

## Building a Global Manganese Business

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

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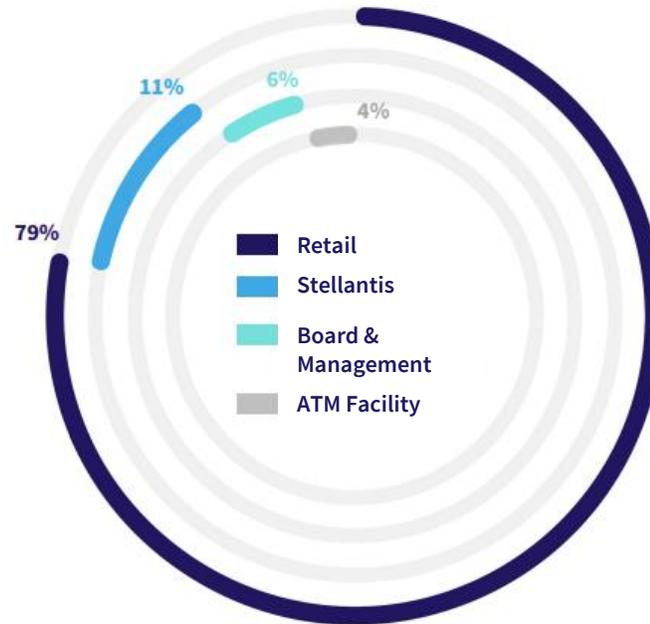
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Expanding the 100% owned Butcherbird Manganese Mine in Western Australia to produce high-quality manganese oxide concentrate.

Developing a USA-based refinery to supply ethical battery-grade High Purity Manganese Sulphate Monohydrate (HPMSM) products.

Offtake and funding agreements in place with our partners General Motors and Stellantis to supply HPMSM for Electric Vehicle batteries.

Share Register:

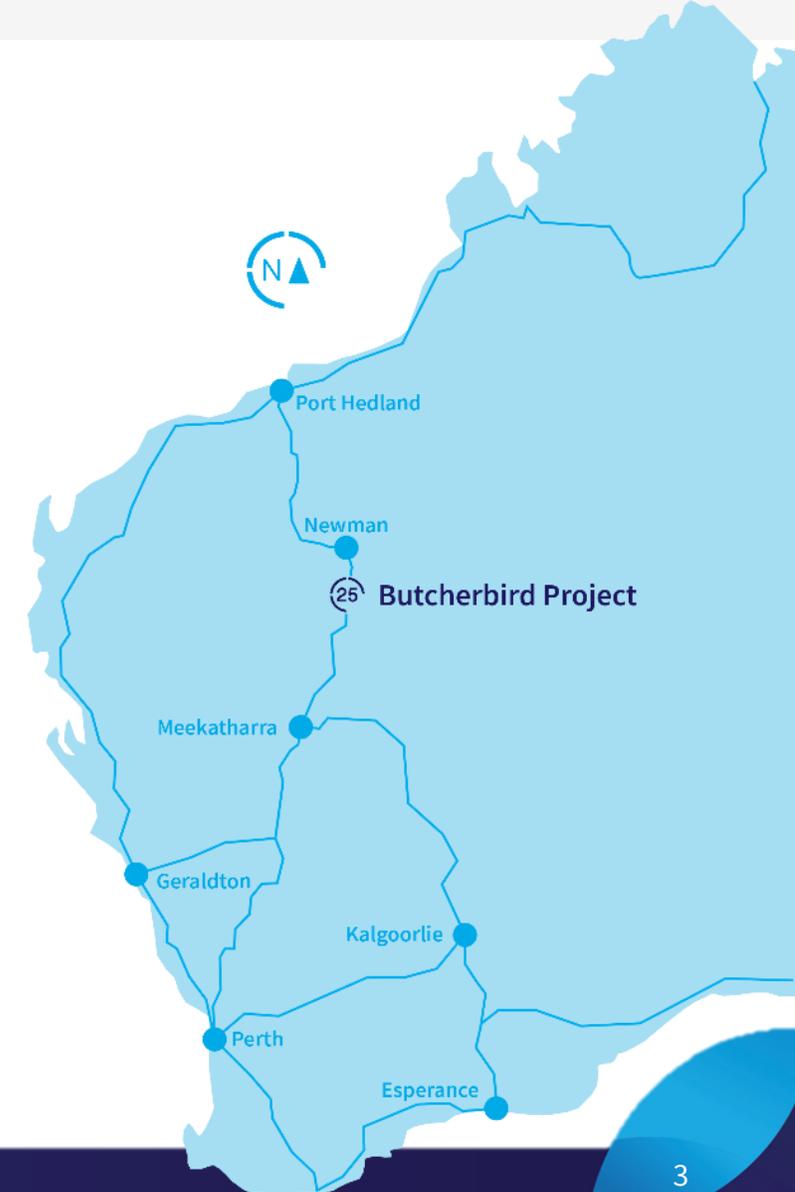


  
ASX Ticker:  
**E25**

  
OTCQX Ticker:  
**ELMTF**

  
Shares on Issue:  
**265M**

  
Debt:  
**NIL**



## Butcherbird Expansion

1.1Mt p.a. Manganese Concentrate<sup>1</sup>

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



## Louisiana HPMSM

USA Critical Raw Materials<sup>2</sup>

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**

<sup>1</sup> Reference: Company ASX Release Dated 22 January 2025

<sup>2</sup> Reference: Company ASX Release Dated 12 April 2023

# The Butcherbird Manganese Project

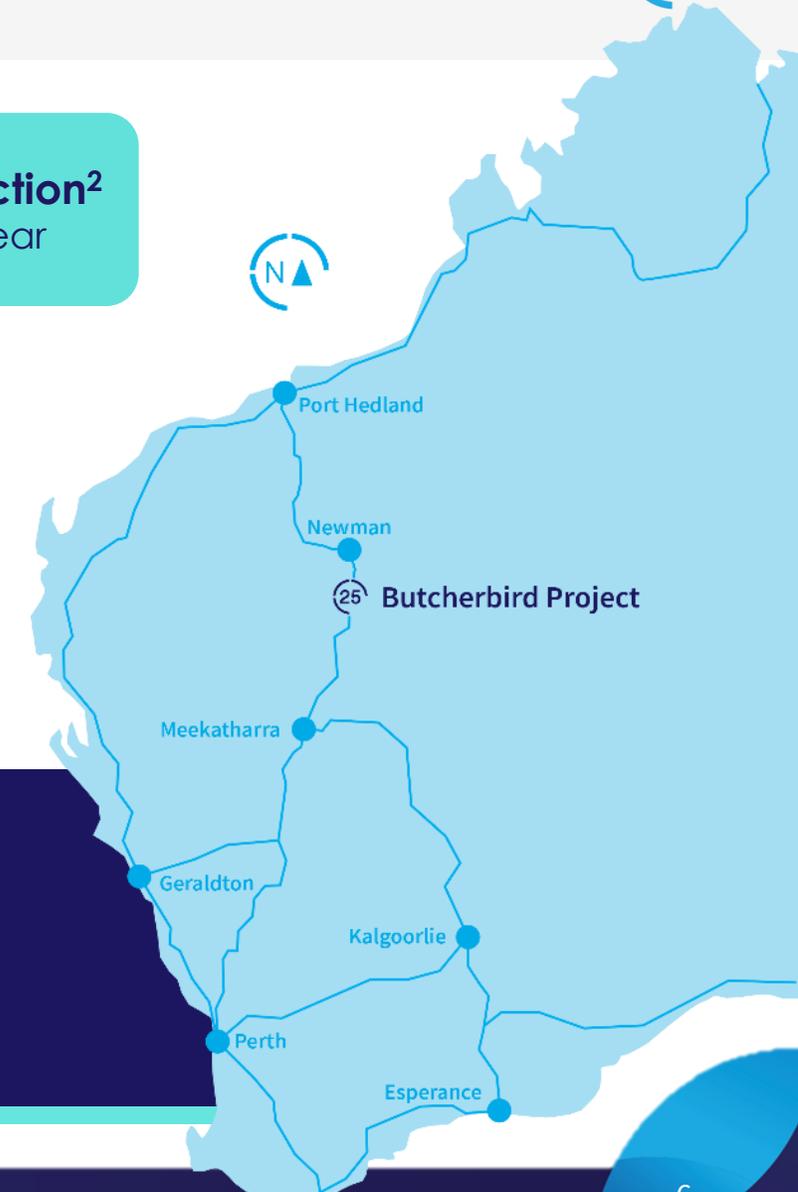
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**World Class Resource<sup>1</sup>**  
>270M tonnes

