

Building a Global Manganese Business

Sustainable manganese ore and HPMSM for global steel and battery markets.

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Element 25 Introduction



Long-Life, 100%-Owned Manganese Mine



Construction Ready Mine Expansion



Strong Feasibility Study/Financials



ESG Leading Innovative HPMSM Flowsheet



Tier 1 Jurisdiction



Tier 1 Project Customers & Partners

ASX

E25

OTC QX

ELMTF

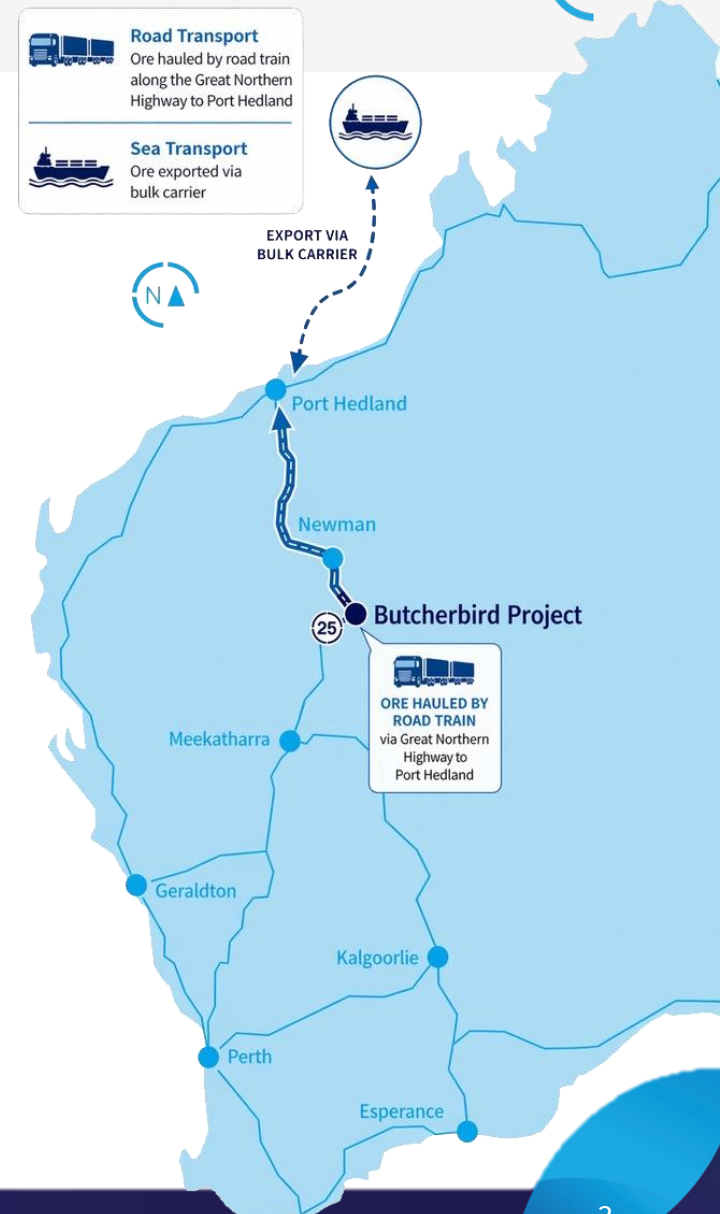
ISSUED
SHARES

326M

TOTAL
DEBT

NIL

Element 25



Butcherbird Expansion

1.1Mt p.a. Manganese Concentrate

Build and commission a large-scale processing facility at the 100% owned Butcherbird Manganese Mine in WA.



Louisiana HPMSM

USA Critical Raw Materials

Construct the first US HPMSM processing facility (Louisiana), producing 65,000 tonnes per annum of battery-grade HPMSM with GM and Stellantis



Expand Globally

HPMSM Expansion - EU & Asia

Multiple HPMSM modules globally to deliver sustainable HPMSM supply to global markets targeting Europe and Asia.

1-Year Plan

3-Year Plan

10-Year Plan

Best in class, secure supply, ethically produced,
scalable HPMSM for lithium-ion batteries:
Sustainably Supplying Global Markets

The Butcherbird Manganese Project

Butcherbird Manganese Project, WA

Element ⁽²⁵⁾

World-Class Resource
>270M tonnes

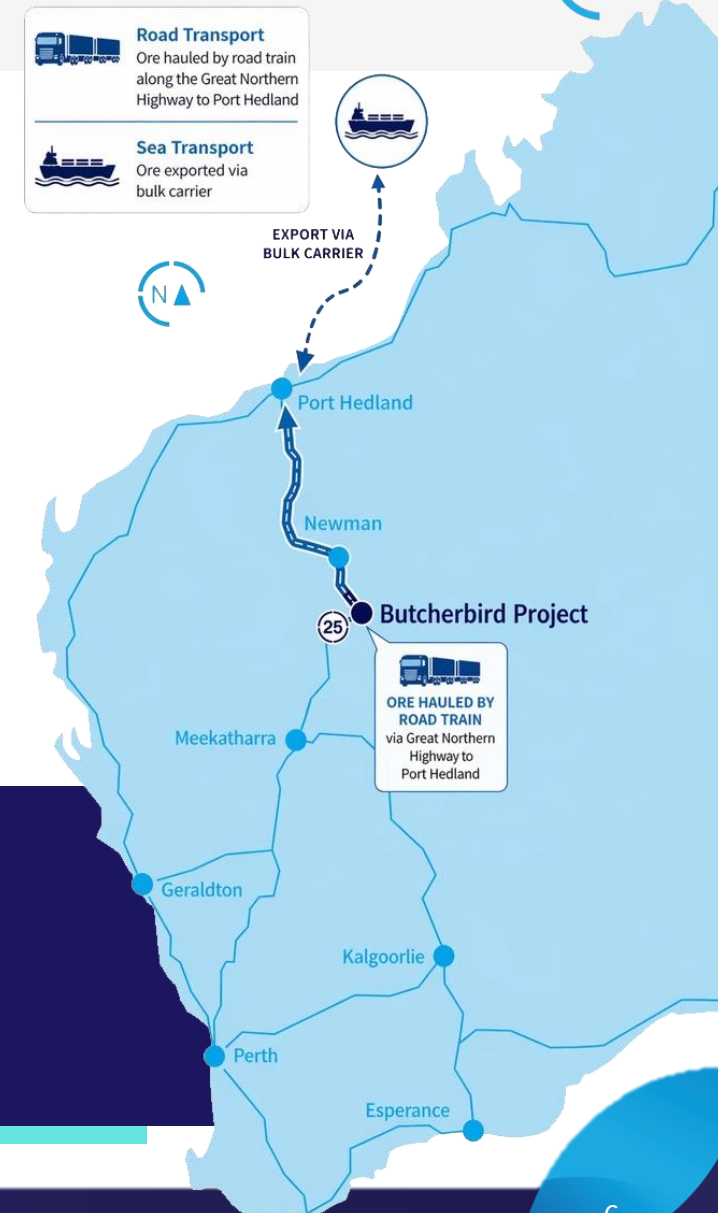
Long-Life Mine
>18 years production

Large-Scale Production
1.1M tonnes per year

- Unique geology - very clean metallurgically – no toxic contaminants.
- Located in **Australia**, a Tier-1 jurisdiction with strong ESG regulation.
- Produces a high-quality manganese concentrate ideal for manganese alloys and battery grade high-purity manganese sulphate (HPMSM).



Providing high quality manganese for traditional and new energy markets.



Large, Long-Life Manganese Mine in the Pilbara

CONSTRUCTION READY

- Granted Mining Lease
- Fully Permitted
- Early Procurement Commenced
- Existing infrastructure in place (bore fields, TSF, roads, camp)
- ~12-Month Construction

