PETRA CAPITAL

19 April 2022

Element 25 Limited (E25) — Buy — Share Price: A$0.92

My Top Pick - Site Visit Confirms Thesis — Target Price: A$4.53

E25 has been under pressure from investors due to ramp up issues. Our site visit identified the presence of clay as a reason for plant underperformance. Given conventional solutions are easy to implement and have low cost, we see this being solved rapidly. The stock will likely re-rate within 3 months. Production will hit nameplate during Jun.Q'22, generating strong cashflow from the Sep.Q'22 onwards. E25's A$28m in cash provides sufficient liquidity for improvement initiatives at current production rates. While we ease our price target to A$4.53/sh from A$5.22/sh (see Figure 17 for changes), our conviction in our Buy rating has never been stronger.

Ramp up issues have conventional solutions

- Butcherbird ore has clay in the mine face (Figure 6)
- Clay has been sticking to ore during processing. The ore sorter has then been identifying small amounts of economic material as waste (Figure 12 and Figure 13)
- This has resulted in lower recoveries, higher operating costs and a lower achieved price than the PFS
- The issue is very fixable with conventional solutions, such as water pressure pumps and a DMS circuit

Manganese prices up 35% YTD and 20% this month

- E25's operational performance has distracted investors from strong manganese prices (Figure 15)
- The Mn price is up 35% YTD to US$8.09/dmtu, while over the same period, E25 has fallen 24% (Figure 16)
- We see the Jun.Q'22 delivering a strong operational performance combined with much improved prices

This is a buying opportunity

- E25's PFS delivered a A$798m NPV_5 for a 1Mtpa mine. The A$137m market cap compares to the A$421m NPV_5 for the initial Stage 1 production rate of 350ktpa
- This implies investors don't believe E25 can deliver on its Stage 1, let alone the value for the expansion
- E25's Jan-2022 study outlined a US$398m NPV_8 for stage 1 of its battery manganese division, potentially growing to a US$1,142m NPV_8 in time
- As Butcherbird hits nameplate the discounts will unwind

Material news will re-rate the stock near term

- Jun.Q'22 –Throughput to achieve nameplate rates
- Jun.Q'22 - Customer validation of battery manganese
- Mid-22 – Strong prices & quality premium lift revenues
- Sep.Q'22 – Battery manganese DFS, offtake expected
- 2H 2023 – Expansion to 1Mtpa Mn conc complete
- Mar.Q'25 – First production of battery grade Mn

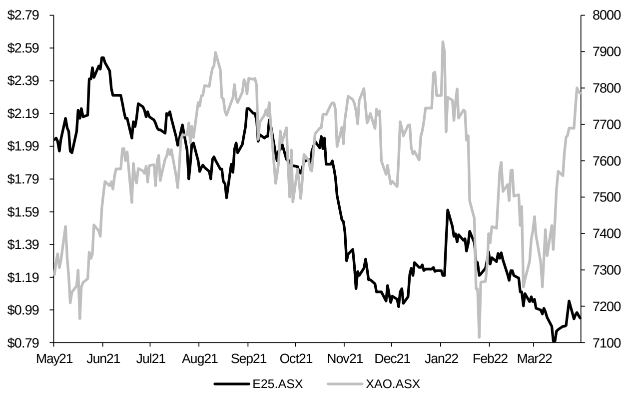
Company Data

Shares – ordinary (M)	152.7
Market capitalisation ($M)	137
12 month low/high ($)	0.77/ 2.61
Average monthly turnover ($M)	11.3
GICS Industry	Metals & Mining

Financial Summary (fully diluted/normalised)

Year end June	2021A	2022F	2023F	2024F	2025F
Revenue ($M)	1.3	33.5	85.9	215.0	290.2
Costs ($M)	7.5	45.6	65.1	126.6	152.1
EBITDA ($M)	-6.3	-12.1	20.8	88.4	138.1
NPAT ($M)	-6.5	-12.1	20.5	59.7	88.8
EPS (¢ps)	-4.4	-8.2	11.9	34.0	50.6
EPS growth (%)	72.0	46.5	168.4	185.5	48.7
PER (x)	-21.1	-11.3	7.7	2.7	1.8
Op. Cashflow ($M)	-3.7	-9.9	22.1	76.5	107.6
OCFPS (¢ps)	-2.5	-6.7	14.8	51.4	72.3
POCFPS (x)	-37.3	-13.8	6.2	1.8	1.3
Enterprise Value ($M)	102	113	108	146	97
EV / EBITDA (x)	-16.3	-9.3	5.2	1.6	0.7
Payout ratio (%)	0.0	0.0	0.0	0.0	0.0
Dividends (¢ps)	0.0	0.0	0.0	0.0	0.0
Yield (%)	0.0	0.0	0.0	0.0	0.0
Franking (%)	0.0	0.0	0.0	0.0	0.0

E25 – performance over one year



Disclosure and Disclaimer
This report must be read with the disclosure and disclaimer on the final page of this document. The analyst preparing this report has a beneficial interest in 78,044 shares in this company.

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PETRA CAPITAL

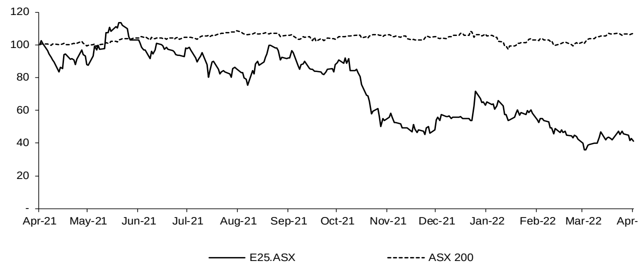
19 April 2022

Analysis

Element 25 Limited (E25)

Year end 30 June

Recommendation		**Buy**
Price	$	0.92
Target Price (12-month)	**$**	**4.53**
Upside / (Downside)	%	392%
52 week high / low	$	2.53 - 0.8
Market capitalisation	**$m**	**137**
Shares on issue	no.	149
Options	no.	6
Shares on issue (diluted)	no.	207