**Long-Life Mine**  
>18 years production

**Large Scale Production<sup>2</sup>**  
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).

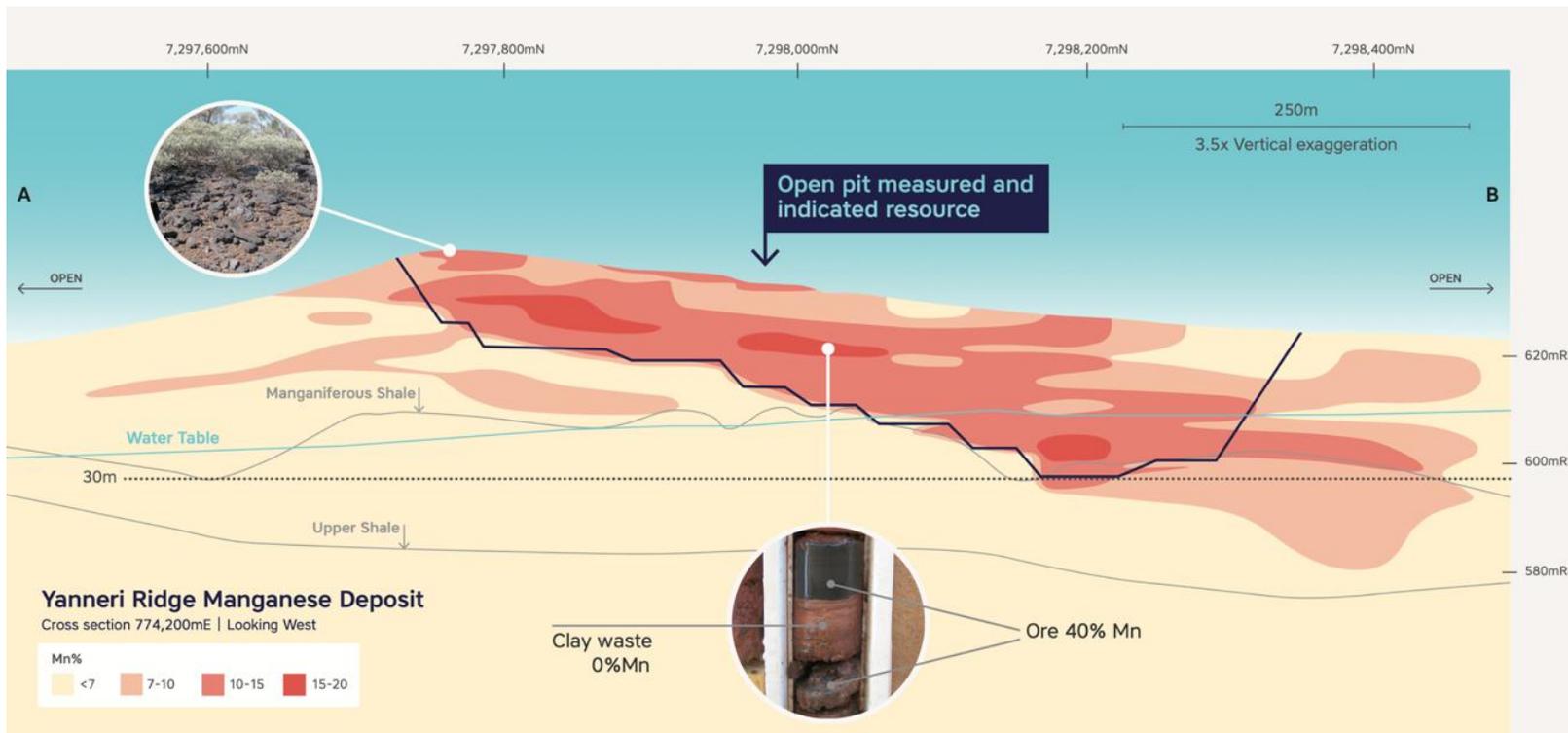


Providing high quality manganese for traditional and new energy markets.

<sup>1</sup> Reference: Company ASX Release Dated 29 October 2024

<sup>2</sup> Reference: Company ASX Release Dated 21 February 2023

Classification	Tonnes (Mt)	Mn (%)	Contained Mn (Mt)
Resource <sup>1</sup>	274	10.0	27.4
Reserve <sup>2</sup>	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.

