DFS.

**Permitting/Approval Risk** – We consider permitting risk to be very low for the Butcherbird Project given the mining lease has been granted for a 21-year term. A number of relevant approvals required to commence mining are outstanding (i.e. Native Vegetation Clearing Permit lodged with DMIRS and Water Abstraction Licence lodged with DWER), however, we consider the likelihood of an interruption to E25's timeline to first production as a result of delays in the receipt of outstanding approvals to be low.

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## Element 25 Limited

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#### Board of Directors and Management

##### Seamus Cornelius – Chairman

Experienced NE Director with over 20 years' experience as a corporate lawyer. Currently NE Chairman of Danakali Ltd, Buxton Resources Ltd and Duketon Mining Ltd.

##### Justin Brown – Managing Director

Geologist with over 20 years' experience in mineral exploration and mining across a range of commodities. Has held an executive role with E25 since 2006.

##### John Ribbons – Non-Executive Director and Company Secretary

Accountant with more than 15 years' experience in the resources industry. Extensive experience with ASX-listed production and exploration companies.

##### Ian Huitson – Study Manager

Mining executive with 33 years' experience in executive, operational and technical roles across a range of commodities, including extensive manganese experience.

##### Sias Jordaan – Marketing Manager

Chartered Accountant with more than 25 years' experience in stainless steel production and raw material supply markets as well as rare metals markets.

##### Neil Graham – Development Manager

Chartered chemical engineer with more than 30 years of international experience in the chemical and resources industries.

#### Capital Structure

E25 Capital Structure			
Ordinary Shares			Number of shares
Total Ordinary Shares			117.7
Acuity Capital CPA Facility*			4.8
<b>SOI</b>			<b>112.9</b>
Unlisted Options	Exercise Price	Expiry Date	Number of options
E25AG Options	\$0.35	20-Nov-20	2.2
E25AI Options	\$0.20	24-Nov-20	2.0
E25AI Options	\$0.33	03-Nov-22	0.6
E25AI Options	\$0.36	28-Nov-22	1.2
E25AI Options	\$0.26	28-Nov-23	2.0
E25AI Options	\$0.26	22-Feb-24	2.4
E25AJ Options	\$0.27	20-Nov-24	2.0
E25AK Options	\$0.20	01-Apr-25	0.5
E25AL Options	\$0.50	25-Jun-25	0.5
<b>Total</b>			<b>13.4</b>
<b>Total Diluted SOI</b>			<b>126.2</b>

\* It is our expectation that the 4.8m ordinary shares issued under the Acuity Capital Controlled Placement Agreement will be cancelled upon closure of the standby facility, and as such we adjust total fully paid ordinary shares for the number of shares issued to Acuity Capital as collateral for the CPA.

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#### Director Shareholdings

Director	Title	Shares	Unlisted Options
Seamus Cornelius	Chairman	5,255,177	2,300,000
Justin Brown	Managing Director	5,405,360	4,600,000
John Ribbons	Non-Executive Director	660,715	2,300,000

#### Top 20 Shareholders

Rank	Shareholders	Shares Held (m)	Shares Held (%)
1	Ranguta Limited	7.2	6.2%
2	Alpha Boxer Limited	5.5	4.7%
3	Justin Brown	5.4	4.7%
4	Seamus Cornelius	5.3	4.5%
5	Duketon Mining Limited	4.9	4.2%
6	Marcel Mandanici	4.7	4.1%
7	Austrade Holdings Pty Ltd	3.3	2.8%
8	Jacobus De Jong	3.2	2.8%
9	Duketon Consolidated Ltd.	3.1	2.7%
10	Paul Watts	2.7	2.3%
11	Dane Pastoral Company Pty. Ltd.	1.9	1.6%
12	Dongarra Limited, Asset Management Arm	1.4	1.2%
13	Mandies Meats Pty. Ltd.	1.2	1.0%
14	Qing Mi	1.1	1.0%
15	Derek Langsford	1.0	0.8%
16	John Ribbons	0.7	0.6%
17	Mercantile Investment Company Limited	0.5	0.4%

Source: IRESS as at 31 August 2020

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We hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities.

No part of our compensation was, is or will be directly or indirectly, related to the specific recommendations or views expressed by the authoring analyst in this research.

## Contact Details

**Euroz Securities Limited** +61 8 9488 1400

### Research Analysts

Jon Bishop - Head of Research	+61 8 9488 1481
Andrew Clayton - Resources Analyst	+61 8 9488 1427
Steven Clark - Resources Analyst	+61 8 9488 1430
Gavin Allen - Industrials Analyst	+61 8 9488 1413
Harry Stevenson - Industrials Analyst	+61 8 9488 1429
Seth Lizée - Associate Research Analyst	+61 8 9488 1414

### Institutional Sales

Andrew McKenzie - Executive Chairman	+61 8 9488 1407
Rob Black - Managing Director	+61 8 9488 1423
Jay Hughes - Executive Director	+61 8 9488 1406
Russell Kane - Executive Director	+61 8 9488 1426
Simon Yeo - Executive Director	+61 8 9488 1404
Timothy Bunney - Executive Director	+61 8 9488 1461
Peter Schwarzbach - Executive Director	+61 8 9488 1492
Stacy Kitsantas - Institutional Adviser	+61 8 9488 1486
Jayne Walsh - Institutional Adviser	+61 8 9488 1418

### Private Client Advisers

Chris Webster - Head of Private Clients	+61 8 9488 1412
Ben Statham - Executive Director	+61 8 9488 1417
Brian Bates - Executive Director	+61 8 9346 0314
Cameron Murray - Executive Director	+61 8 9488 1440
James Mackie - Executive Director	+61 8 9488 1416
Ryan Stewart - Executive Director	+61 8 9488 1441
Tim Lyons - Executive Director	+61 8 9346 0324
Brett Stapleton - Associate Director	+61 8 9488 1435
Giles McCaw - Associate Director	+61 8 9488 1462
Michael Bowden - Associate Director	+61 8 9346 0307
Richard Gardner - Associate Director	+61 8 9488 1444
Paul Berson - Associate Director	+61 8 9346 0314
Paul Cooper - Associate Director	+61 8 9346 0316
Ian Harrison - Investment Adviser	+61 8 9488 1422
Lauren Walker - Investment Adviser	+61 8 9488 1495
Michael Bartley - Investment Adviser	+61 8 9346 0352
Tom Kenny - Investment Adviser	+61 8 9488 1431
Zac Vinten - Associate Adviser	+61 8 9488 1473
Laurence Grescos - Associate Adviser	+61 8 9488 1419
Katrina Ryan - Associate Adviser	+61 8 9488 1453
Brandon Oosthuizen - Associate Adviser	+61 8 9488 1471

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