PROFIT & LOSS		**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
Revenue	$M	1	34	86	215	290
Operating Costs	$M	(2)	(41)	(61)	(122)	(148)
Exploration	$M	(2)	(1)	(1)	(1)	(1)
Other	$M	(4)	(4)	(4)	(4)	(4)
EBITDA	**$M**	**(6)**	**(12)**	**21**	**88**	**138**
Dep. & Amort.	$M	(0)	(1)	(1)	(2)	(8)
EBIT	$M	(6)	(13)	20	86	130
Net Interest	$M	(0)	1	1	(1)	(3)
Pre-Tax Profit	$M	(6)	(12)	20	85	127
Tax	$M	-	-	-	(25)	(38)
Net Profit	**$M**	**(6)**	**(12)**	**20**	**60**	**89**
Abnormal	$M	-	-	-	-	-
Reported Profit	$M	(6)	(12)	20	60	89

CASH FLOW		**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
Revenue	$M	1	34	86	215	290
Costs	$M	(5)	(45)	(65)	(126)	(152)
Tax Payable	$M	-	-	-	(11)	(28)
Other	$M	1	2	1	(12)	(31)
Operating Cashflow	$M	(4)	(10)	22	77	108
Capex	$M	(22)	(1)	(57)	(114)	(58)
Exploration	$M	(2)	(1)	(1)	(1)	(1)
Acquisitions	$M	-	-	-	-	-
Other	$M	(0)	-	-	-	-
Investing Cashflow	$M	(24)	(2)	(57)	(115)	(59)
Equity Issues	$M	60	-	40	-	-
Debt Raised / (repaid)	$M	-	-	-	70	-
Free Cashflow	**$M**	**(28)**	**(11)**	**(35)**	**(38)**	**49**
Surplus Cash Flow	$M	32	(11)	5	32	49

BALANCE SHEET		**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
Cash	**$M**	**35**	**24**	**29**	**61**	**110**
Other Current	$M	10	9	9	20	48
Total Current	$M	44	33	38	81	158
PP&E & Exploration	$M	23	23	78	190	240
Other	$M	2	2	2	2	2
Total NC Assets	$M	25	25	80	192	242
Total Assets	$M	69	58	118	273	400
Current Liab	$M	6	6	6	6	6
Non Current Liab	$M	1	1	1	71	71
Total Liabilities	$M	6	6	6	76	76
Net Assets	**$M**	**62**	**51**	**112**	**197**	**324**
Equity	$M	62	50	111	196	323
Total Debt	$M	-	-	-	70	70
Net Debt	$M	(35)	(24)	(29)	9	(40)

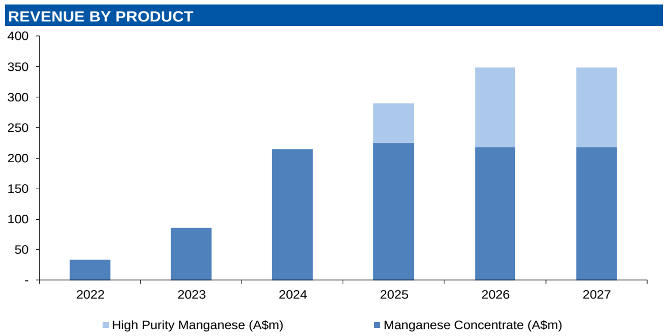
RATIO ANALYSIS		**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
EPS	¢	(4.4)	(8.2)	11.9	34.0	50.6
PER	x	(21.1)	(11.3)	7.7x	2.7x	1.8x
EPS Growth	%	72%	46%	168%	185%	49%
EV/EBITDA	x	(16.3)	(9.3)	5.2x	1.6x	0.7x
EV/OCF	**x**	**(27.8)**	**(11.3)**	**4.9x**	**1.9x**	**(3.1)**
FCFPS	¢	(18.7)	(7.7)	(23.5)	(25.7)	32.9
FCF Yield	**%**	**(20%)**	**(8%)**	**(26%)**	**(28%)**	**36%**
DPS	¢	-	-	-	-	-
Yield	%	-	-	-	-	-
Franking	%	-	-	-	-	0%
Payout Ratio	%	-	-	-	-	-
Gearing D/E	%	-	-	-	36%	22%
Interest Cover	x		n.m.	n.m.	87	40
EBITDA Margin	**%**		**(36%)**	**24%**	**41%**	**48%**
EBIT Margin	%		(38%)	23%	40%	45%
Return On Assets	%		(56%)	25%	45%	54%
Return On Equity	%		(24%)	18%	30%	27%
Eff Tax rate (cash tax)	%		-	-	13%	30%

ASSUMPTIONS		**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
A$/US$ exchange rate	$	0.74	0.73	0.75	0.75	0.75
Mn Conc ref price (44%)	US$/dmtu	6.35	5.83	6.40	6.20	6.20
Realised Mn price	US$/dmtu		3.28	4.72	5.16	5.22
Realised Mn conc price	US$/t		105	147	169	173
High Purity Mn price	US$/t	1,500	1,725	1,950	1,950	1,950

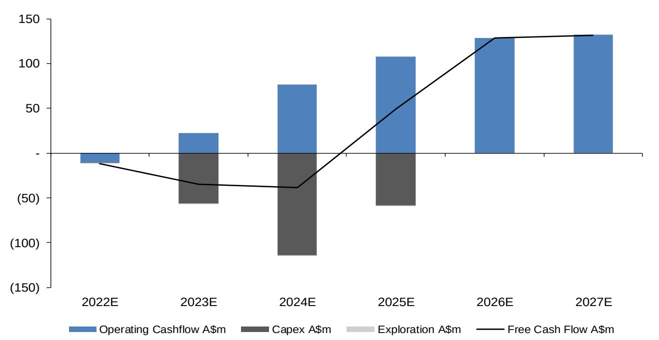
BUTCHERBIRD MINE LIFE	**Contained Mn**	**Grade (%)**	**Years**
Reserves	4.3	10%	13
Resources	21.6	10%	65
Petra Mining Inventory	**6.0**	**10%**	**20**