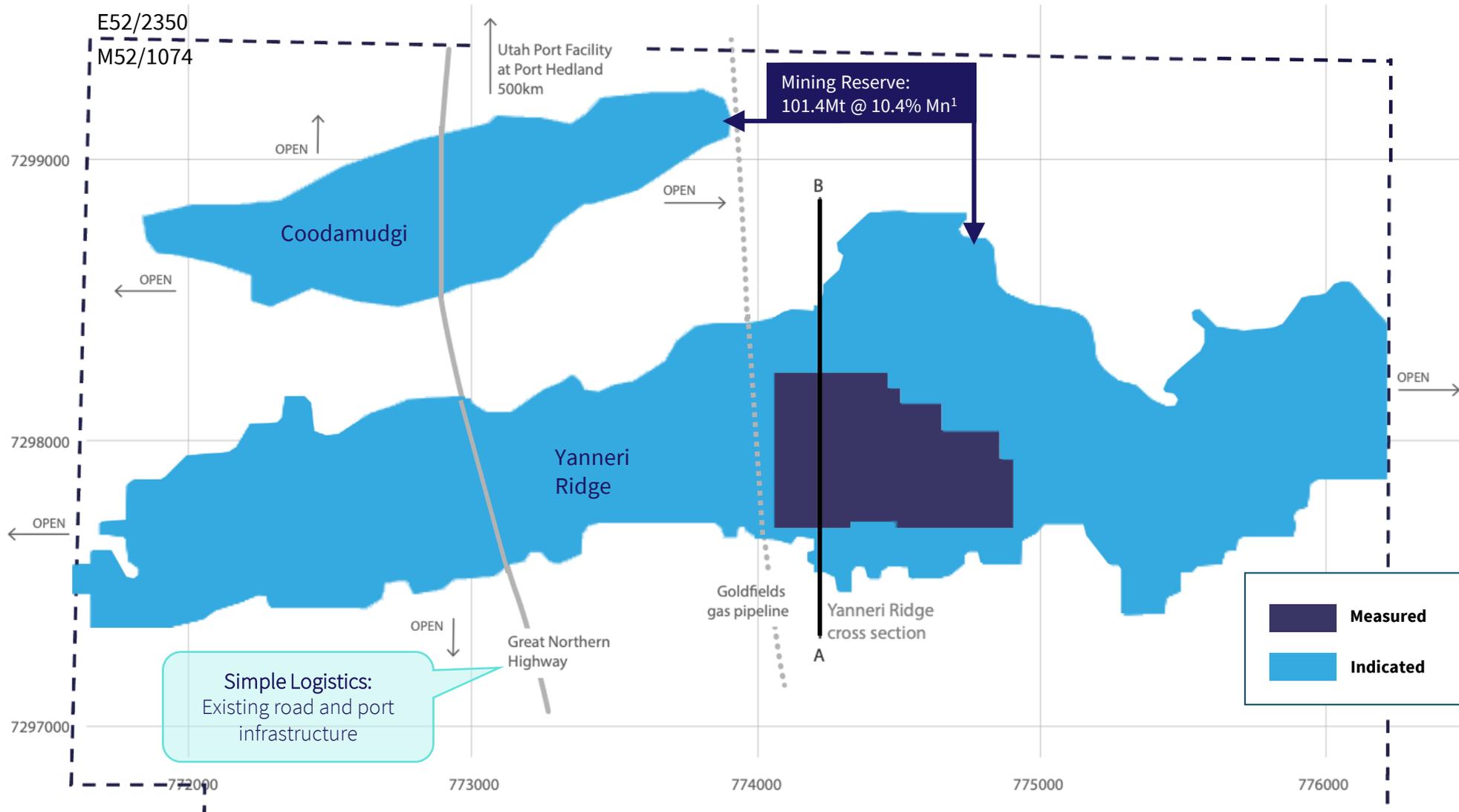
## ENVIRONMENTALLY BENIGN OPERATION

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

<sup>1</sup> Reference: Company ASX Release Dated 29 October 2024 (Mineral Resource Estimate Update)

<sup>2</sup> Reference: Company ASX Release Dated 22 January 2025

# Large, Long-Life Manganese Mine in Western Australia



## CONSTRUCTION READY

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

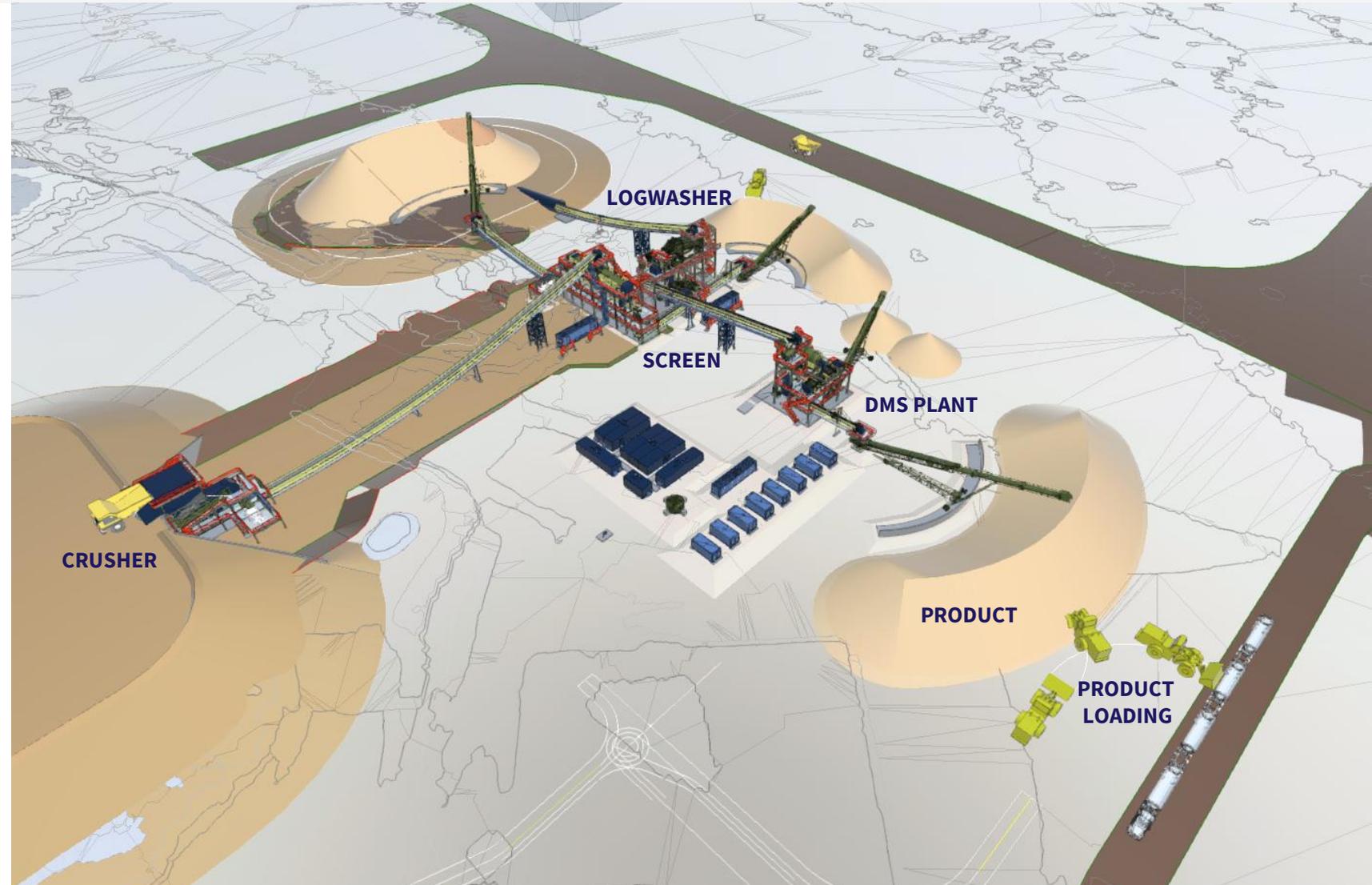
<sup>1</sup>Reference: Company ASX Release dated 22 January 2025

<sup>2</sup>Reference: Company ASX Release dated 29 October 2024

# 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 <sub>8</sub> (Real) (Pre-Tax)	AUD	\$561M
NPV <sub>8</sub> (Real) (Post-Tax)	AUD	\$379M
IRR (pre-tax)	%	96%
Op. Cost C1 (FOB)	USD/dmtu	\$2.86
Capital Cost	AUD	\$64.8M



<sup>1</sup>Reference: Company ASX Release Dated 22 January 2025

<sup>2</sup>Reference: Company ASX Release Dated 7 October 2024

## Upgrade 1 - Crushing:

### Opportunity: Better clay handling

- High clay feed material can cause throughput challenges in the crushing circuit.
- Production impacts materially compromises unit costs in a bulk operation.

## Solution – Design Change

### Two stage mineral sizer solution.

- Eliminate grizzly
- Designed for clay rich feed
- Will handle wet or dry feed



Butcherbird Stage 1 Pilot Grizzly/Jaw Crusher



Process Upgrade:  
Mineral Sizer /Rolls Crusher



Examples of Mineral Sizers in use in similar settings to BBX

## Upgrade 2 – Quality/Grade:

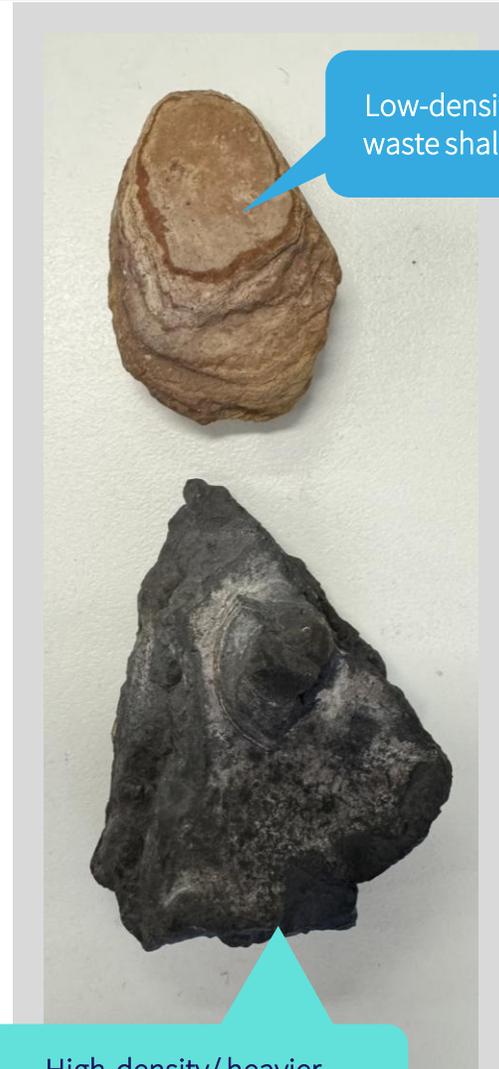
### Opportunity: Improve Product

- More effective separation of ore from waste.
- Increased product grade (improved sale price).
- Increase recovery and yield.