Mining Reserve:
101.4Mt @ 10.4% Mn¹

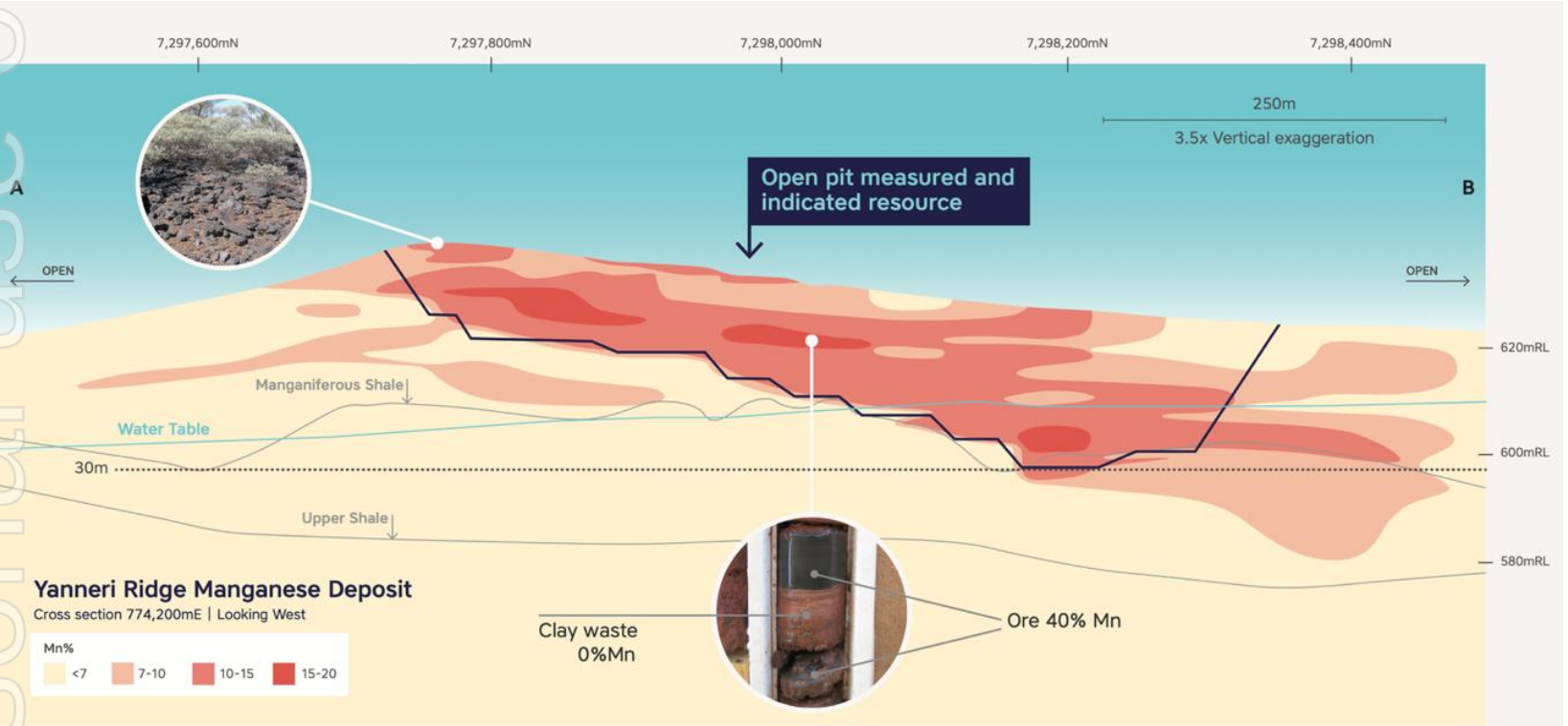
Measured
Indicated

Simple Logistics:
Existing road and port
infrastructure

Manganese ore loadout
during Stage 1 pilot
operations.

Simple Geology: Low-Cost, Low-Impact Operations

Classification	Tonnes (Mt)	Mn (%)	Contained Mn (Mt)
Resource	274	10.0	27.4
Reserve	101.4	10.4	10.5



RESOURCE GROWTH POTENTIAL

- Large resource offers long term operating potential.
- Mineralisation outside existing resource provides upside.
- Ore suitable for ferroalloys, battery grade HPMSM and EMM.

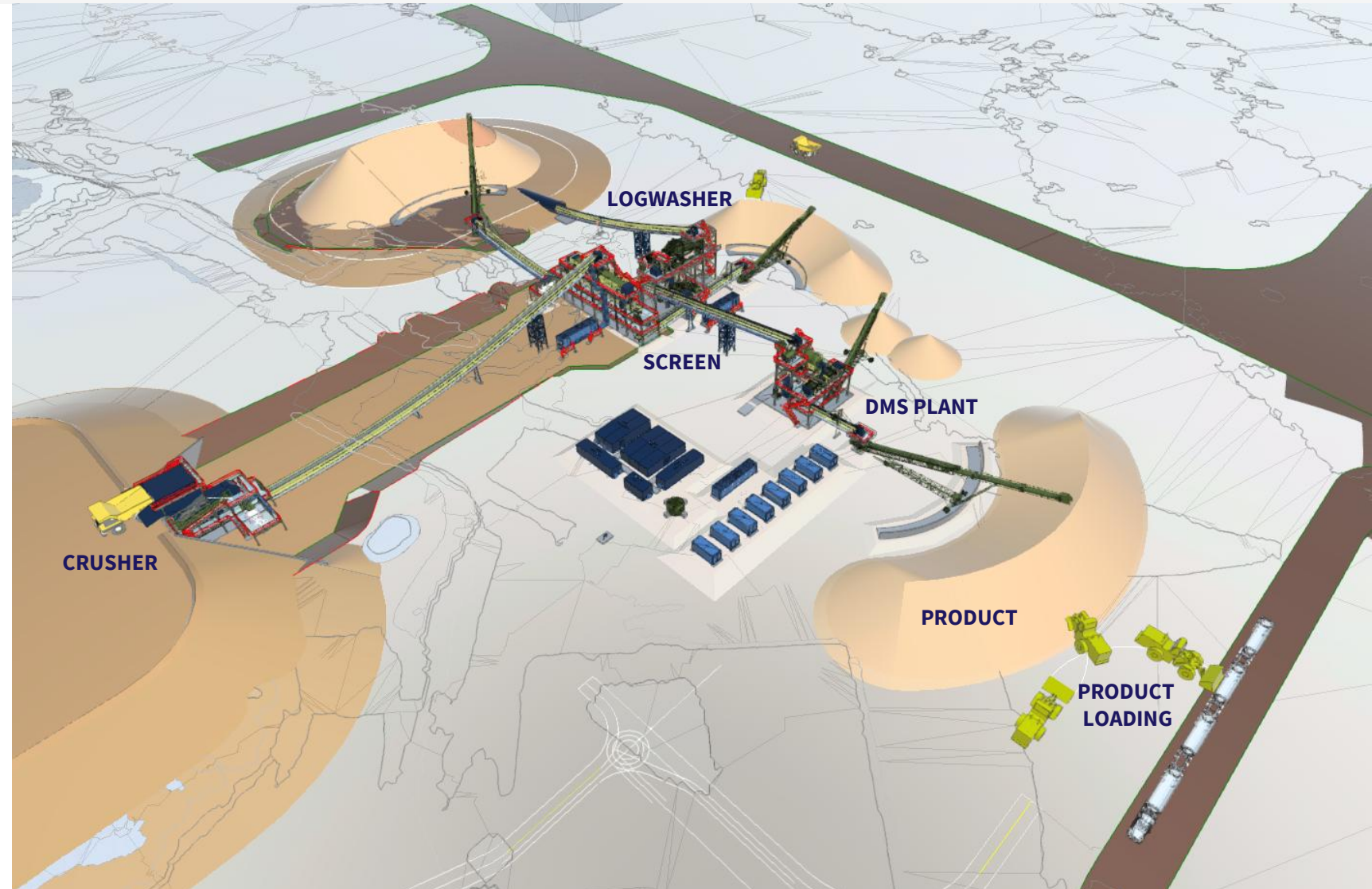
ENVIRONMENTALLY BENIGN OPERATION

- Ore from surface.
- Low strip-ratio.
- No explosives required.
- No dewatering required.
- One reagent – water.
- Very low levels of contaminants.

Butcherbird to Expand to 1.1Mt p.a. Production

New, re-designed and expanded processing facility to optimise and scale the process.

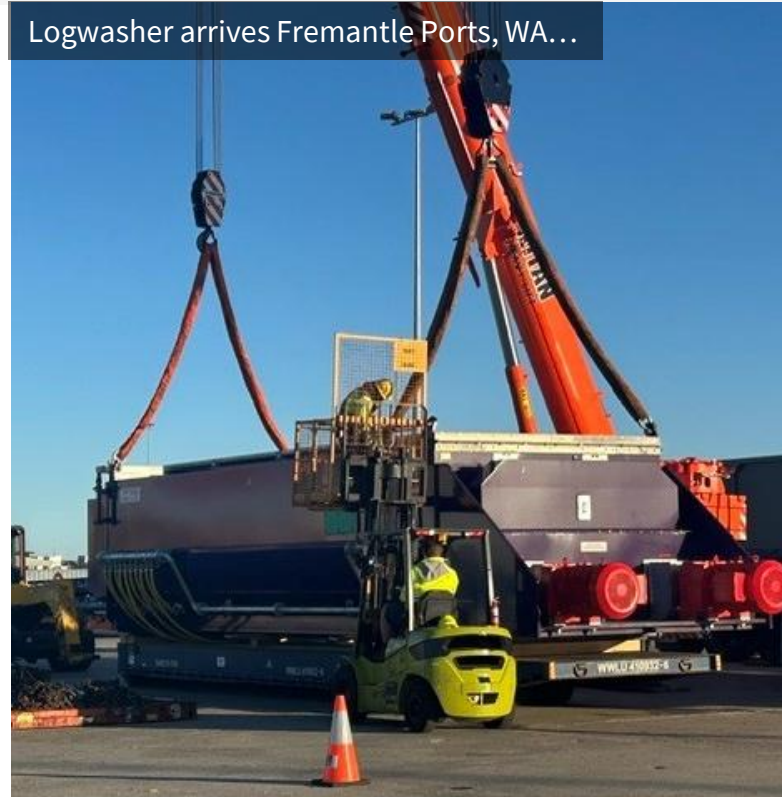
Key Metrics	Unit	Value
Ore Mined	Ktpa	6,100
Concentrate Prod.	Ktpa	1,100
Concentrate Grade	Mn	31.6%
Undiscounted Cashflow	AUD (pa)	\$70.5
Mine Life	Years	18.3
NPV ₈ (Real) (Pre-Tax)	AUD	\$561M
NPV ₈ (Real) (Post-Tax)	AUD	\$379M
IRR (pre-tax)	%	96%
Op. Cost C1 (FOB)	USD/dmtu	\$2.86
Capital Cost	AUD	\$64.8M



First Main Plant Item, the Logwasher, arrives at Port of Fremantle:

- The logwasher is one of three main processing sections, alongside Crushing/Screening and the Dense Media Separation (DMS) unit.
- The unit will be a key clay removal step, providing an aggressive scrubbing action to break up and separate clay contamination from the manganese lump material in the feed.
- Ordered as a long lead item as it is manufactured to E25's specific requirements.