PRODUCTION & COSTS		**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
Tonnes processed	Mtpa		1.1	1.7	3.7	3.9
Grade	g/t		10.3%	10.3%	10.3%	10.3%
Recovery	%		79%	80%	83%	83%
Mn Conc Production	kt	-	285	438	952	1,007
Mn Conc Sales	**kt**	**-**	**235**	**438**	**952**	**977**
Operating Costs	US$/t		106	104	96	95
HP Mn Sales	kt		-	-	-	25
Operating Costs	US$/t					800

REVENUE BY PRODUCT



CASH GENERATION



VALUATION (10% discount rate)	**A$m**	**A$/Sh**	**%**
Butcherbird Manganese Conc	480	2.31	
High Purity Manganese	460	2.22	
Exploration	10	0.05	
Net Cash	28	0.13	
Corporate	(39)	(0.19)	**P/NPV**
Group NPV	**938**	**4.53**	**0.20**

Source: Petra Capital

E25 is mispriced – this is a buying opportunity

E25 is an ASX-listed, Perth-based manganese producer. It owns 100% of the Butcherbird project, located in the Pilbara region of WA (Figure 1). Butcherbird's Dec. 2020 PFS outlined a staged project capable of producing 1Mtpa of manganese concentrate at costs of US$2.65/dmtu for an EBITDA margin of 39%. The PFS outlined a compelling 359% pre-tax IRR given the very low start-up capex of A$20m, with a further A$20m in internally funded expansion capital tripling production within 2 years. The project achieved first sales in the Sep.Q'22 and is ramping up to the operational performance outlined in its PFS.

The stock has sold off from $2.10 when first production was announced to a current price of A$0.92/sh. We identify two key reasons, 1) operational performance in the first two quarters has been below the PFS metrics, and 2) a plant failure in November reduced market confidence the PFS metrics could ever be achieved.

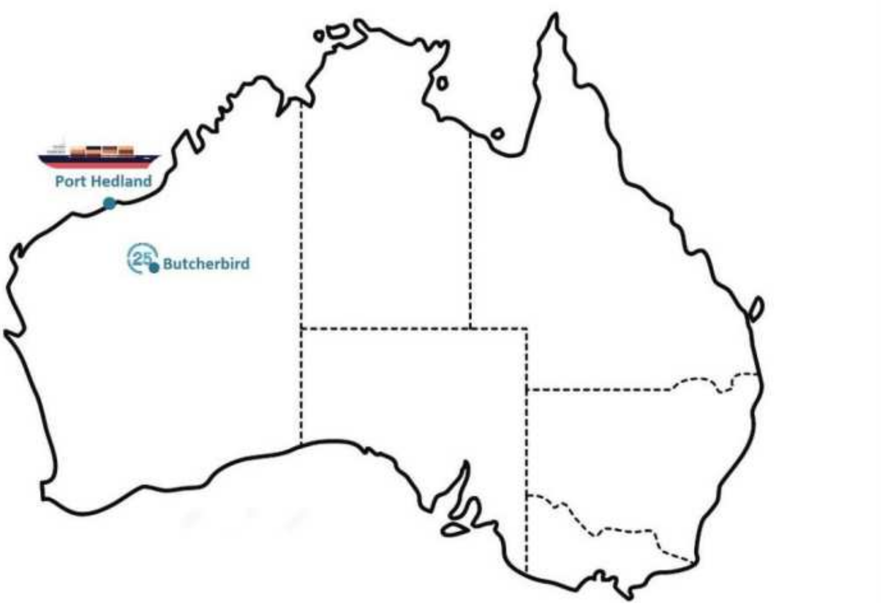
Our site visit identified the presence of clay as a potential reason for short term underperformance. **Given the management initiatives in place and the conventional solutions available, we are confidence these ramp up issues will be solved at minimal capital cost.**

We believe the operation will hit and maintain nameplate production during the June Quarter for strong cash generation from the September Quarter onwards. We see this as a significant catalyst for a share price re-rating. Once the Butcherbird project is running at nameplate, we believe the market will look forward to management's value adding strategies. This includes production expansions and a product upgrade facility, where it intends to sell high value high purity manganese sulphate monohydrate (HPMSM, $MnSO_4$) into the battery material markets.

E25's PFS outlined an A$798m NPV_5 for a 1Mtpa Mn conc mining operation. The A$137m current market cap compares to the A$421m NPV_5 for the initial Stage 1 production rate of 350ktpa. The market cap implies investors don't believe the company can deliver on its Stage 1 operation, let alone ascribe any value for an expanded mining operation or E25's exciting high purity manganese division.

The balance sheet remains strong. E25 had A$28m of cash at end Dec 2021, with ample liquidity to fund its current operations. We forecast internal cashflows to fully fund its production expansions at Butcherbird to 1Mtpa of manganese concentrate. E25 has no debt or hedging in place.

Figure 1: Butcherbird is located is a tier 1 mining jurisdiction near infrastructure



Source: Petra Capital

Ramp up issues solvable – significant value upside

We value the Butcherbird concentrate business at A$476m (A$2.30/sh). Figure 2 outlines the key drivers of our valuation and earnings. The operations have underperformed the PFS estimates during ramp up, but our site visit provides confidence these metrics will be met in time.