## Solution – Design Change

### Replace ore sorters with DMS.

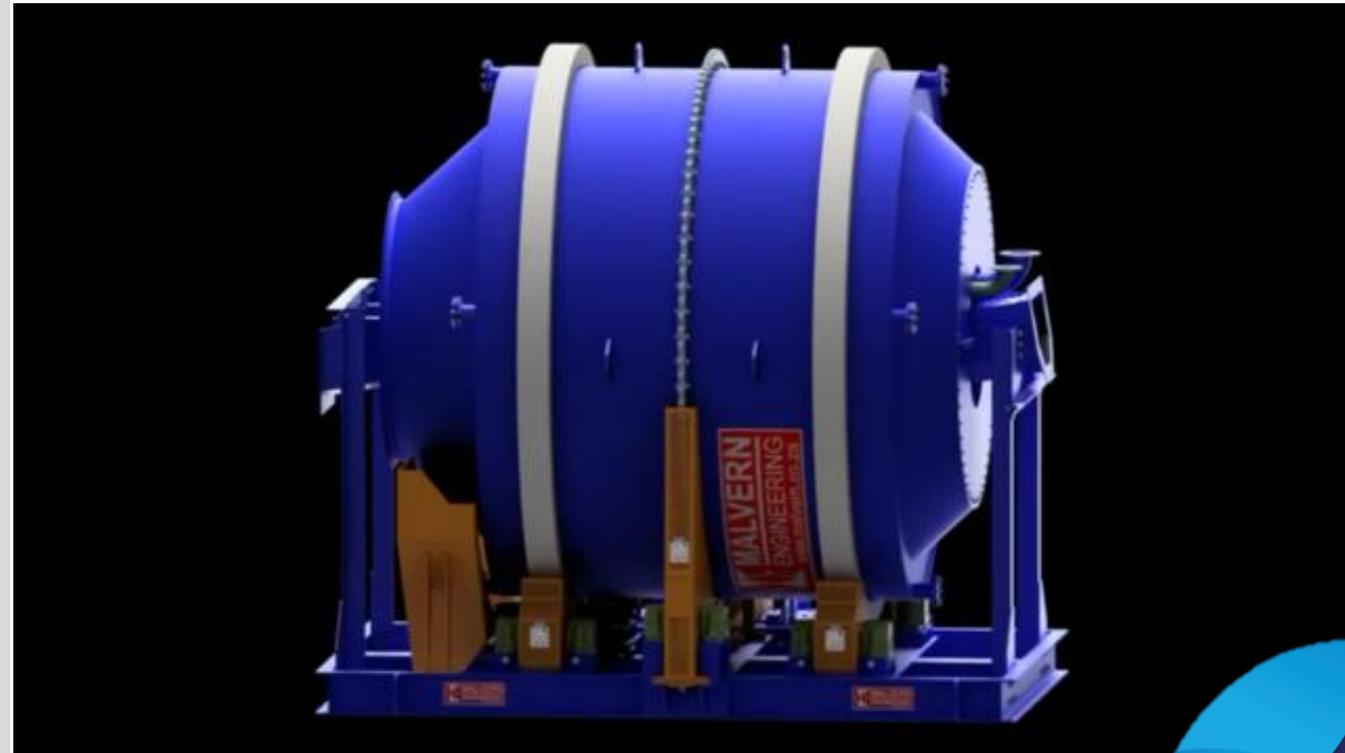
- Separate ore from gangue based on density not optics/colour
- Eliminate separation challenges associated with imperfect washing and ore presentation.



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.





Capital Cost

AU\$64.8

(incl. contingency)



NPV<sub>8</sub>

AU\$561M

(Pre-tax, real)



IRR

96%



Cashflow

AU\$70.5M

(annual)



Payback

1.3

(years)

## AUSTRALIAN FEDERAL GOVERNMENT (NAIF) TO PROVIDE \$50 MILLION FINANCE PACKAGE FOR BUTCHERBIRD EXPANSION PROJECT<sup>2</sup>



The expansion will establish Butcherbird as a low-cost manganese operator (US\$ 2.86/dmtu C1 cost) able to produce high-quality manganese concentrate at a globally competitive operating cost.



The Feasibility Study utilises all the available measured and indicated resources within the 18.3-year mine plan supporting this Study.



Low capital requirement of AU\$64.8M capital in total construction costs including process and non-process infrastructure. Average base case annual operating cashflow of AU\$ 70.5M at full production.



Forecast cashflows generate a simple payback period of 16 months from commencement of operations.

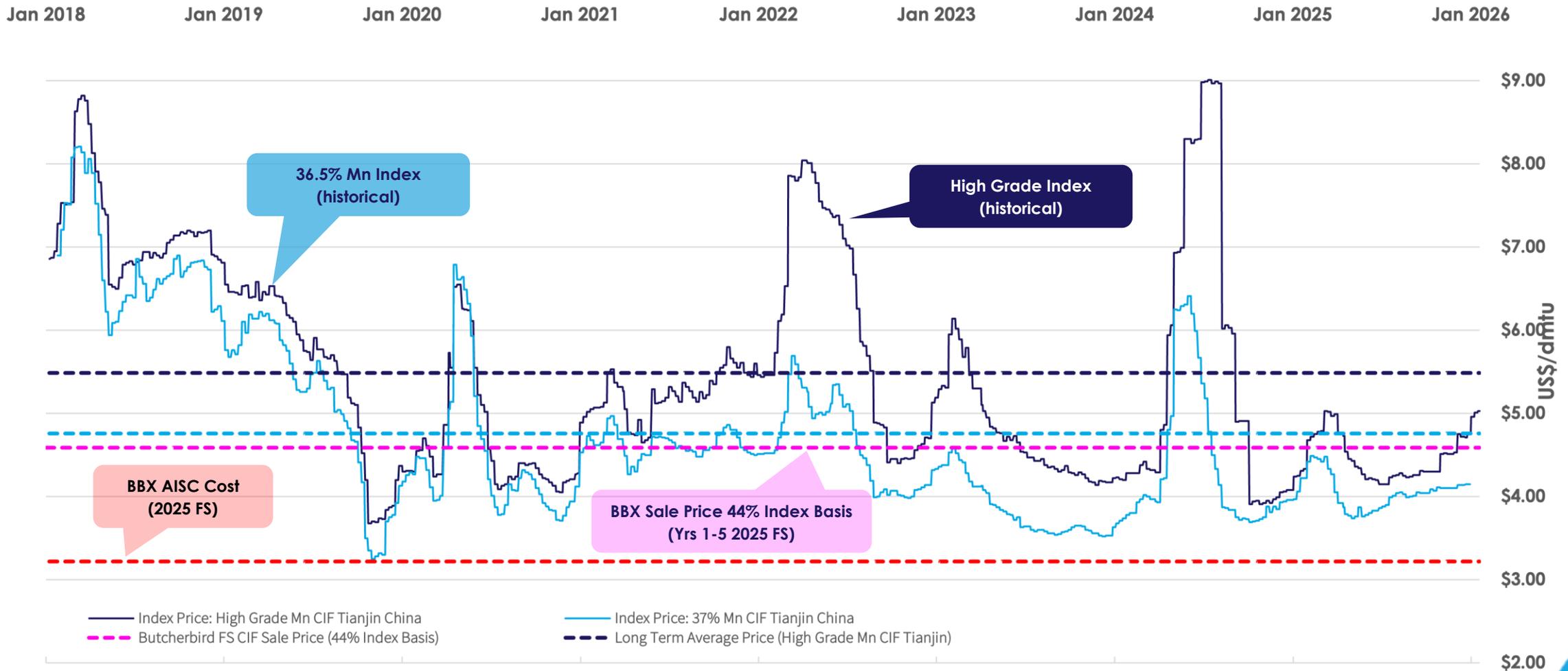
- Northern Australia Infrastructure Facility (NAIF) to provide up to AU\$50 million senior debt facility for Element 25's Butcherbird Manganese Expansion Project<sup>2</sup>.
- Butcherbird development based on a 1.1 Mtpa manganese concentrate operation and delivers outstanding metrics<sup>1</sup>.
- Manganese concentrate to be sold to steel industry partners and provide feedstock for E25's planned HPMSM facility in Louisiana, USA.
- Butcherbird Expansion plan is fully approved under WA Regulatory Framework<sup>3</sup>.
- NAIF to act as the sole senior secured lender to the project - the balance of funds to be sourced from financiers including offtake prepayment, subordinated debt and royalty financing as potential mechanisms.