Logwasher arrives Fremantle Ports, WA...



Logwasher leaves German factory...



Clays and other impurities are scrubbed by rotating intermeshing paddle shafts and washed by counter-current water flow.

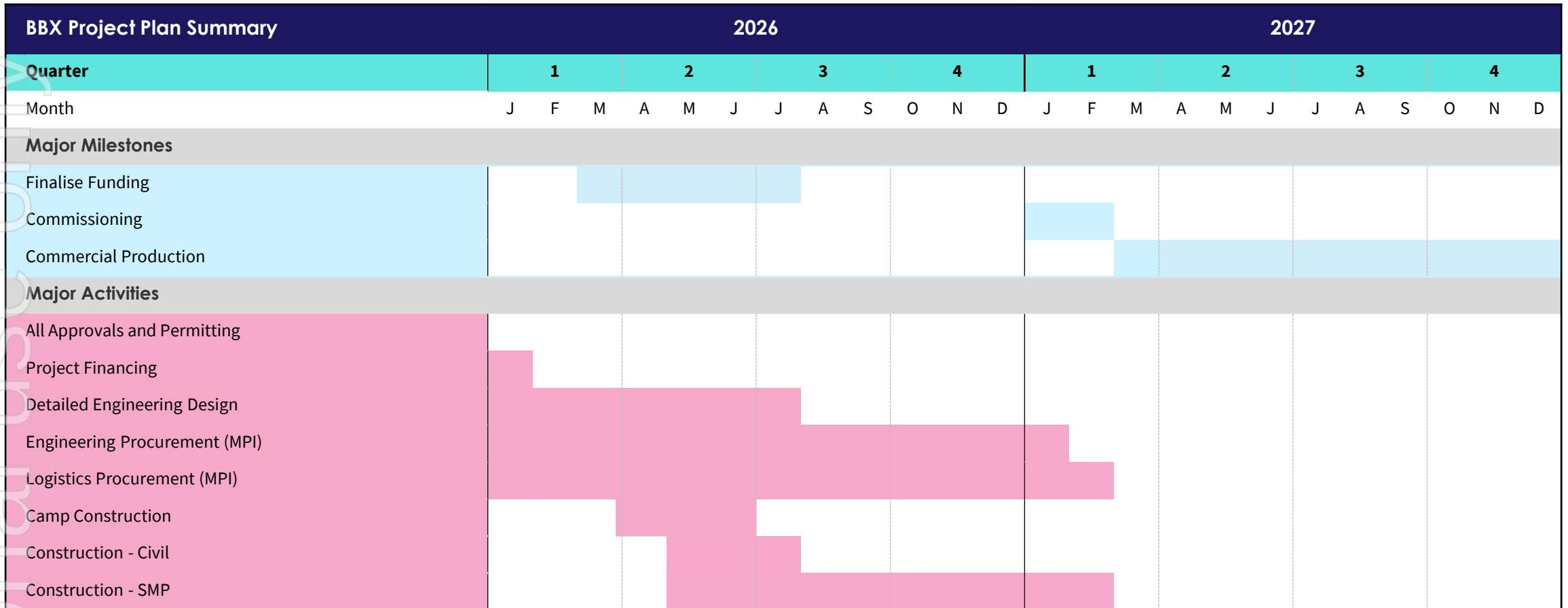


Department of Local Government,
Industry Regulation and Safety

Construction Tender in Progress

- Detailed engineering well advanced utilizing Integrated project Team (IPT) approach.
- Long lead time procurement progressed with orders placed for crusher and logwasher equipment.
- Key construction and operational contracts being finalised including road haulage, mining, port and offtake.
- Fully permitted under Department of Local Government, Industry Regulation and Safety (LGIRS) regulations.
- Civils, SMP, E&I packages in the market with tender submissions under review. Subject to WHS compliance requirements.

Butcherbird Expansion Project Timeline Guidance



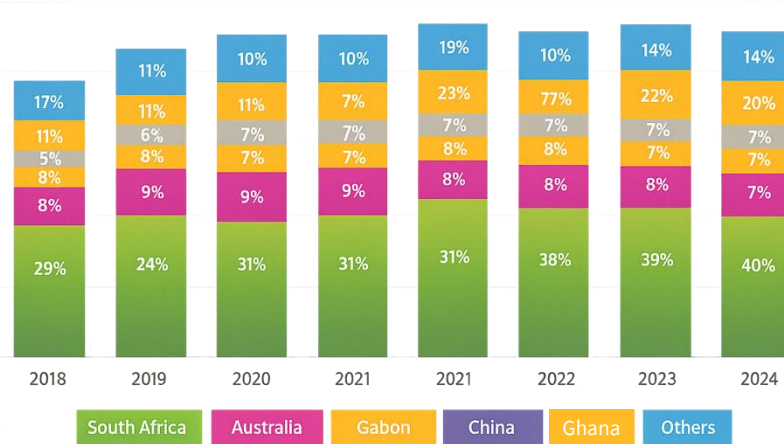
The schedule remains subject to a number of key dependencies including achieving project financial close, completion of detailed engineering, procurement of key equipment and finalising the construction contract(s) in accordance with the planned key dates.

The Manganese Ore Market

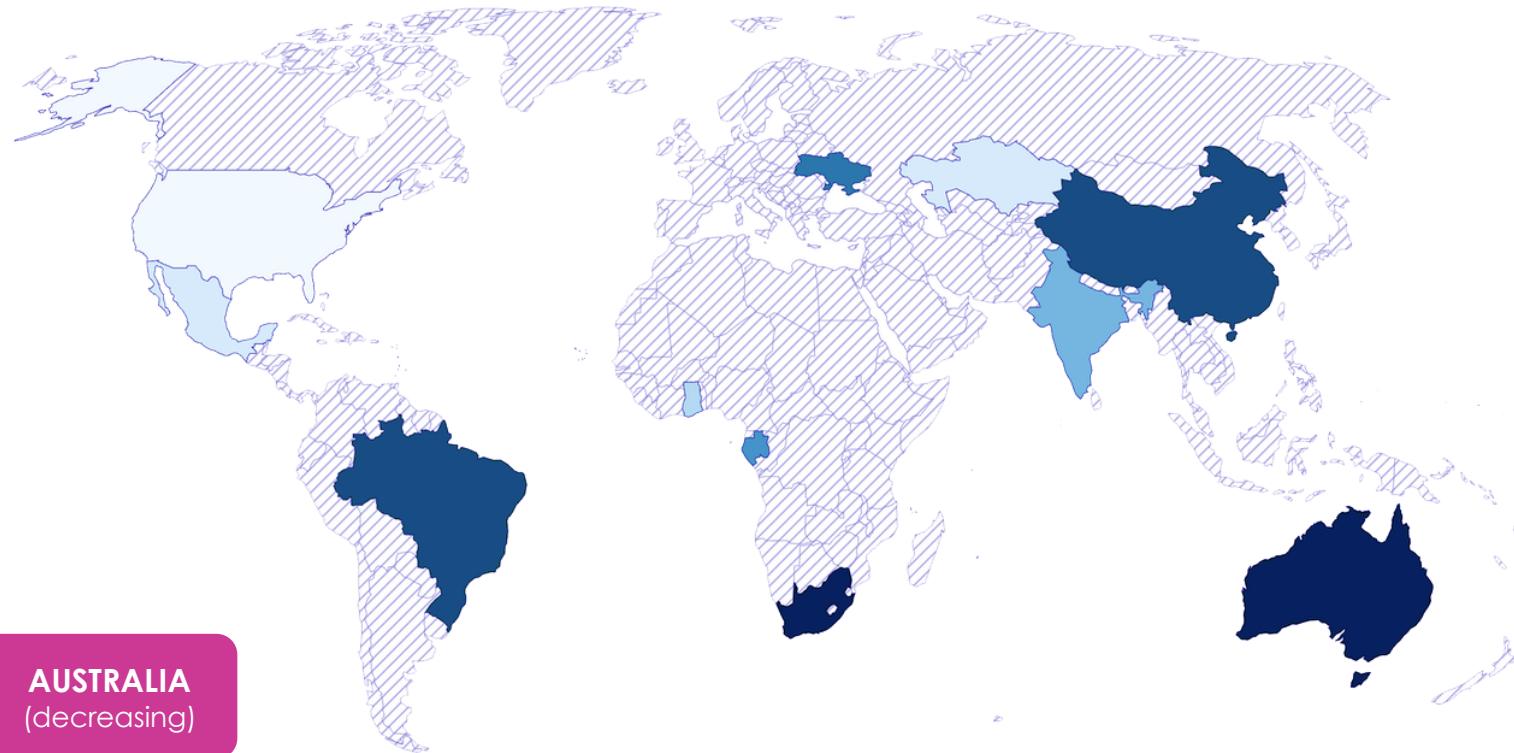
Manganese Is Comparatively Abundant But Not Everywhere...