Figure 2: Key assumptions – Performance to date vs. PFS and our forecasts

Butcherbird Mn Conc	Dec-21 Half	PFS	Petra	Comments
Annual concentrate production	150ktpa	350kt → 1Mt	350kt → 1Mt	In the first half, E25 produced material at a 150ktpa rate, well below the 350ktpa nameplate. While ramp up played a factor, the key factor was a plant shutdown in the Dec Q caused by a logwasher failure. We see the plant hitting nameplate production in Jun.Q'22. Production of 325kt conc in Year 1 growing to 1Mt conc. as production expansions are completed by Dec. 2023.
Plant Throughput	0.81Mtpa	1.3Mtpa → 3.9Mtpa	1.3Mtpa → 3.9Mtpa	Throughput to date has exceeded the plan but has been hamstrung by uptime. We retain our forecasts in line with the PFS metrics but note upside is likely.
Recovery	n/a	83%	75% → 83%	Recoveries have underperformed plan to date as clay material has resulted in the crusher and ore sorter not performing as expected. Following improvement initiatives we believe the company will hit targeted recoveries around the time the plant achieves its expanded 3.9Mtpa rate.
Conc grade	30.5%	33%	30% → 33%	Lower than average conc. grade negatively impacts price achievement. During ramp up the ore sorter has underperformed, but we are confident in management's recovery initiatives and forecast conc. grades to achieve PFS metrics when the plant achieves its expanded 1Mtpa production rate.
FOB operating costs	US$134/t (A$184/t)	A$100/t → A$90	A$112/t → A$94	Our long-term costs are 5% above the PFS forecasts. Near term, costs are higher due to 1) lower than expected recoveries, 2) higher spot shipping costs, and, 3) higher trucking costs (labour tightness). We note the Dec-21 Half costs were impacted by the unplanned plant shutdown in November.
Shipping	US$42/t	US$18/t	US$41/t → US$18/t	While shipping costs are outside the control of management, they have a material impact on price achievement. We forecast elevated shipping costs for the next 18 months. E25 has moved to larger ships to mitigate rising shipping costs (35kt shipments).
Logistics and marketing	n/a	US$65/t	US$75/t → US$65/t	Recent fuel price increases and trucking availability has seen medium term prices rise above what was expected when the PFS was complete
Pricing	US$85/t	US$173/t	US$104/t → US$173/t	Achieved pricing was negatively impacted in the Dec-21 Half due to higher shipping costs (US$24/t), lower conc grades (US$25/t), no by-product credits (US$18/t), and a weaker benchmark price (US$21/t). Benchmark prices have risen 35% YTD which will see E25 revenue improve materially, with conc. grade and by-products to approach PFS levels during 2H 2022.
Expansion capex		A$18m	A$30m	Internal cashflows are forecast to be able to fund the expansion of concentrate production to 1Mtpa on our timeline, although we highlight any acceleration or operational misses could require an equity contribution. A DMS circuit may be an option to improve recoveries.
Valuation (NPV_{10})		A$798m	A$476m	We use a 10% discount rate, E25's used a 5% discount rate. Our valuation is A$703m using a 5% discount rate

Source: Company reports, Petra Capital

Once management establishes Butcherbird concentrate production at an expanded rate, we see levers for optimisation, including; (i) 'in-mine' opportunities, given the significant Resource outside the pit shell; (ii) near-mine targets, with exploration concessions on trend extensions of the current mining area, (iii) logistics cost improvements, and, (iv) opportunities to expand concentrate sales if demand grows.

Near term catalysts will re-rate the stock within six months

Catalyst 1 - Throughput to hit nameplate during the June Q

E25 achieved first production in 2021 at its Butcherbird operation but its operational metrics did not align with the PFS study. While project ramp up for new projects regularly deliver lower economics than study averages, the first quarter result came in behind market expectations. This was followed by an extended plant shutdown in the second quarter of operations as a result of a logwasher failure. While that was an inexpensive part, it took time to be replaced and one month of production was lost.

In January, E25 announced the plant averaged 934t per day compared to its 1,000t nameplate since restart and has experienced days above 1,200t per day. The front end of the plant was humming while we were on site. We believe management will start to deliver nameplate production consistently during the Jun.Q'22 and forecast nameplate production from the Sep.Q'22 onwards. We believe market confidence will improve materially once this is achieved.

Catalyst 2 - Price achievement to improve in Jun.Q'22 and again Sep.Q'22

SBB Markets indicates South African 36% Mn ore prices increased by 19% for April shipments compared to March. This bodes well Jun.Q'22 revenue and we expect this Quarter to be cash generative, with higher prices coinciding with an improved operational performance.

The Butcherbird PFS outlined a quality premium of US$0.65/dmtu for its ore. This equates to a ~15% improvement compared to the grade-adjusted benchmark price. E25 has not been able to achieve this price premium to date. The premium is a result of low levels of deleterious elements and a silicon credit. While product quality has achieved what is required for higher prices, the achievement of the premium relies on offtake partner OMH obtaining a higher price for its final Mn alloy product, which we expect to begin in Sep.Q'22.

Catalyst 3 – Plant recovery and concentrate grade improvements

The ore sorter has underperformed expectations. We believe the cause may be the presence of clay on the material as it enters the ore sorter. Given the ore sorter separates by colour, some economic material is being sent to the waste pile. This reduces the recovery rates of the plant (lower production rates / higher operating costs) and the grade of the concentrate (impacting price achievement). This is a manageable problem with common and conventional solutions. This includes tools to wash more clay away prior to the ore sorter and potentially the installation of dense media separation, in time.

Catalyst 4 – HPMSM production and customer validation in 1H 2022

E25 is expecting to produce a small amount of HPMSM using Butcherbird ore this half. This product will be sent to customers for quality validation and is a vital step in demonstrating the viability of the HPMSM operation in advance of the release of the DFS and a final investment decision.

Catalyst 5 – HPMSM DFS expected in Sep.Q'22

E25's HPMSM scoping study outlined robust economics, with a US$395m post-tax NPV_8 for the initial project stage. However, the detail surrounding the processing route and critical path items such as plant location and approvals remain under investigation. The DFS due by Sep.Q'22 should provide the clarity and confidence investors require to attribute the full value of the project to E25's share price.