<sup>1</sup>Reference: Company ASX Release Dated 22 January 2025

<sup>2</sup>Reference: Company ASX Release Dated 17 June 2025

<sup>3</sup>Reference: Company ASX Release Dated 12 March 2025

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





- Detailed engineering well advanced utilizing Integrated project Team (IPT) approach.



- Long lead time procurement progressed with orders placed for crusher and logwasher equipment.

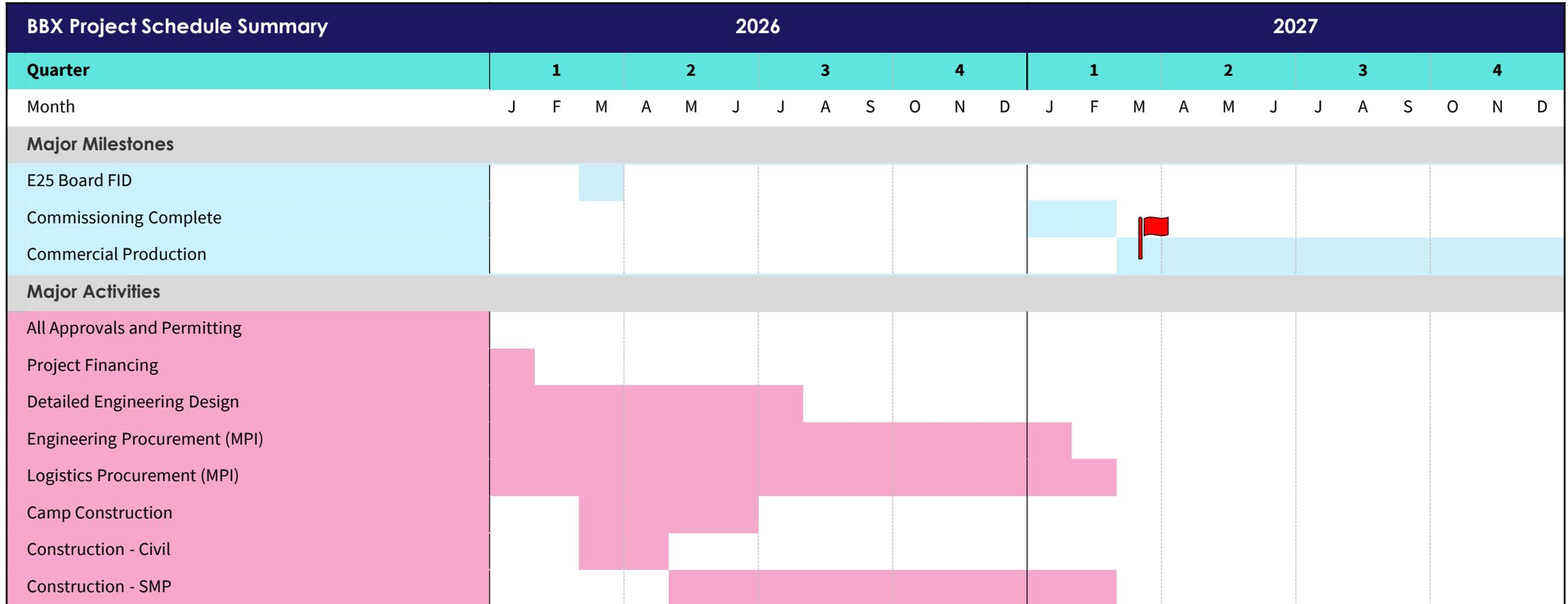


- Key construction and operational contracts being finalised including road haulage, mining, port and offtake.



- Fully permitted under Department of Local Government, Industry Regulation and Safety (LGIRS) regulations.

