

Australian  
VANADIUM  
LIMITED



**IMARC 2022**

November 2022

ASX:AVL

# ASX CHAPTER 5 COMPLIANCE AND CAUTIONARY AND FORWARD-LOOKING STATEMENTS

The views expressed in this Presentation contain information derived from publicly available sources that have not been independently verified. No representation or warranty is made as to the accuracy, completeness or reliability of the information.

## ASX Listing Rules 5.19 and 5.23

### ASX Listing Rule 5.19

The information in this Presentation relating to production targets, or forecast financial information derived from a production target, is extracted from the announcement titled "Bankable Feasibility Study for the Australian Vanadium Project" released to the ASX on 6 April 2022 which is available on the Company's website [www.australianvanadium.com.au](http://www.australianvanadium.com.au).

The Company confirms that all material assumptions underpinning the production target, or the forecast financial information derived from a production target, in the original market announcement continue to apply and have not materially changed.

### ASX Listing Rule 5.23

The information in this Presentation relating to exploration results and mineral resource and ore reserve estimates for the Australian Vanadium Project is extracted from the announcement titled "Bankable Feasibility Study for the Australian Vanadium Project" released to the ASX on 6 April 2022 which is available on the Company's website [www.australianvanadium.com.au](http://www.australianvanadium.com.au).

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

## Forward Looking Statements

This Presentation may contain certain forward-looking statements with respect to matters including but not limited to the financial condition, results of operations and business of AVL and certain of the plans and objectives of AVL with respect to these items. These forward-looking statements are not historical facts but rather are based on AVL's current expectations, estimates and projections about the industry in which AVL operates and its beliefs and assumptions.

Words such as "anticipates," "considers," "expects," "intends," "plans," "believes," "seeks," "estimates", "guidance" and similar expressions are intended to identify forward looking statements and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, particularly those risks or uncertainties inherent in the industry in which AVL operates.

These statements are not guarantees of future performance and are subject to known and unknown risks, uncertainties, and other factors, some of which are beyond the control of AVL, are difficult to predict and could cause actual results to differ materially from those expressed or forecasted in the forward-looking statements. Such risks include, but are not limited to resource risk, metal price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the countries and states in which we sell our product to, and government regulation and judicial outcomes. For more detailed discussion of such risks and other factors, see the Company's Annual Reports, as well as the Company's other filings.

AVL cautions shareholders and prospective shareholders not to place undue reliance on these forward-looking statements, which relate only to events as of the date on which the statements are made.