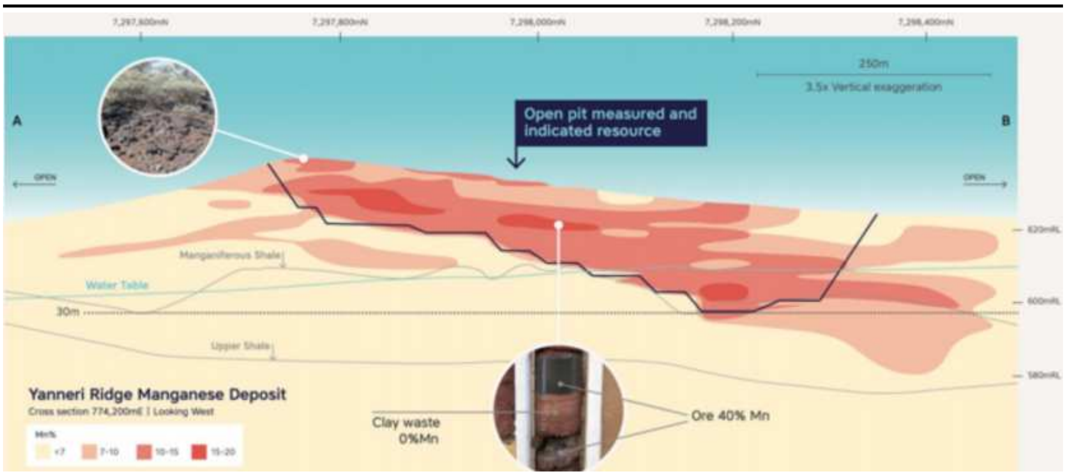
Catalyst 6 – Offtake agreements expected in 2H 2022

Following the production of sample HPMSM volumes and the subsequent customer qualification, management expect to be in a position to secure offtake agreements with potential customers in the second half of 2022. Securing offtake and site approvals will be the final requirements prior to achieving a final investment decision.

Mining performing in line with expectations

Butcherbird will start as a single open pit approximately 1,000m long, 600m wide and up to 10m deep. Figure 3 outlines the optimised final pit shape, targeting the higher grade proven and probable mining reserve in early years. The mining rates have been scheduled to meet processing requirements. The overall strip ratio is 0.36:1 with favourable rates in the first few years.

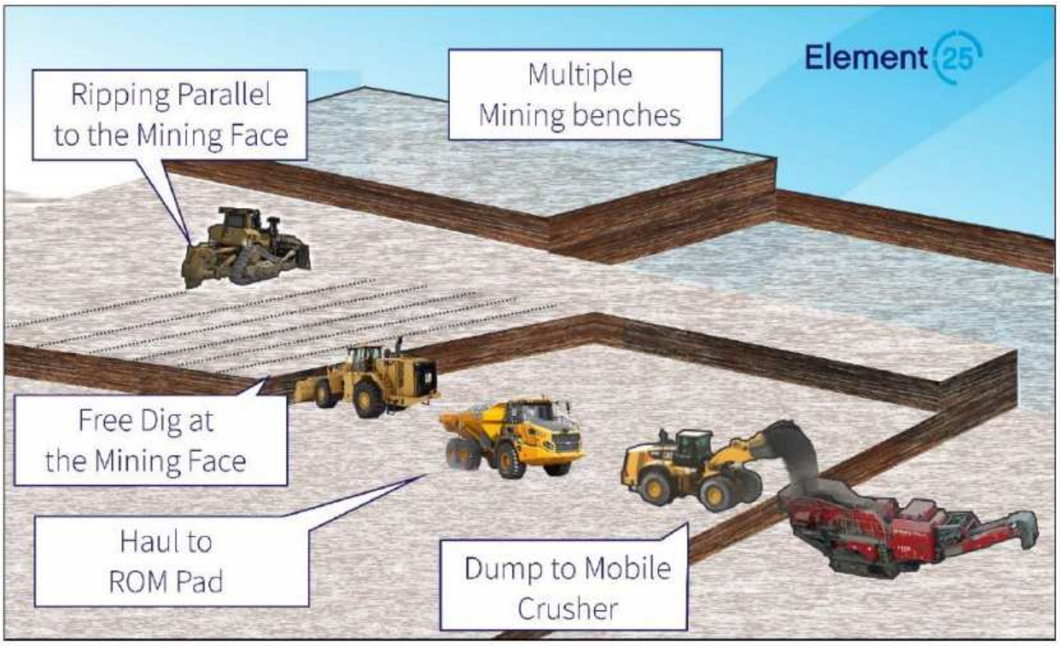
Figure 3: Butcherbird is a wide, contiguous ore body suitable for simple open pit mining



Source: Company Reports

The weathered manganese ore is soft and friable, making it amenable to dozer ripping and free digging, with no drill and blast required. Ore will be hauled to the ROM pad and crushed-and-screened with mobile equipment (Figure 4). Grades peak at 11-12% Mn in the first five years but are relatively constant thereafter around 10%. The mining operations are performing as expected with regard to both costs and effectiveness.

Figure 4: Butcherbird is blessed to have very simple and low cost mining



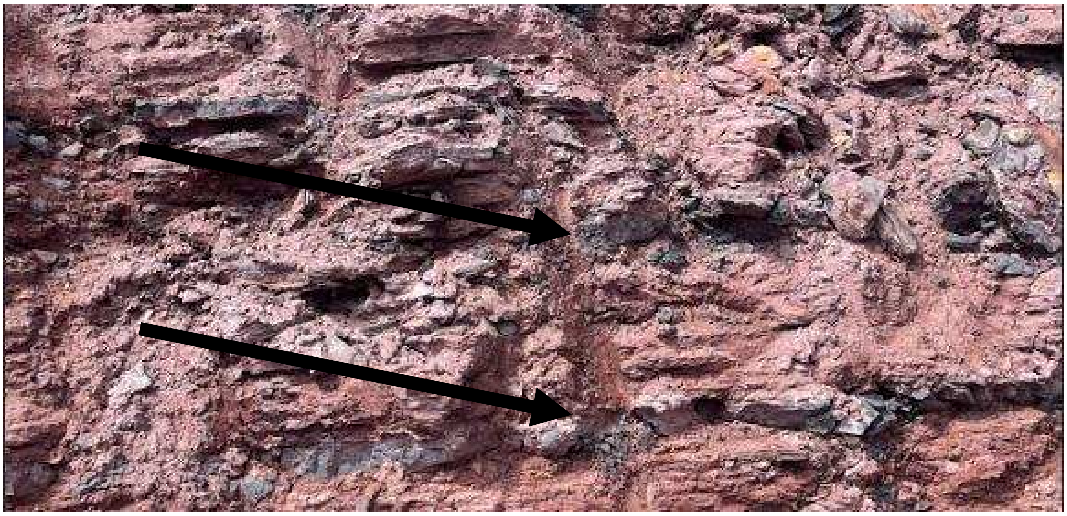
Source: Company Reports

Figure 5: A dozer and excavator working on site

Source: Petra Capital Site Visit Photos

The manganese ore at Butcherbird is layered. The in-situ manganese material grades around 35-37% Mn, with red clay material interwoven (Figure 6). While the mining to date has been operating as expected, the performance of the plant has been impacted by the presence of this clay. Clay is not uncommon and there are conventional processing improvements that can be utilised.