# Butcherbird Expansion Project Timeline Guidance

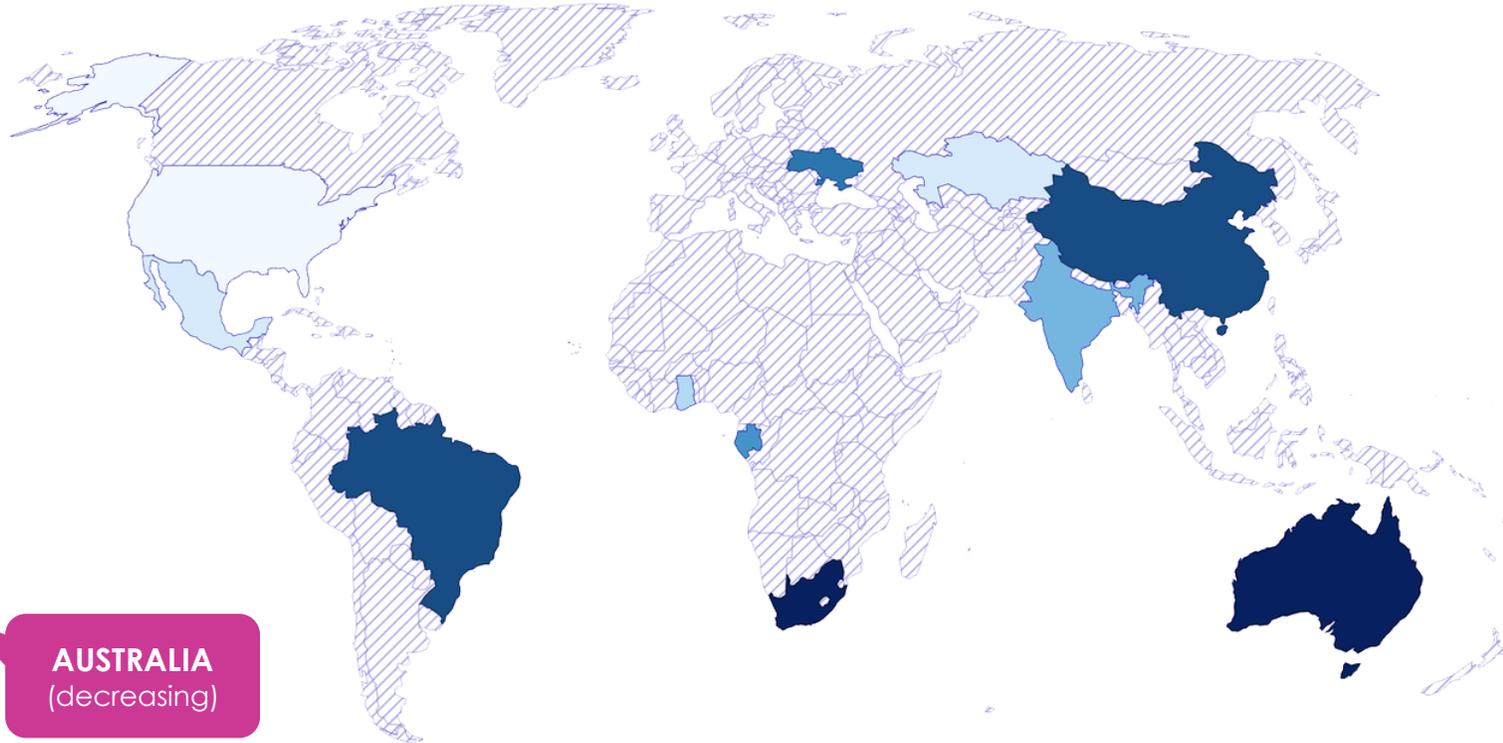


The schedule remains subject to a number of key dependencies including achieving project financial close, completion of detailed engineering, procurement of key equipment and finalising the construction contract(s) in accordance with the planned key dates.

# High Purity Manganese Strategy

- 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 global distribution:

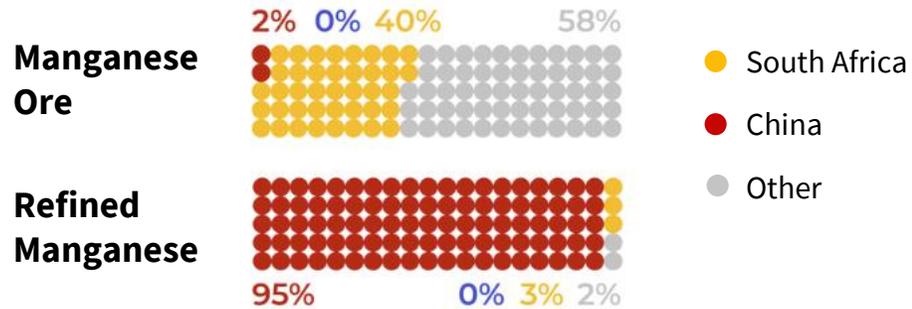


## Manganese Ore Production 2020-2024:



**AUSTRALIA**  
(decreasing)





## 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



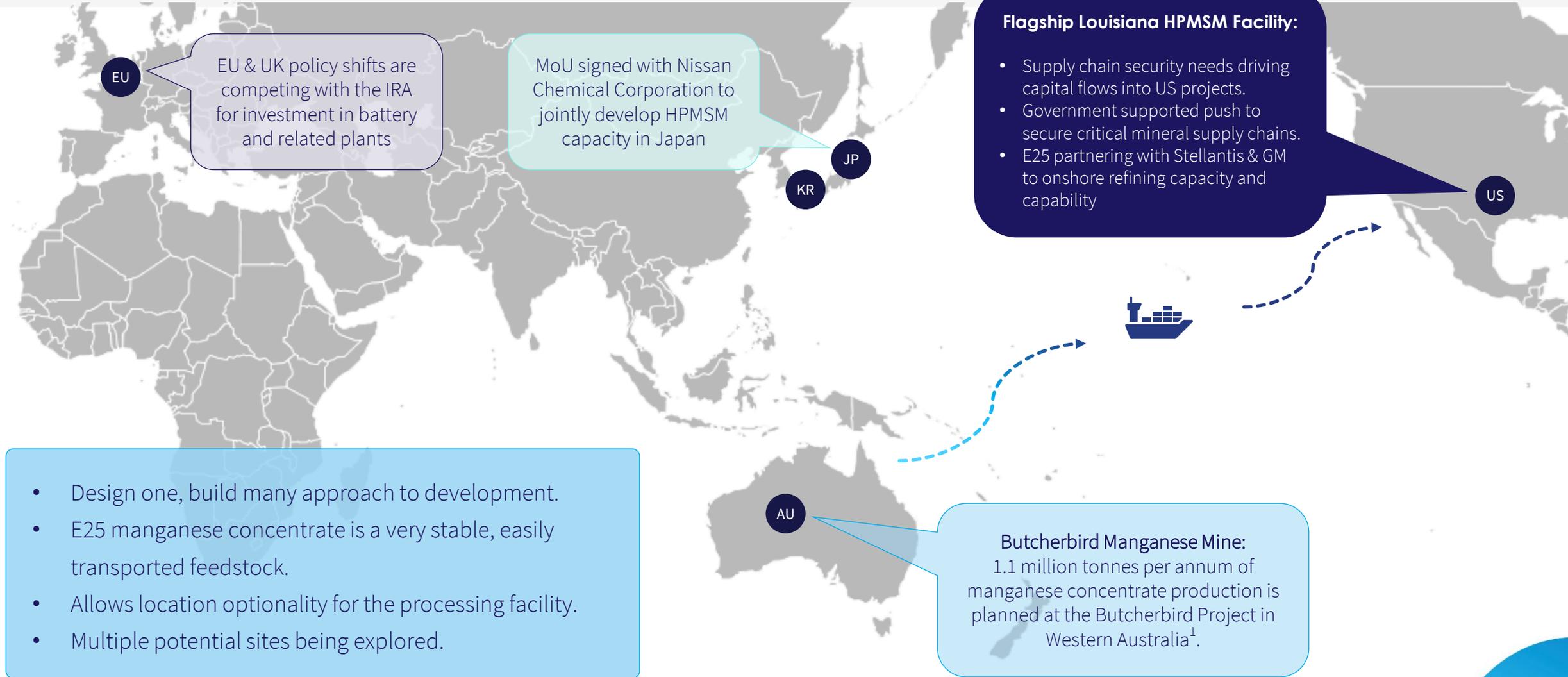
No Waste Residue

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**

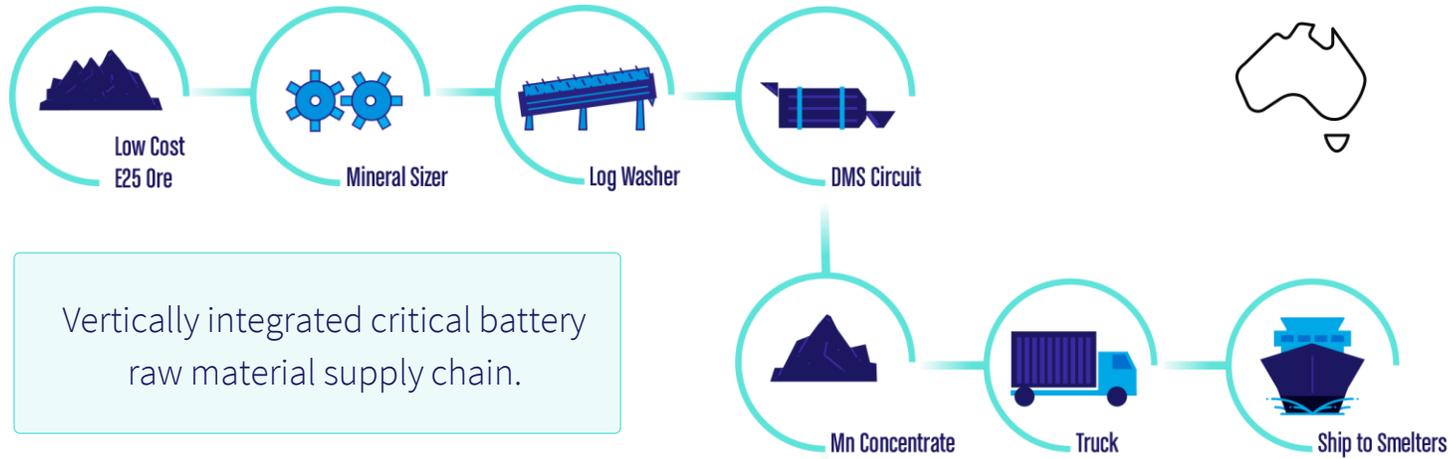
# Global Refining Capacity in the Longer Term \*\*



- 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.