- Manganese deposits heavily concentrated in challenging jurisdictions.
- Australia is the only allied country with significant manganese reserves and production.
- Australian manganese production declining with old mines closing and limited new production.

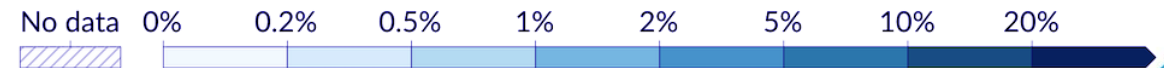
Manganese Ore Production 2020-2024:



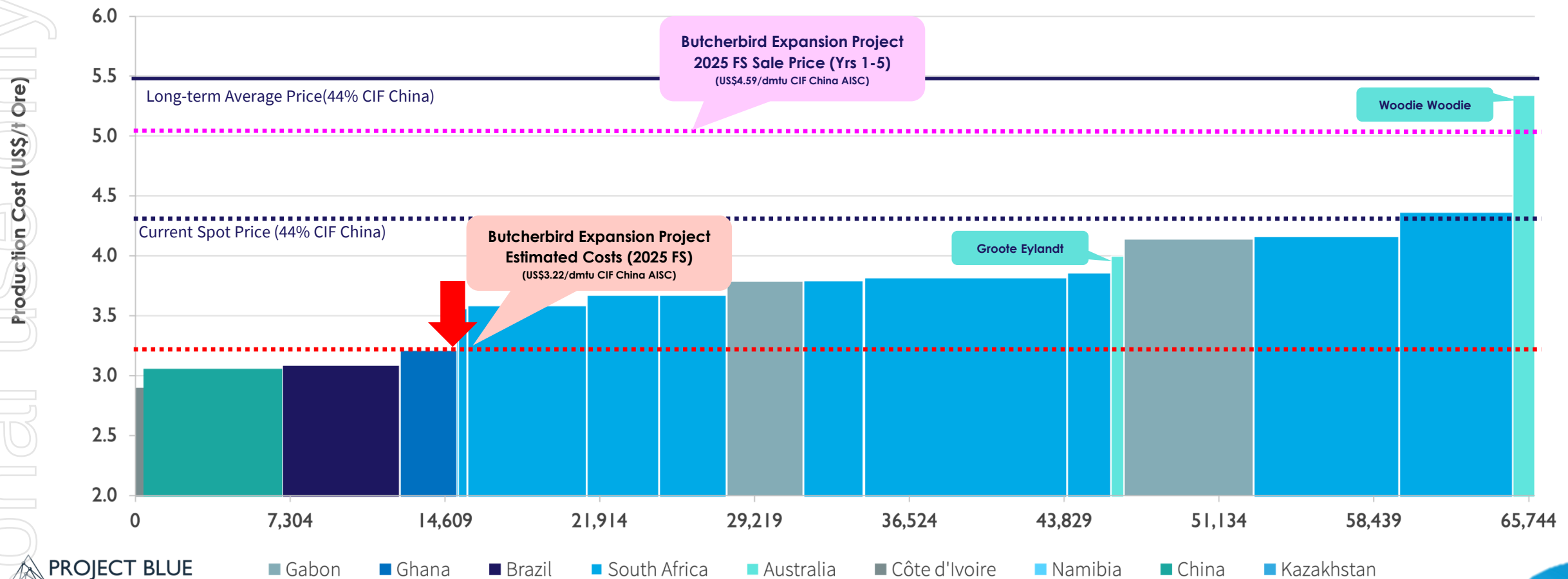
Manganese ore global distribution:



AUSTRALIA
(decreasing)

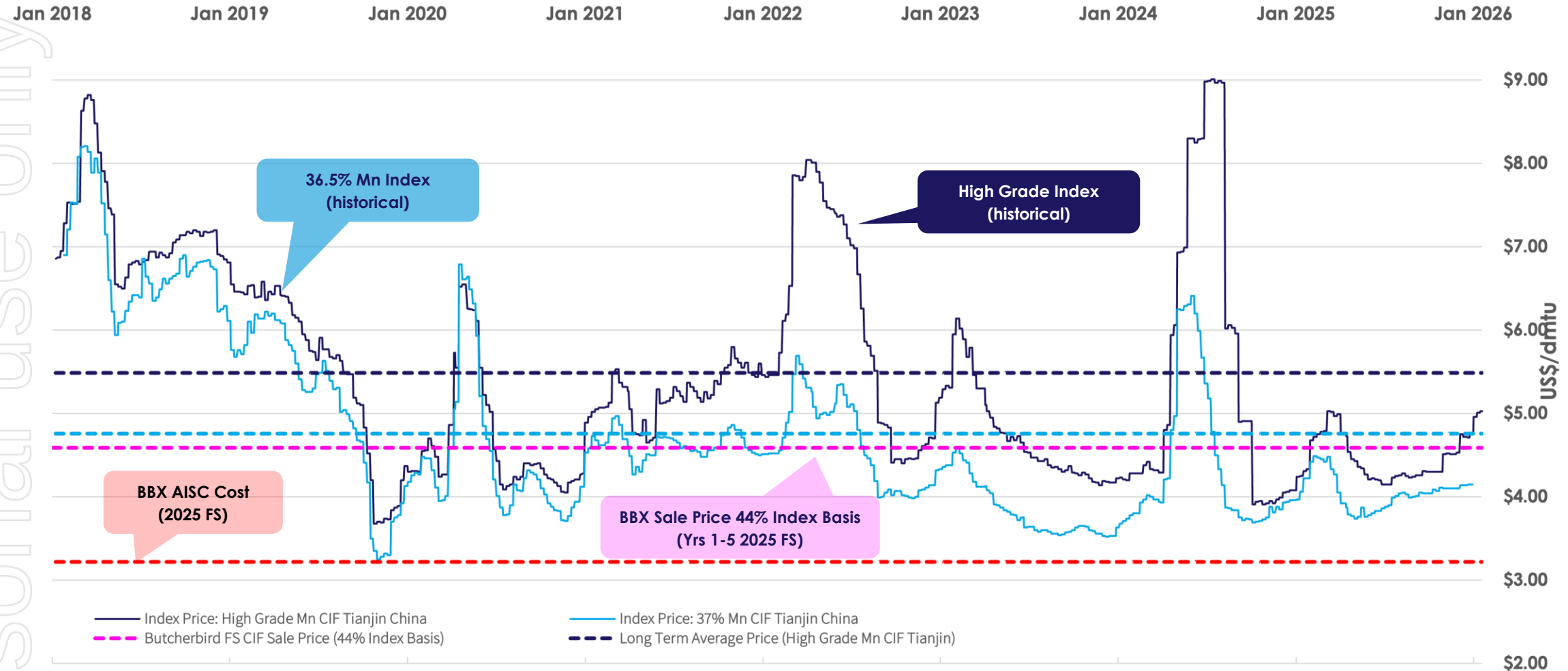


Global Production Cost Curve – US\$/dmu CIF China



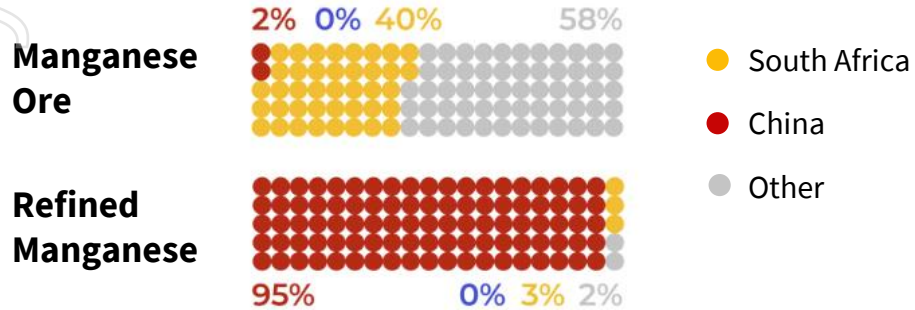
Butcherbird Expansion – Low Costs Underpin Strong Margins

Historical Mn Ore Price Cycles – US\$/dm³ CIF China



High Purity Manganese Strategy

Manganese Is Abundant But Refining Capacity Is Not...



Breaking the Chinese Supply Chain Dominance

- Refined manganese (HPMSM) capacity is heavily concentrated with >95% of refining capacity located in China.
- Concentrated supply creates supply risk for critical raw materials used in batteries including manganese.
- Customers are seeking alternative sources of long-term manganese supply.
- Element 25 provides a long-life mine and a future facing processing technology.