Figure 6: Manganese ore (dark grey) is layered with clay material (brown)



Source: Petra Capital Site Visit Photos

Processing plant will achieve nameplate throughput during the June Q

The project layout is compact with optimal haulage distances, easy site access and close proximity to key transport and services (Figure 7).

- **Access:** A short 3km haulage road has been built to access the mine from the Great Northern Highway, which bisects the mining lease.
- **Water:** Water license has been secured for sufficient volumes to support the operation from bores within 8km of the project site.
- **Power:** A leased diesel power station is used for the processing equipment.

Figure 7: Processing plant and infrastructure at Butcherbird

Source: Company Reports

The processing plant has a 1.3Mtpa nominal capacity, growing to 3.9Mtpa during 2023, incorporating:

- **Scalper** – ejects the fines and sends material to the crusher (Figure 8)
- **Crushing and screening** - ensures the material is the right size for further processing
- **Scrubbing** - a logwasher washes the material prior to sending it to the ore sorter (Figure 9)
- **Ore Sorting** – the 1m wide Steinert KSS sorter, separates ore from waste based on colour (Figure 10 and Figure 11)

The processing is simple and in line with normal industry practice, although most manganese operations use dense media separation rather than ore sorting in the final step. E25 has primarily utilised mobile equipment that maintains flexibility while minimising civils and setup costs. When the plant is expanded to a 1Mtpa rate we expect the mobile crusher to be replaced with a fixed plant.

Figure 8: A dozer loads the scalper (green), which feeds the mobile crusher (red)

Source: Petra Capital Site Visit Photos

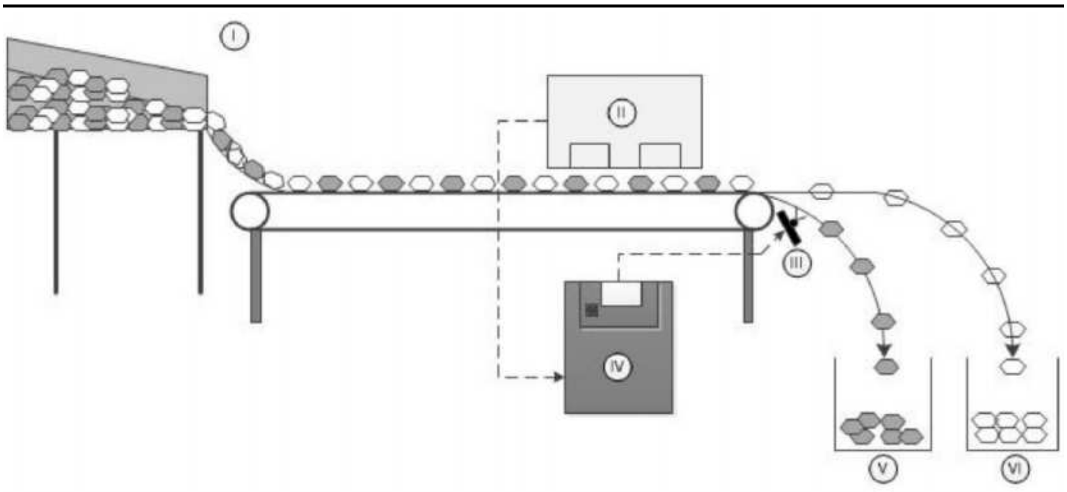
Figure 9: Crushed material enters the logwasher which cleans the material

Source: McLanahan

Figure 10: Material is sent to the ore sorter – this material still has too much clay (brown)

Source: Petra Capital Site Visit Photos

Figure 11: The ore sorter separates the conc (grey) from the waste (brown)



Source: MDPI, Petra Capital. Belt-type sorter: (I) Material presentation by vibrating feeder and belt; (II) sensors; (III) ejection nozzle array; (IV) central processing unit (CPU); (V) drop fraction; and (VI) ejected fraction.

Why did the plant shut down during the Dec Q?

A failed logwasher at the plant on 19 Nov resulted in a 3 week plant shutdown. A logwasher is a long cylinder with paddles that agitates material in water, cleaning it prior to further processing. The logwasher is not defined as a wear part, and is expected to have a long life. As a result, the manufacturer does not recommend having a spare on site. This hurt E25 – while the repair costs were just A$1m, the loss of production resulted in a further delay to E25 achieving operating rates as outlined in its PFS. This resulted in a loss of one month in production.

Why are we confident the issue was a one off?

It appears the logwasher provided to E25 was a faulty part and not fit for purpose. E25 ordered a new logwasher and at the same time improved the durability of the part, using tungsten to strengthen it, which greatly improves its performance under pressure. The new logwasher has been operating in line with expectations. In addition, E25 now has a spare logwasher so any future outages will not materially impact monthly production.

In addition to the logwasher underperforming, throughput in the first two quarters of operation were impacted by the low uptime at the crusher. E25 has installed a scalper at the front end of the plant to remove some of the fines material, which was not in the PFS plan. This has eased the burden at the crusher although the team are still implementing maintenance improvements they believe will deliver an above nameplate result. The move to a fixed crusher during the expansion process will improve the ease of maintaining the equipment and likely improve the uptime.

Why are recoveries lower than nameplate?

Recoveries through the plant have been lower than outlined in the PFS. The presence of clay and other material being presented to the ore sorter is impacting its ability to identify waste from concentrate. This is leading to manganese ending up in the discard pile. In Figure 12 and Figure 13 we show two sides of the same piece of ore. Depending on which side was visible to the ore sorter this material could have been sent to the waste pile (red side), despite economic value. This material is not necessarily lost, as E25 has been reprocessing the waste tailings, but it has increased costs and not all the economic material is recovered.

The impacts of clay in the material presented to the ore sorter are 1) lower recoveries, 2) higher operating costs, and 3) a lower concentrate grade, which impacts price achievement.