<sup>1</sup> Reference: Company ASX Release Dated 22 January 2025

# World-First Non-China HPMSM Refinery – Louisiana USA

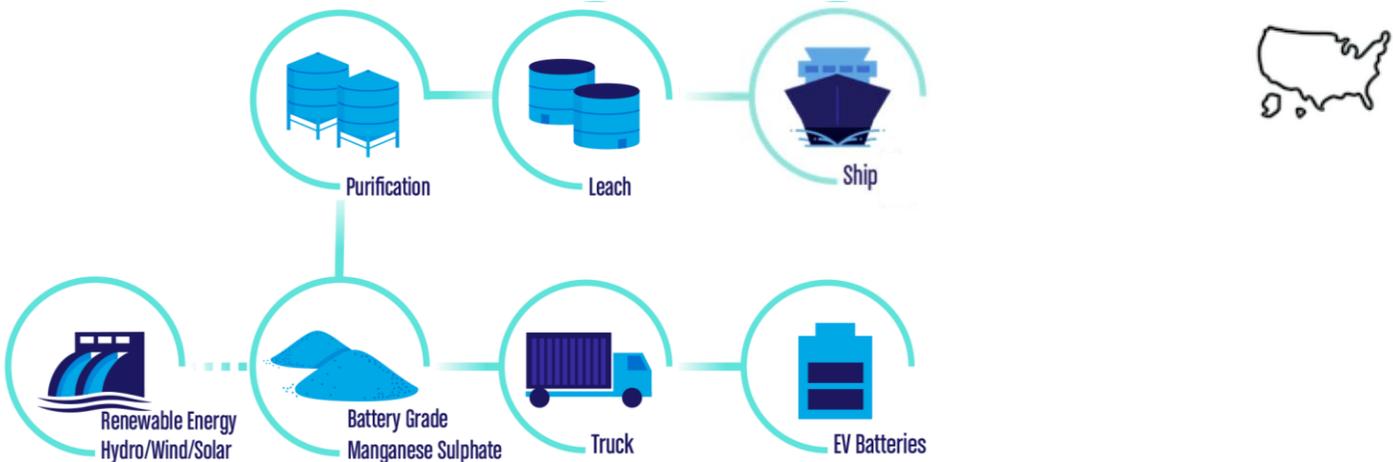


## WA Manganese Ore:

Australian manganese concentrate supplying customers in traditional ferro-alloy markets and planned battery grade manganese (**HPMSM**) production for US lithium-ion battery manufacturers.



Steel



## Louisiana HPMSM:

The planned Louisiana HPMSM refinery to utilise Australian manganese to produce high purity battery grade manganese sulphate (**HPMSM**) for lithium-ion batteries.



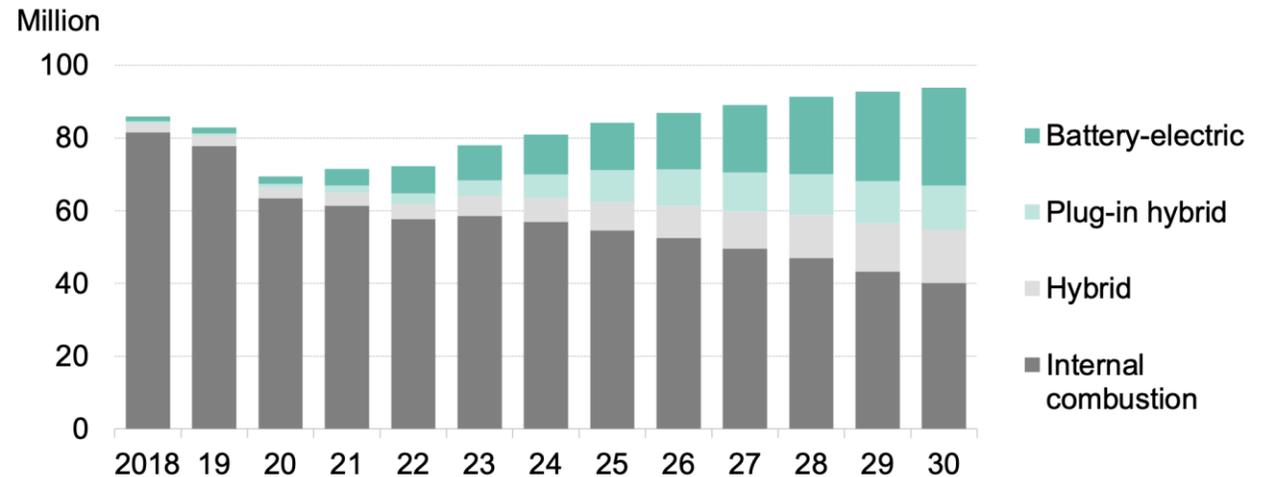
Li-Ion Batteries



## EV market share continues to grow:

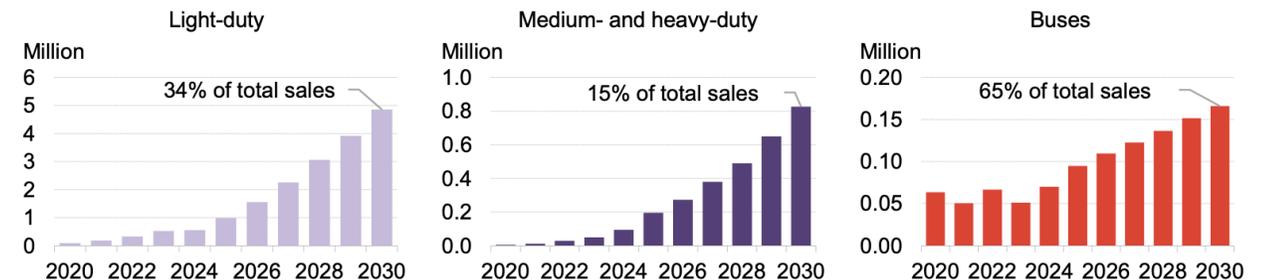
- Electric vehicles to reach over 50% market penetration by 2030 according to Bloomberg NEF.
- Short term policy settings have reduced uptake in some markets but medium-term demand forecasts remains bullish.
- Critical raw material supply remains a key geopolitical challenge with near total dominance 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

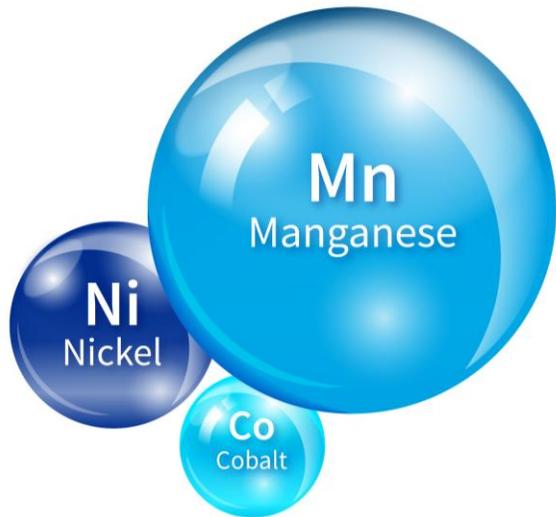
Near-term global sales outlook for electric and fuel-cell vans, trucks and buses



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.