Refined battery grade manganese capacity is heavily concentrated in China.



The Element 25 Process brings significant changes & improvements:



Fewer Reagents



Lower Emissions



No Waste Residue

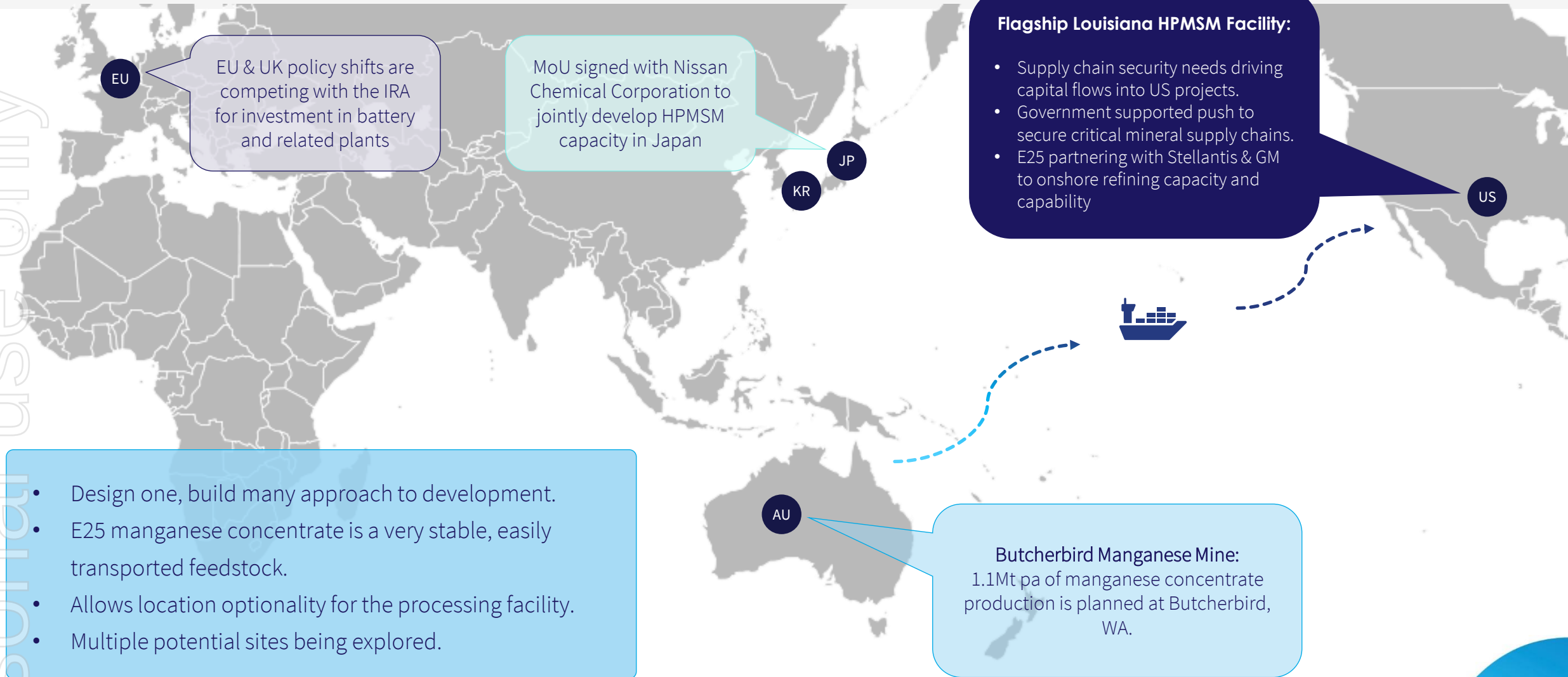
E25 technology enhances ESG profile by:

- Eliminating waste residues.
- Eliminating toxic Reagents like fluorine.
- Increased efficiency and lower costs.
- Faster permitting due to lower impacts.

Cleaner, more efficient
technology to deliver long term
reliable, clean supply of HPMSM

Global Refining Capacity in the Longer Term **

Personal use only



- Design one, build many approach to development.
- E25 manganese concentrate is a very stable, easily transported feedstock.
- Allows location optionality for the processing facility.
- Multiple potential sites being explored.

Manganese is a Key Raw Material in the Energy Transition

- **Battery demand is diversifying beyond EVs:**

Grid storage entering mass deployment, with BNEF reporting 112 GW / 307 GWh of non-pumped hydro storage additions in 2025 and forecasting 158 GW in 2026.

- **Manganese-rich chemistries are moving into OEM volume plans:**

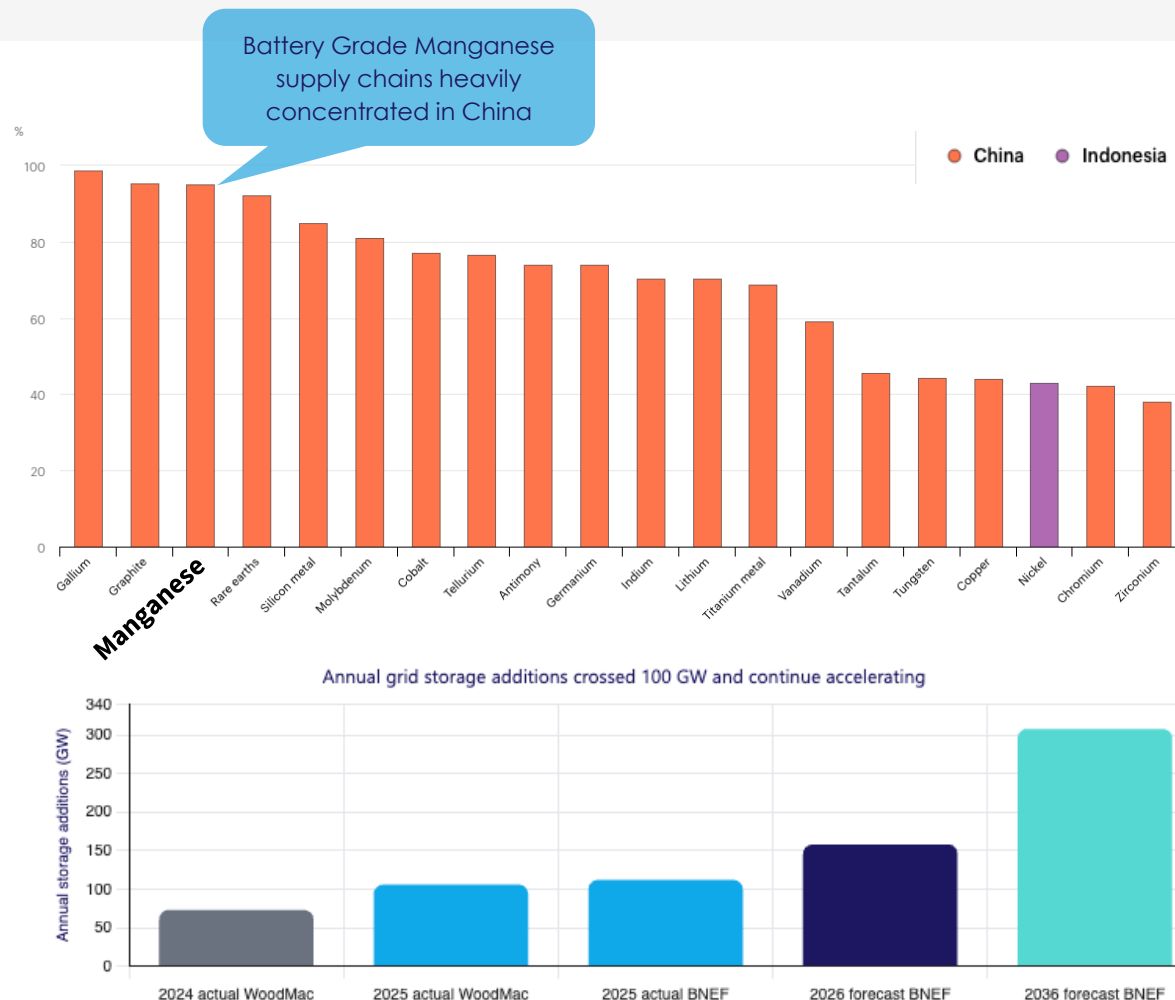
GM and LG Energy Solution commercialising LMR prismatic cells for future GM electric trucks and SUVs, targeting U.S. commercial production in 2028, citing 33% higher energy density than leading LFP cells at comparable cost.

- **HPMSM is emerging as a strategic supply-chain chokepoint:**

IEA identifies high-purity manganese sulphate as a key input for manganese-rich and sodium-ion chemistries - China produces 95% of HPMSM. Announced projects meet only 55% of expected 2035 demand.