Figure 12: This side would be identified as ore

Source: Petra Capital Site Visit Photos

Figure 13: this would mistakenly be identified as waste

Source: Petra Capital Site Visit Photos

Why are we confident recoveries can improve to PFS levels over time?

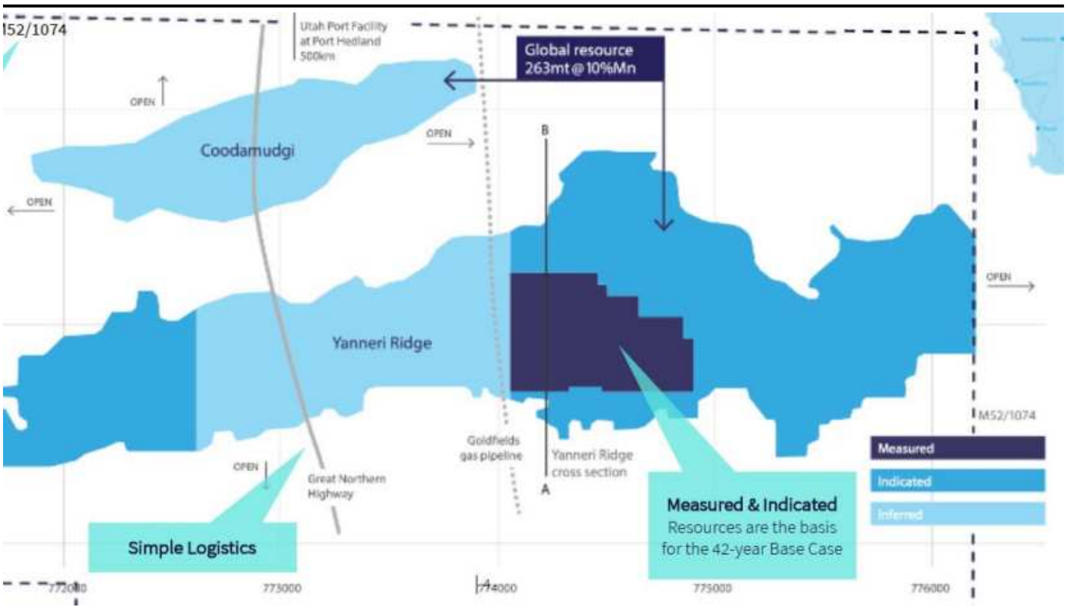
E25 has initiatives in place to present better material to the ore sorter. The PFS used a grizzly screen at the front of the plant, which has since been replaced by a scalper. The company is also looking to increase the water pressure during the cleaning process with stronger water pumps, which should better wash away clay material.

That said, the ore sorter appears to be fickle to operate. Dense media separation (DMS) will not be exposed to the same issues at it relies on the density of the material rather than its colour to separate clay and other gangue material from the valuable manganese. The gangue material at Butcherbird has a specific gravity of 2.0 while manganese is closer to 3.6, which is a large enough gap for DMS to exploit efficiently. We expect the company could seek to implement DMS as part of its expansion. We have retained recoveries below the PFS in our forecasts until the expansion to 1Mtpa is complete and have increased our expansion capex to A$30m from A$20m as a result of both mining inflation and the potential inclusion of DMS.

Logistics and shipping

- **Haulage:** The entire route for E25's Mn concentrate is a defined route under the existing concessional loading provisions applying to the Pilbara. The PFS outlined transport costs of A$0.07-0.09/tkm, although spot costs have been higher, given increased demand for trucking, leading to transport costs around A$5/t higher per tonne of concentrate relative to the $65/t outline in the studies. A highway runs through the mining lease (Figure 14).
- **Port:** E25 have access to the Utah Point stockpile and port facilities at Port Hedland and is suited to the existing infrastructure. Qube, the logistics operator, has years of experience handling manganese ores. Port access up to 1Mtpa has been secured in advance of the planned expansion.
- **Shipping:** The PFS outlined shipping costs of US$18/t depending on vessel size. Spot markets have led to higher shipping costs and we believe these costs will be elevated for at least 18 months. The company is reviewing larger ship sizes to optimise costs and cater for increased production rates during 2022.

Figure 14: A sealed highway to Port Hedland runs through the mining lease



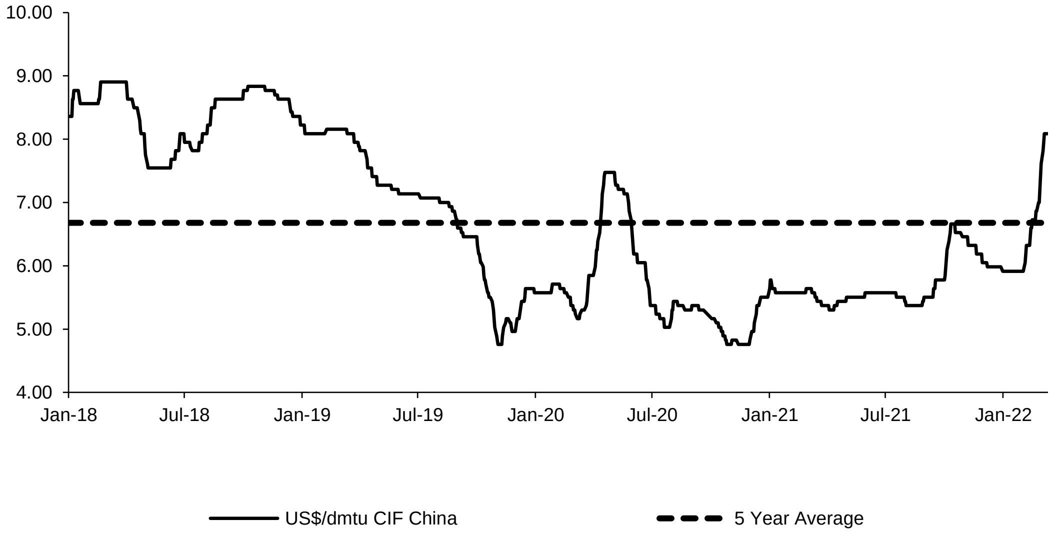
Source: Company Reports

Manganese prices have materially improved – E25's share price has not

Manganese ores are priced in dry metric tonne units (dmtu), with a 'unit' being 10kg, or 1/100th of a tonne of manganese. This helps traders price concentrates despite varying grade content. E25 produces a 33% concentrate with achieved prices benchmarked to Fast Markets Australian 44% product. The 44% benchmark price has risen 35% YTD to US$8.09/dmtu, up 35% YTD and 20% in the last month alone (Figure 15). In the meantime, E25's share price has fallen 24%. We note the only other ASX small cap manganese concentrate producer, Jupiter Mines (ASX:JMS), has rallied on an improving manganese price outlook (Figure 16).