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

Share article: [f](#) [X](#) [in](#) [@](#)

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

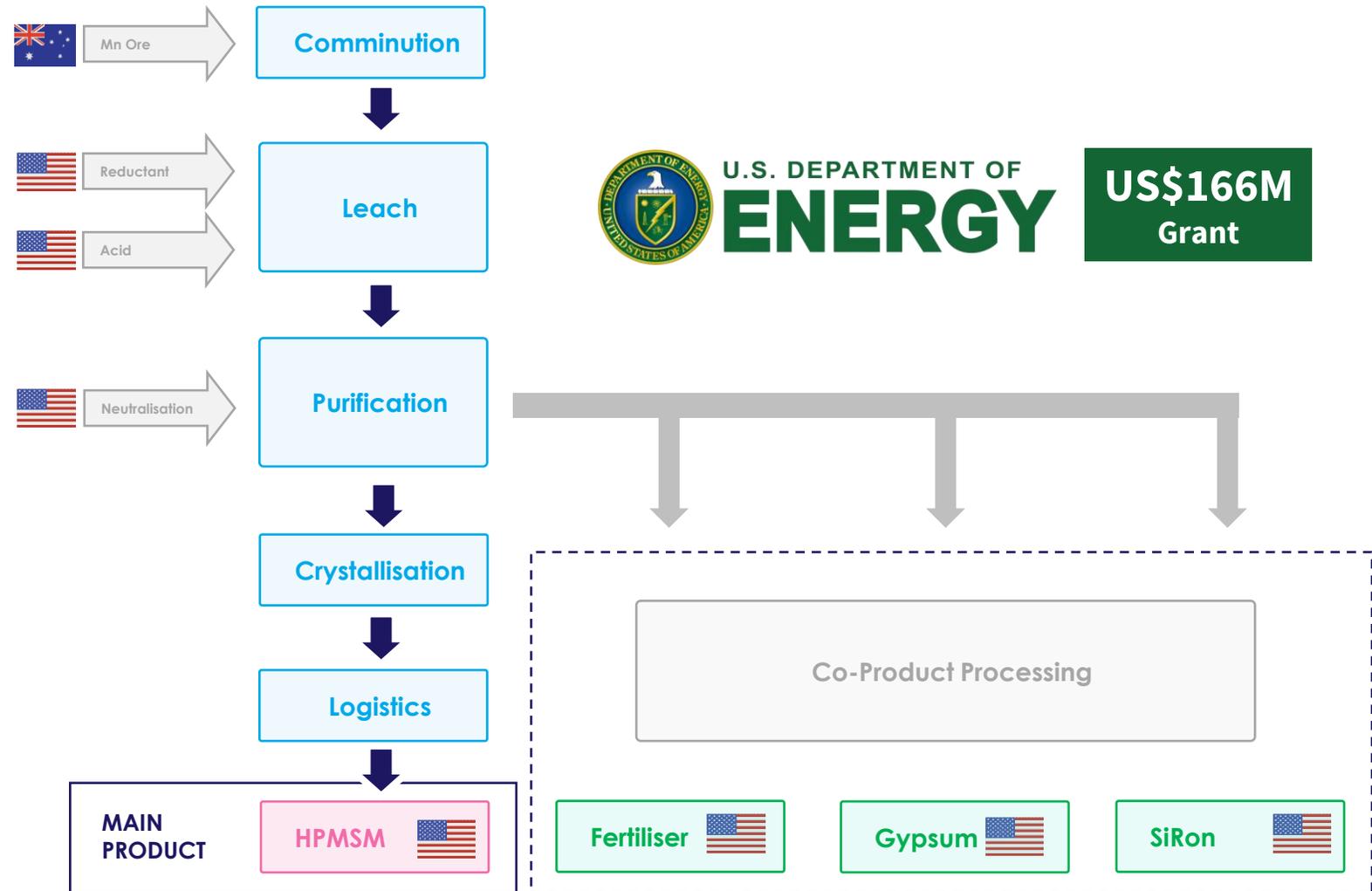


# Louisiana Battery Grade HPMSM

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## 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.



# DoE Grant Award Underpins Project Capital Stack

- DoE US\$166M grant award provides cornerstone funding to support project success<sup>1</sup>.
- Louisiana HPMSM Project grant awarded under DoE's MESC Battery Materials Processing Grant Program.
- Binding grant agreements signed, award committed.
- Grant support is **in addition to US\$115M financing commitments** from GM and Stellantis.
- Discussions in train with prospective financiers to close out remaining capital funding requirement.



Final funding piece ~15% of capital requirement. Process underway.

**MESC Grant provides 50% of capital requirement up to US\$166M**



<sup>1</sup>Reference : Company ASX Release Dated 20 January 2025

	<h2>Long Mine Life</h2>	<ul style="list-style-type: none"> <li>• 18.3 Year Reserve within granted Mining Lease</li> <li>• 274Mt Resource global resource with exploration upside</li> </ul>	1
	<h2>Construction Ready</h2>	<ul style="list-style-type: none"> <li>• Feasibility Study and project permitting complete</li> <li>• Northern Australia Infrastructure Facility (NAIF) finance of up to \$50M approved</li> </ul>	2
	<h2>ESG Leading HPMSM Flowsheet</h2>	<ul style="list-style-type: none"> <li>• Life cycle assessment (LCA) completed confirming industry leading carbon intensity</li> <li>• Further reductions available via renewable energy and reagents</li> </ul>	3
	<h2>Strong Feasibility Study/Financials</h2>	<ul style="list-style-type: none"> <li>• \$64.8M Construction Capital (\$70.5M approved NAIF project budget)</li> <li>• 96% Internal Rate of Return (IRR) and \$561M Net Present Value (NPV) (Pre-Tax, Real)</li> </ul>	4
	<h2>Innovative HPMSM Flowsheet</h2>	<ul style="list-style-type: none"> <li>• Competitive cost structure through innovation</li> <li>• Waste minimisation and reduced emissions provides competitive advantages</li> </ul>	5
	<h2>Tier 1 Jurisdiction</h2>	<ul style="list-style-type: none"> <li>• Australian owned and operated mine providing long term secure ethical Mn supply</li> <li>• USA, Japan and EU Partnerships to enhance battery raw material supply chains</li> </ul>	6
	<h2>Tier 1 Project Customers &amp; Partners</h2>	<ul style="list-style-type: none"> <li>• Stellantis N.V and General Motors LLC – Louisiana HPMSM Project</li> <li>• Nissan Chemical Corporation – Tokyo Bay Japan HPMSM Project</li> </ul>	7

<sup>1</sup>Reference: Company ASX Release Dated 29 October 2024  
<sup>2</sup>Reference: Company ASX Release Dated 17 June 2025

<sup>3</sup>Reference: Company ASX Release Dated 21 February 2023  
<sup>4</sup>Reference: Company ASX Release Dated 22 January 2025

<sup>5</sup>Reference: Company ASX Release Dated 12 April 2023  
<sup>6</sup>Reference: Company ASX Release Dated 26 June 2023

<sup>7</sup>Reference: Company ASX Release Dated 2 April 2025

# The Planned Element 25 HPMSM facility in Louisiana, USA



For Illustration Purposes Only



# Contact Details

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## Ore Reserve<sup>1</sup>

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
<b>Total</b>		<b>101.4</b>	<b>10.4</b>	<b>10.5</b>

## Mineral Resource<sup>2</sup>

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

- Current Reserve:
  - Only utilises approximately ~40% of global Mineral Resource;
  - Provides for a mine life of >18 years<sup>1</sup>.
- High conversion of measured and indicated resources to reserve.
- Excellent potential for future expansion with known mineralization outside resource areas.
- Simple geology, low technical risk.
- Global resources not closed off.

<sup>1</sup> Reference: Company ASX Release Dated 22 January 2025 (Ore Reserve Update)

<sup>2</sup> Reference: Company ASX Release Dated 29 October 2024 (Mineral Resource Estimate Update)

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 or 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](http://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.