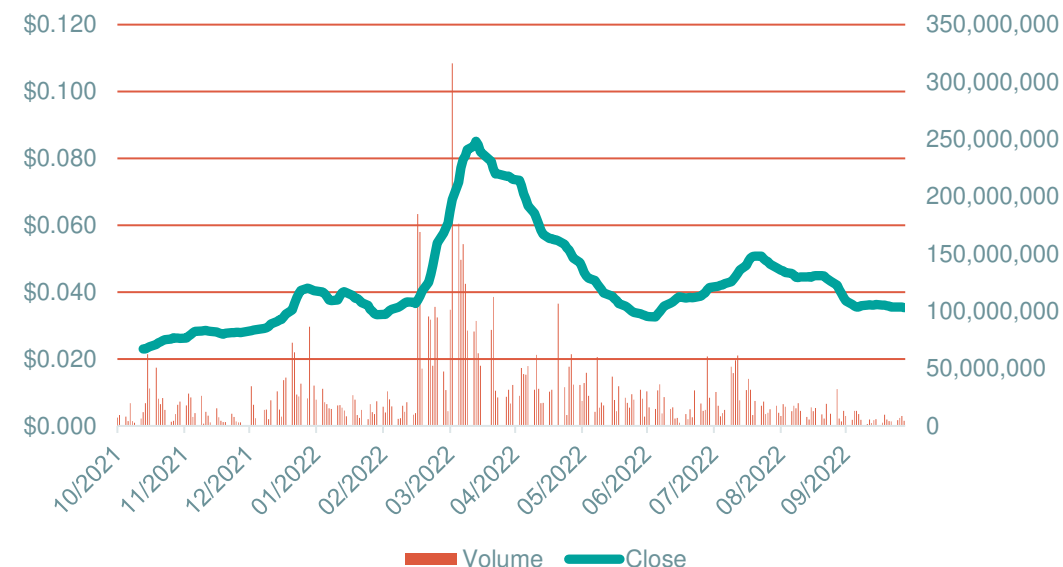
## CORPORATE OVERVIEW

## Australian Vanadium

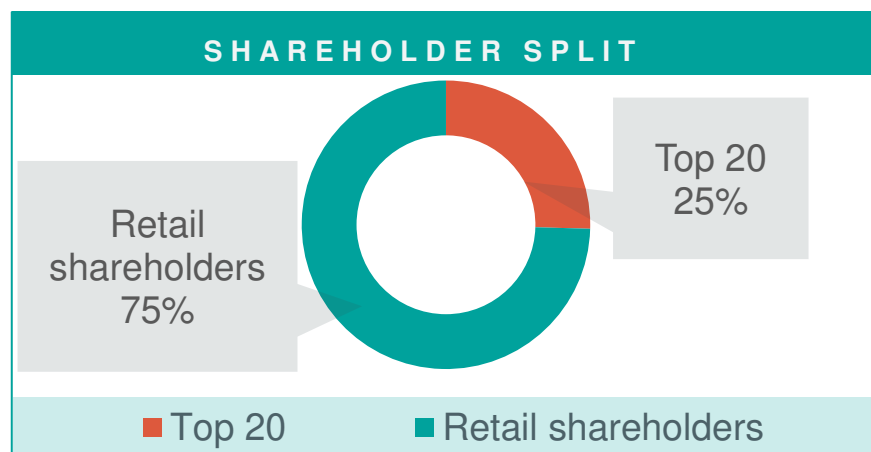
## KEY STATISTICS AS AT 27/10/22

Ordinary Shares on Issue	4.01b
Share Price	A\$0.034
Options on Issue Exp 18/12/22 @ \$0.025	291,064,352
Option Price (AVLOA)	A\$0.025
Average Daily Traded Volume	28.1M (~\$1.5M)
<b>Market Cap (Undiluted)</b>	<b>A\$136.4M</b>
Shareholders	16,349
Cash at the end of last quarter	\$24.7M

## AVL SHARE PRICE HISTORY (27/10/2022)



## SHAREHOLDER SPLIT



## TOP 5 SHAREHOLDERS

		%
1	Citicorp Nominees Pty Ltd	6.86%
2	BNP Paribas Nominees Pty Ltd ACF Clearstream	3.63%
3	Mr & Mrs Hoeksema	2.40%
4	HSBC Custody Nominees (Australia) Ltd	1.73%
5	Kalemois Pty Ltd	1.64%



AUSTRALIAN VANADIUM LIMITED

# Executive Summary



## Highest Grade

The Australian Vanadium Project is located near Meekatharra, Western Australia and is among the highest-grade vanadium projects in the world.



## Attractive Economics

Bankable Feasibility Study. 25+ year mine life. Cash available to fund ongoing vanadium project work and developing key downstream markets ahead of finalising debt financing.



## Front End Engineering and Contractor

CMB EPC and Processing Plant EPCM evaluation and engagement underway



## Critical Mineral Project

Awarded a A\$49 million grant under the Australian Government's Modern Manufacturing Initiative Collaboration Stream towards the development of the Australian Vanadium Project.



## Focus on Export Finance and Offtake engagement

Export Finance engagement commenced across Australian and international debt agencies. Vanadium and FeTi co product target negotiations underway.



## Downstream Options

Developing key downstream markets - 100% owned subsidiary VSUN Energy promotes vanadium redox flow batteries (VRFBs) for renewable energy storage, a vanadium supply growth market.