- **Defence applications add a second strategic demand driver:**

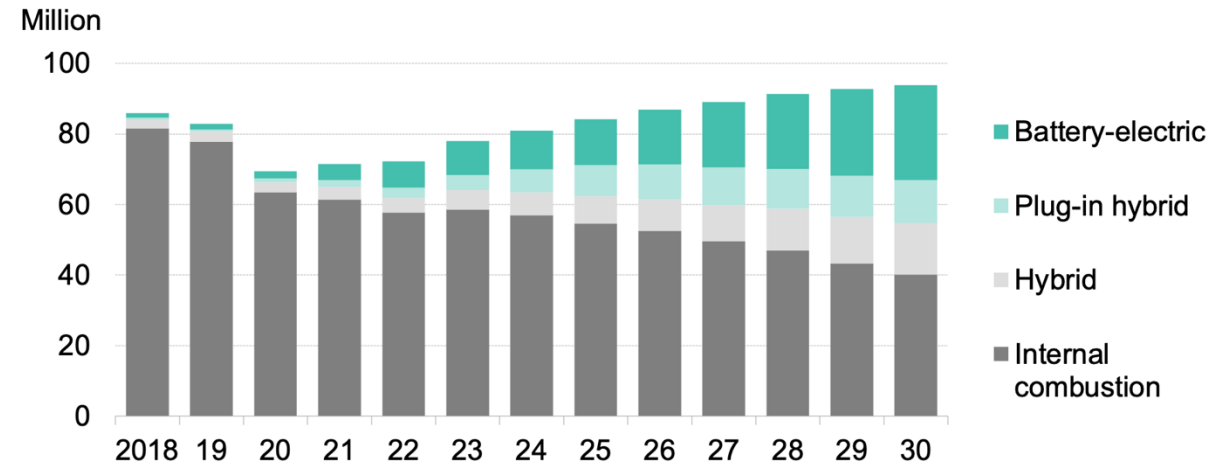
The U.S. DOW states manganese is an essential material used in batteries for DOD and civilian applications, while defence battery programmes are targeting drones, soldier power, ground vehicles and aviation..



EV market share continues to grow:

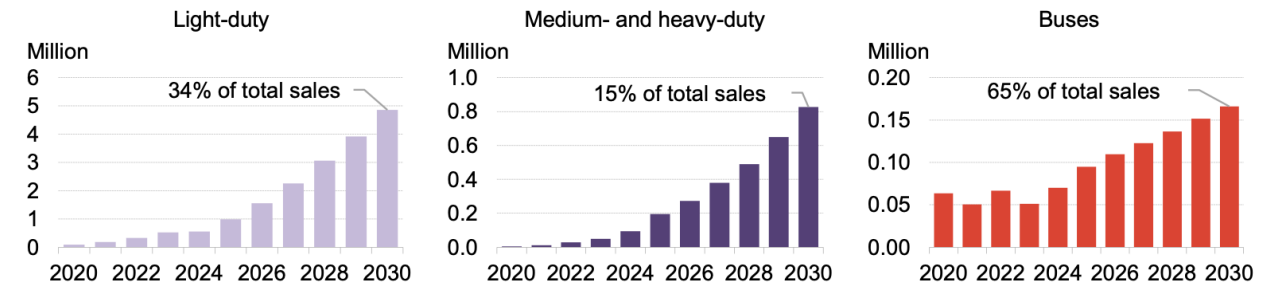
- Electric vehicles to reach over 50% market penetration by 2030 according to Bloomberg NEF.
- Short-term policy settings have reduced uptake in some markets but medium-term demand forecasts remains bullish.
- Critical raw material supply remains a key geopolitical challenge with near total dominance by China of key raw materials including manganese.
- Battery grade manganese expected to see strong demand due to increase in electric vehicle sales and shift to higher manganese cathode materials.

Global passenger-vehicle sales by drivetrain



Source: BloombergNEF

Near-term global sales outlook for electric and fuel-cell vans, trucks and buses

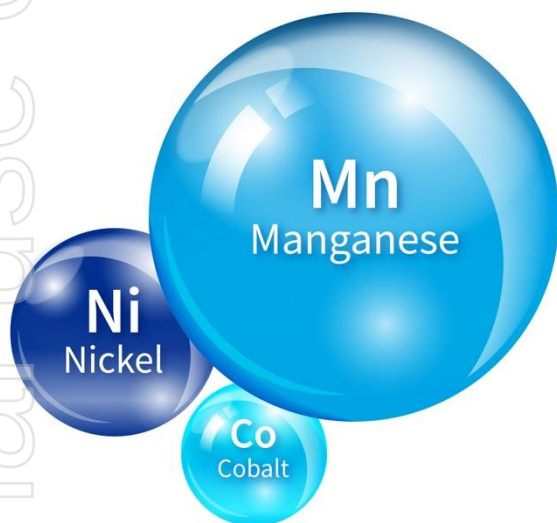


Source: BloombergNEF. Note: Electric vehicles include battery-electric and plug-in hybrid vehicles. Buses include city buses apart from China, which also includes coaches and intercity buses.

Transition to Higher Manganese Battery Cathodes

LMFP, LMR, LMNO and NM_x cathode chemistries offer improved safety, higher energy density, reduced cost per kWh and greater supply chain flexibility.

High Mn means reduced reliance on Ni and Co:



Reduced nickel and very low to no cobalt content.

Reference: Umicore 2023



LMR Cell Production at Ford Ion Park

Ford Makes Breakthrough with LMR Battery Chemistry: Targeting More Affordable, Long-Range Electric Vehicles by End of Decade



Charles Poon
Director, Electrified Propulsion Engineering

April 23, 2025



NEWS



May 13, 2025 | TECHNOLOGY

Why LMR batteries will change the outlook for the EV market

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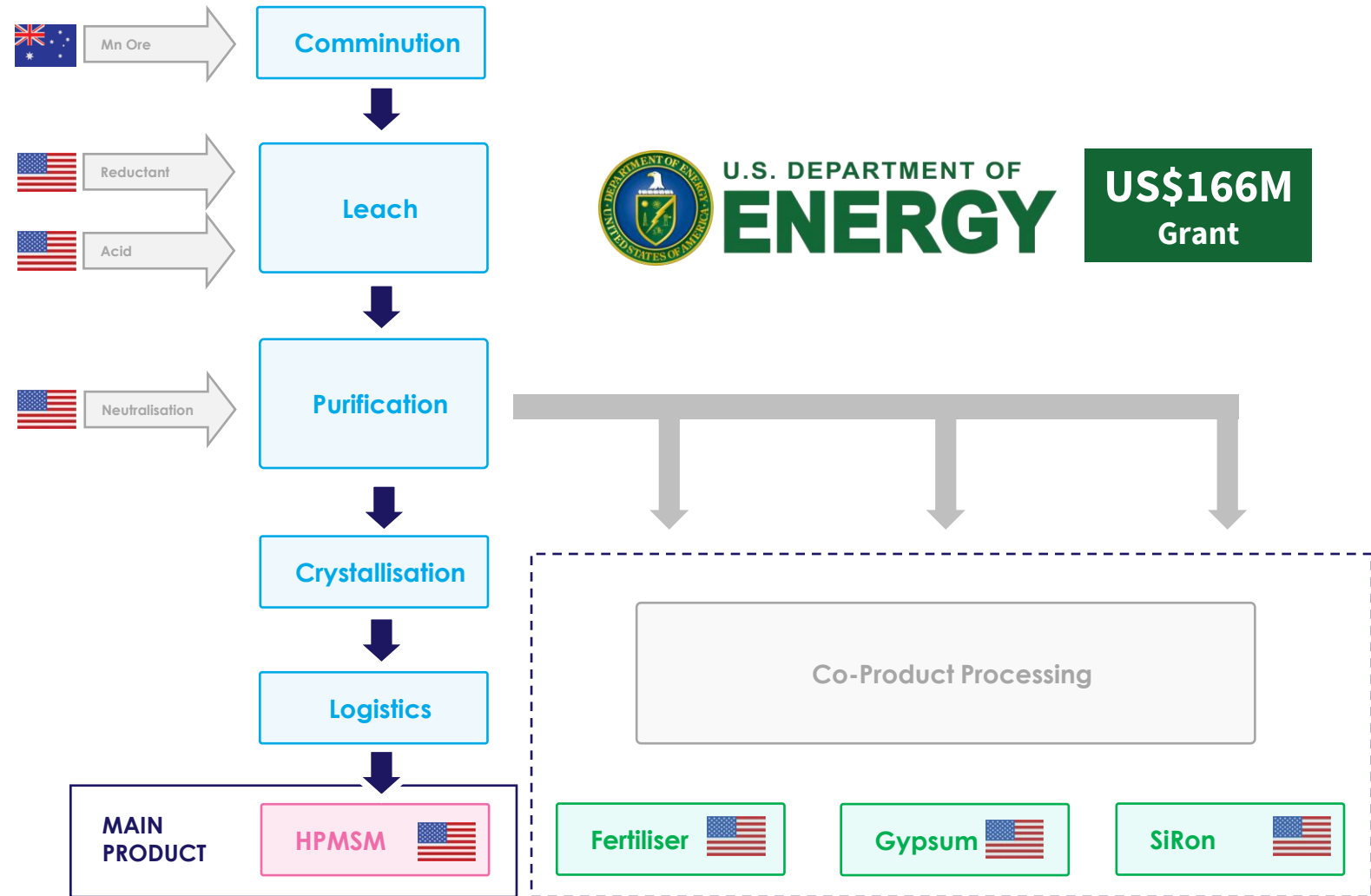
By Kushal Narayanaswamy, director,
advanced battery cell engineering, GM