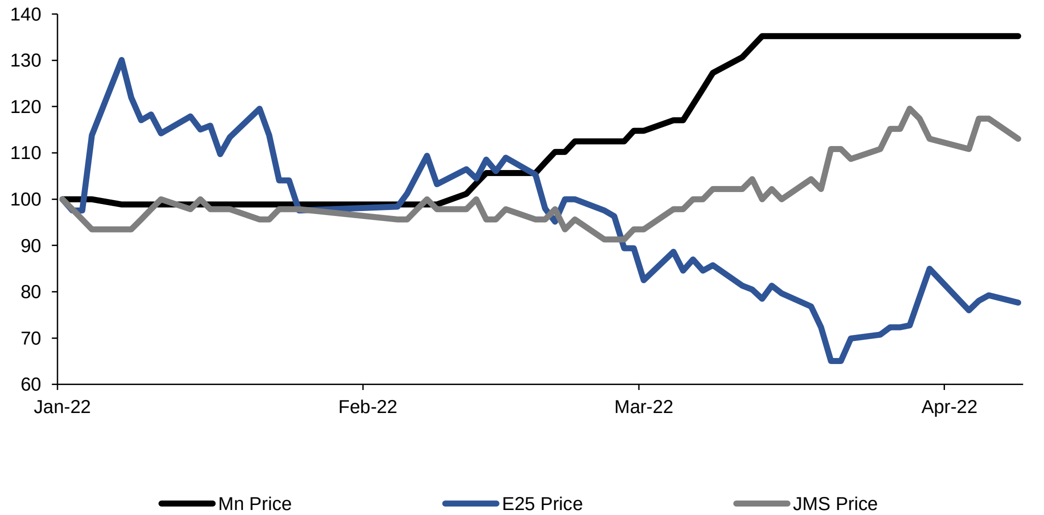
E25 has a binding take-or-pay offtake agreement for its manganese concentrate with ASX listed OM Holdings. This covers 100% of the Stage 1 production (up to 400ktpa) over a 5 year period. Favourably, for the first 24 months, 90% of the payment is made upon delivery to Port Hedland rather than when material is shipped. This has resulted in an improved working capital outcome during ramp up. A key catalyst will be when E25 receives an agreed price premium from OM Holdings, expected in the September quarter this year.

Figure 15: Mn prices have rallied 35% YTD and 20% in the last month



Source: Asia Metal, Petra Capital

Figure 16: E25's share price has not responded to a materially better price environment



Source: Asia Metal, Petra Capital

Changes to earnings and valuation

We make material changes to our earnings and NPV, including:

- Increased near term shipping costs to US$41/t from US$28/t in the March Q. We forecast shipping costs to ease over the next 18 months to the US$18/t as outlined in the PFS
- Increased Mn price from US$5.80/dmtu to US$7.80/dmtu this quarter. We retain our long term price but have a higher price profile medium term as it trends towards US$6.20/dmtu. The impact of higher prices offsets higher shipping costs
- We shift out the date when by-product credits will first be received from the June Q to the Sept Q. This assumes not all shipments go to OM Holdings in Malaysia, but Chinese sales will continue
- Reduced March Q sales from 70kt (equal to our production) to 55kt, given lower shipments seen from Port Hedland data
- We delay the start of the plant expansion by one quarter, which is the key driver of the lower revenue and earnings in FY23. It only has a 1% impact on NPV as earnings are largely pushed out to later years
- Reduced recoveries from 83% to 75% near term. We scale up to 83% over time as the expansion to 1Mtpa is completed
- Reduced product grade to 30% from 33% near term. Similar to recoveries, we scale up to 33% by end of the plant expansion
- We have increased expansion capital from A$20m to A$30m, reflecting mining inflation and projects to improve the recoveries (potentially a DMS)
- We have increased our FY23 equity raising to A$40m from A$30m given lower interim cashflows. The funds are used to build the high purity Mn plant. We note a delay in the timeline could see this self-funded if management desire. Internal cashflows are forecast to be able to fund the expansion of concentrate production from the current 350ktpa to 1Mtpa on our timeline (FY24), although we highlight any acceleration or operational misses could require more equity.

Figure 17: Changes to forecast earnings and price target

		FY22			FY23			FY24		
		New	**Old**	**% var**	**New**	**Old**	**% var**	**New**	**Old**	**% var**
Revenue	A$m	34	41	(19%)	86	131	(34%)	215	229	(6%)
EBITDA	A$m	(12)	(4)	(176%)	21	46	(55%)	88	95	(7%)
EBIT	A$m	(13)	(5)	(152%)	20	45	(56%)	86	92	(7%)
NPAT	A$m	(12)	(4)	(173%)	20	36	(43%)	60	64	(7%)
EPS	Ac/sh	(8.2)	(3.0)	(173%)	11.9	21.7	(45%)	34.0	38.1	(11%)
DPS	Ac/sh	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
NPV/sh	**A$/sh**	**4.53**	**5.22**	**(13%)**						
Mn conc prod	kt	285	282	1%	438	594	(26%)	952	1,007	(6%)
Cash costs	US$/t conc	106	106	(0%)	104	100	3%	96	96	(0%)
AUDUSD	x:x	0.73	0.73	1%	0.75	0.75	1%	0.75	0.75	-
Achieved price	US$/t conc	105	119	(12%)	147	164	(10%)	169	170	(0%)

Source: Petra Capital

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