Louisiana Battery Grade HPMSM

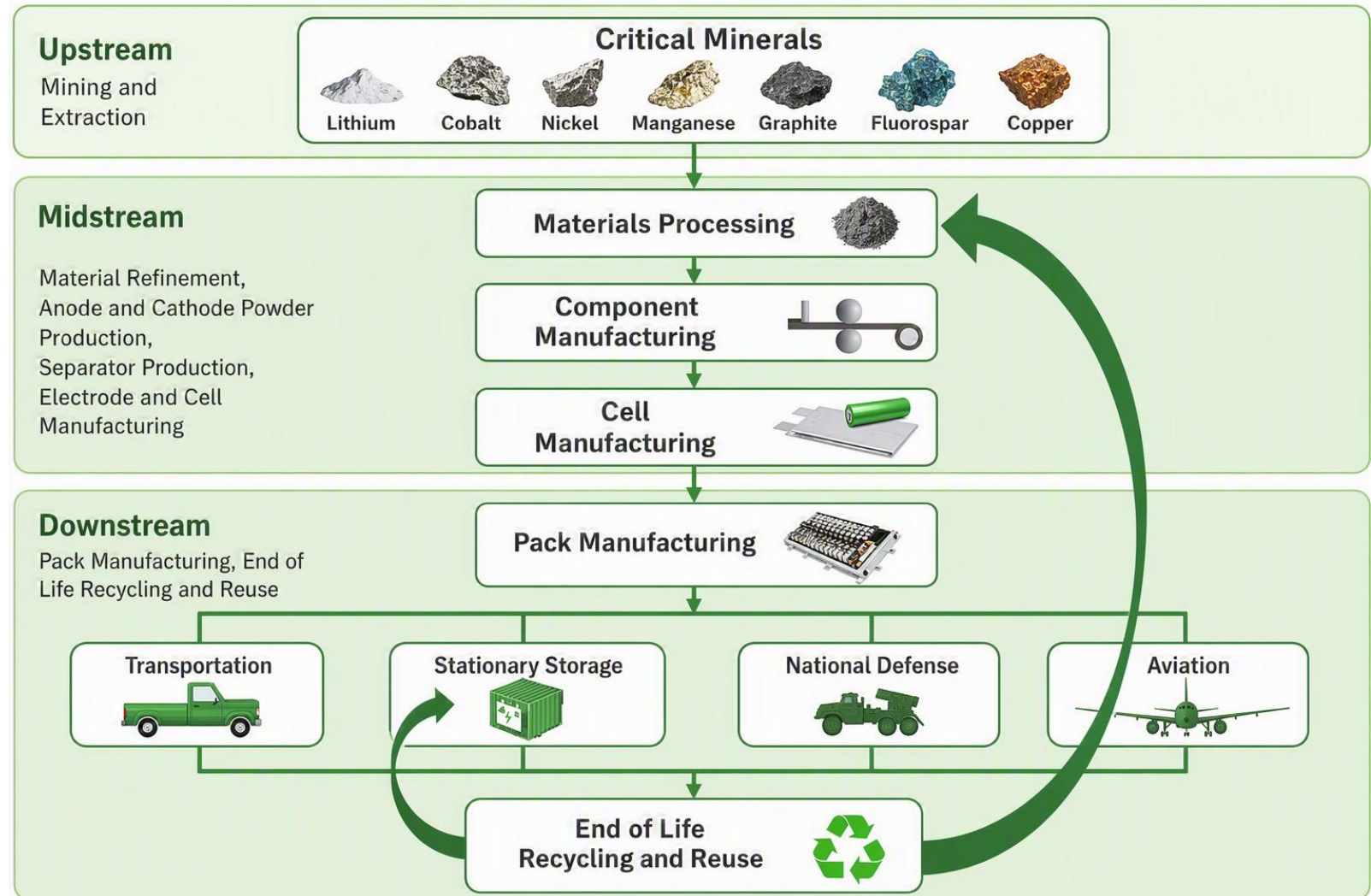
Local Supply Chain

- Process and supply chain developed to maximise U.S. industry involvement.
- Working with partners GM and Stellantis to supply low carbon HPMSM for EV batteries.
- All reagents sourced locally from established suppliers.
- Site located close adjacent to acid recycling facility.
- Solid residues as co-products will be placed into local industries targeting zero waste.
- Low carbon, circular economy approach.



The MESC Grant Program:

- The Battery Manufacturing and Recycling Grants Program provides grant funding to selected projects on a co-funding basis.
- The Program aims to ensure that the United States has a viable domestic manufacturing and recycling capability to support a North American battery supply chain.
- The Program is designed to ensure that the United States has a viable battery materials processing industry.



Strong Project Support:

- US\$166M DoE grant funding.
- Major global OEM partners.
- US government critical minerals policies.

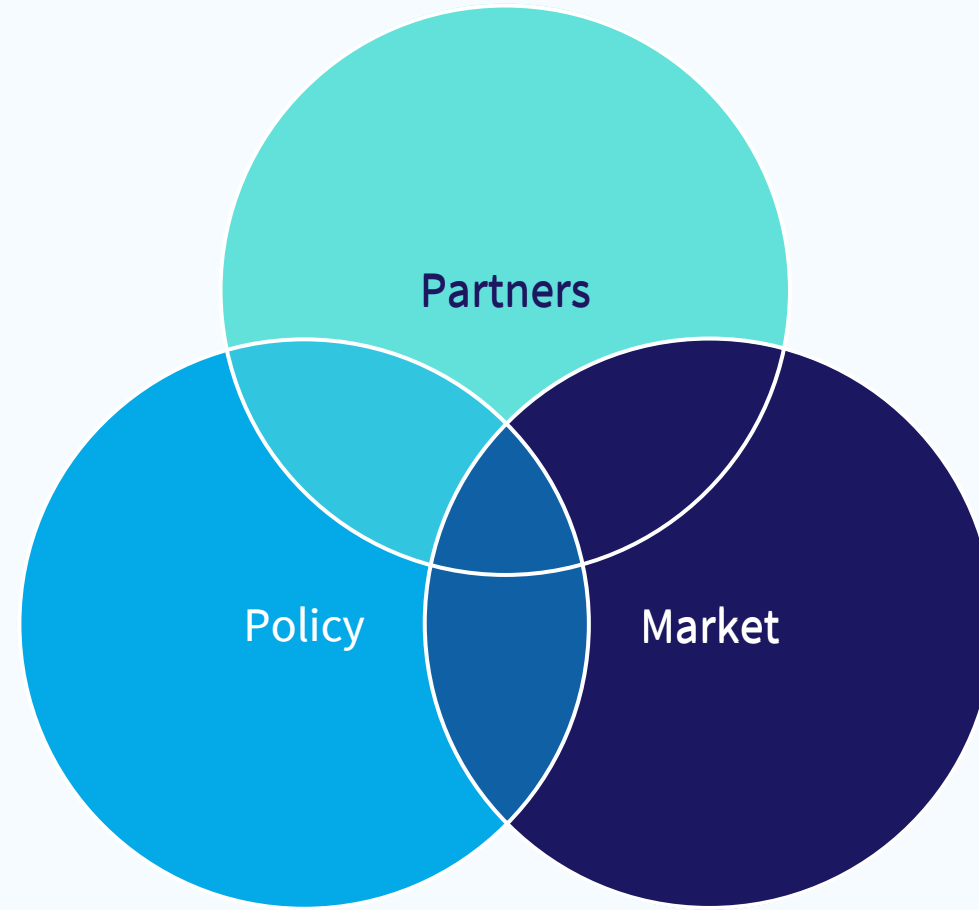
The Louisiana Project is Strategic:

- First-of-kind US HPMSM refinery.
- Key enabler of secure, non-China battery supply chain.

Strengthening Investment Case:

- Shift toward high-manganese cathode chemistries (LMR / LMFP / LMNO).
- Surge in grid storage applications for batteries.
- Increasing reliance on batteries in defence sector.

Project timing under strategic review to ensure stakeholders alignment:



Sustainable, Secure Manganese Supply



Long Mine Life at Butcherbird

- 18.3-Year Reserve within granted Mining Lease
- 274Mt Resource global resource with exploration upside



Construction Ready

- Feasibility Study and project permitting complete
- Northern Australia Infrastructure Facility (NAIF) finance of up to \$50M approved



ESG Leading HPMSM Flowsheet

- Life cycle assessment (LCA) completed confirming industry leading carbon intensity
- Further reductions available via renewable energy and reagents



Strong Feasibility Study/Financials

- \$64.8M Construction Capital (\$70.5M approved NAIF project budget)
- 96% Internal Rate of Return (IRR) and \$561M Net Present Value (NPV) (Pre-Tax, Real)



Innovative HPMSM Flowsheet

- Competitive cost structure through innovation
- Waste minimisation and reduced emissions provides competitive advantages



Tier 1 Jurisdiction

- Australian owned and operated mine providing long term secure ethical Mn supply
- USA, Japan and EU Partnerships to enhance battery raw material supply chains



Tier 1 Project Customers & Partners

- Stellantis N.V and General Motors LLC – Louisiana HPMSM Project
- Nissan Chemical Corporation – Tokyo Bay Japan HPMSM Project

Planned HPMSM facility in Louisiana, USA



For Illustration Purposes Only

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Crushing Circuit:

Improved clay handling

- Learnings from the Stage 1 Pilot showed that high clay feed material can cause throughput challenges in the crushing circuit.
- Production impacts materially compromises unit costs in a bulk operation.
- Mineral sizer designed to handle clay rich feed material.



Butcherbird Stage 1 Pilot
Grizzly/Jaw Crusher



Process Upgrade: Mineral Sizer /Rolls Crusher

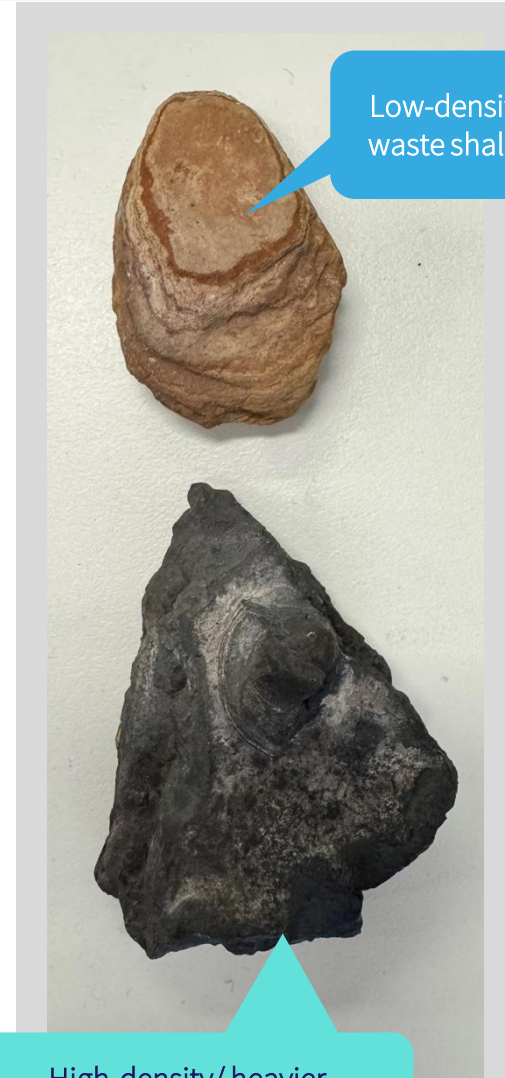


Examples of Mineral Sizers in
use in similar settings to BBX

Dense Media Drum:

Improved grade & recovery

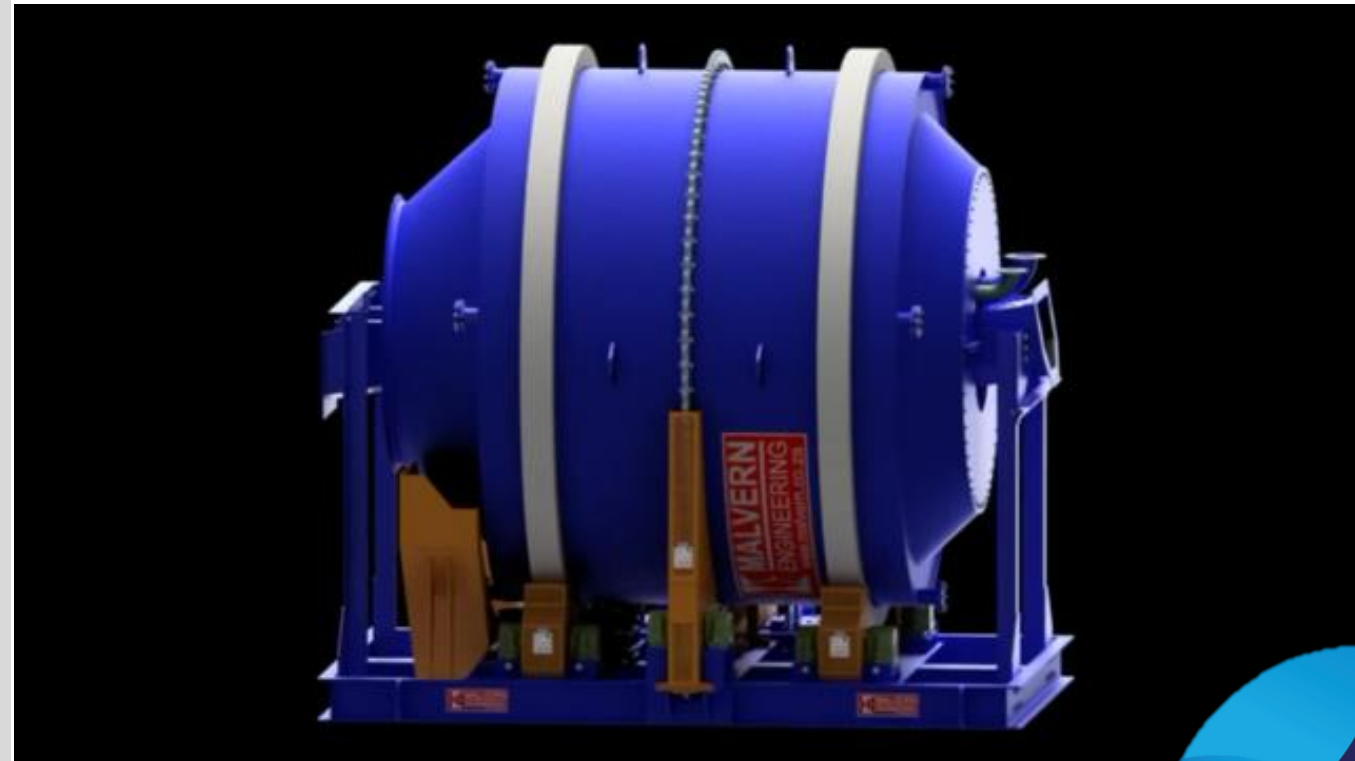
- Separate ore from gangue based on density not optics/colour
- Eliminate separation challenges associated with imperfect washing and ore presentation.
- Widely used process technology – low risk approach suited to larger scale operation.



Low-density/lighter waste shale particle

High-density/ heavier manganese product particle

Dense media Separation (DMS) is a mature process technology used in a wide range of mineral processing plants including iron ore and manganese to separate lighter waste material from denser ore material by floating the waste in a ferro-silicon slurry to create separate product and waste streams.



Ore Reserve¹

Deposit	Classification	Tonnes (Mt)	Grade (Mn%)	Contained Mn (Mt)
Yanneri Ridge	Proved	11.3	11.8	1.33
	Probable	70.4	10.2	7.15
Coodamudgi	Proved	-	-	-
	Probable	19.1	10.3	1.97
Stockpiles	Proved	0.6	9.2	0.06
Total		101.4	10.4	10.5

Mineral Resource²

Resource Category	Tonnes (Mt)	Mn (%)
Measured	14	11.3
Indicated	116	10.1
Inferred	144	9.8
Total	274	10.0

- Current Reserve:
 - Only utilises approximately ~40% of global Mineral Resource;
 - Provides for a mine life of >18 years¹.
- High conversion of measured and indicated resources to reserve.
- Excellent potential for future expansion with known mineralisation outside resource areas.
- Simple geology, low technical risk.
- Global resources not closed off.

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled by Mr Justin Brown who is a member of the Australasian Institute of Mining and Metallurgy. At the time that the Exploration Results and Exploration Targets were compiled, Mr Brown was an employee of Element 25 Limited. Mr Brown is a geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Brown consents to the inclusion of this information in the form and context in which it appears in this report.

The Company confirms that in the case of Production Targets, all material assumptions underpinning the production target, or the forecast financial information derived from a production target, in the market announcement dated 22 January 2025 continue to apply and have not material changed.

The Company confirms that in the case of estimates of Mineral Resource or Ore Reserves, all material assumptions and technical parameters underpinning the estimates in the market announcements dated 29 October 2024 and 22 January 2025 continue to apply and have not materially changed. All estimates of Mineral Resources or Ore Reserves underpinning the production target have been prepared by a competent person/s in accordance with the requirements of the JORC Code, Appendix 5A. The Company confirms that it is not aware of any new information or data that materially affects information included in previous announcements, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

Please note with regard to exploration targets, the potential quantity and grade is conceptual in nature, that there has been insufficient exploration to define a Mineral Resource and that it is uncertain if further exploration will result in the determination of a Mineral Resource.

For further information on Element 25 Limited and its Projects please visit its website at www.element25.com.au which contains copies of all continuous disclosure documents to ASX, Competent Persons' Statements and Corporate Governance Statement and Policies.

This release has been approved by the Element 25 Limited Board of Directors.