# Vanadium Markets

## PRIMARY

### STEEL



92%

of current global  
vanadium consumption



Construction  
Industry



Ships



Tools



Trains

### CHEMICAL, AEROSPACE & OTHER



6%

of current global  
vanadium consumption



Jet Engines



Chemical uses



Aerospace  
Industry



3D Printing

## EMERGING & FUTURE

### RENEWABLE ENERGY STORAGE & AUTOMOTIVE



2%

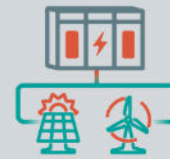
of current global  
vanadium consumption



Vanadium Redox  
Flow Batteries



Automotive  
Industry



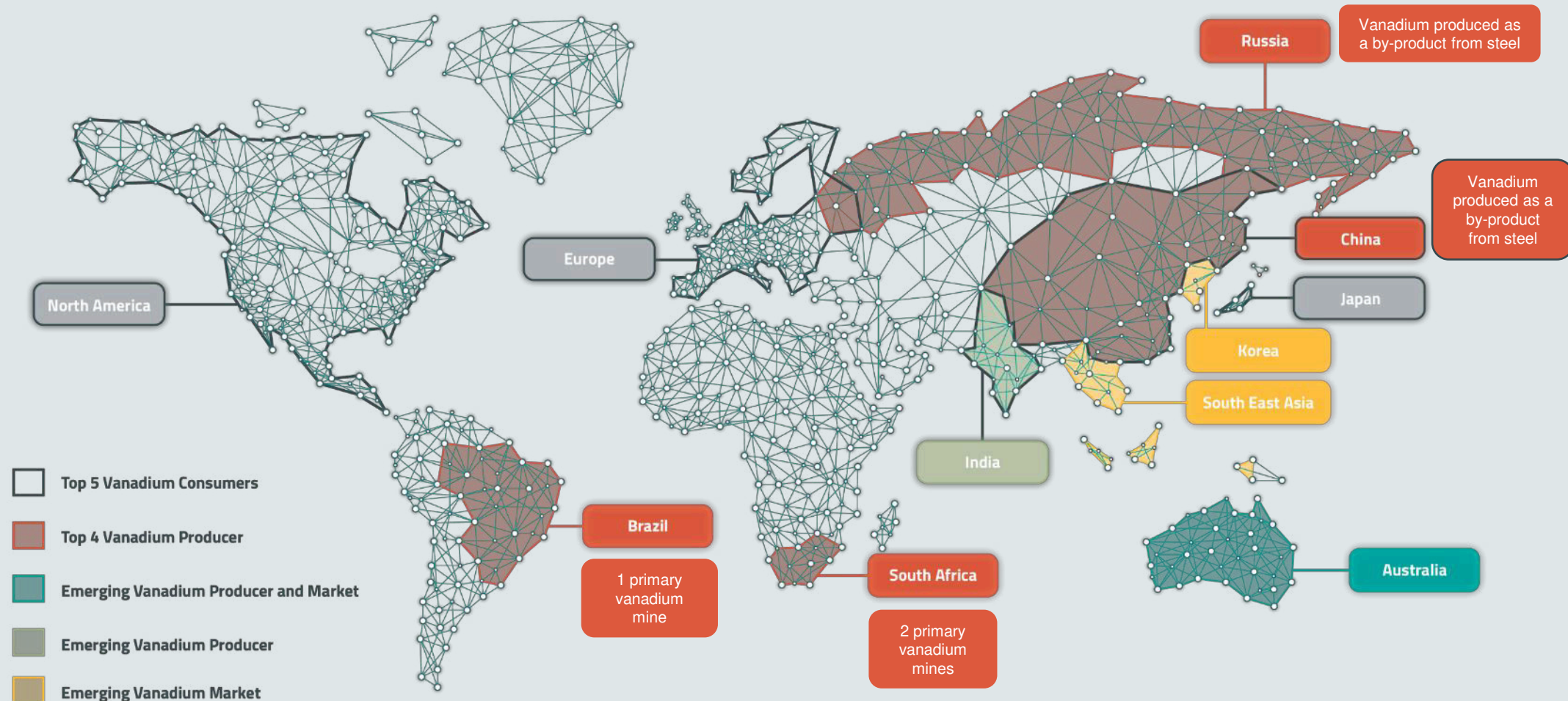
Standalone  
Power Station



EV Charging

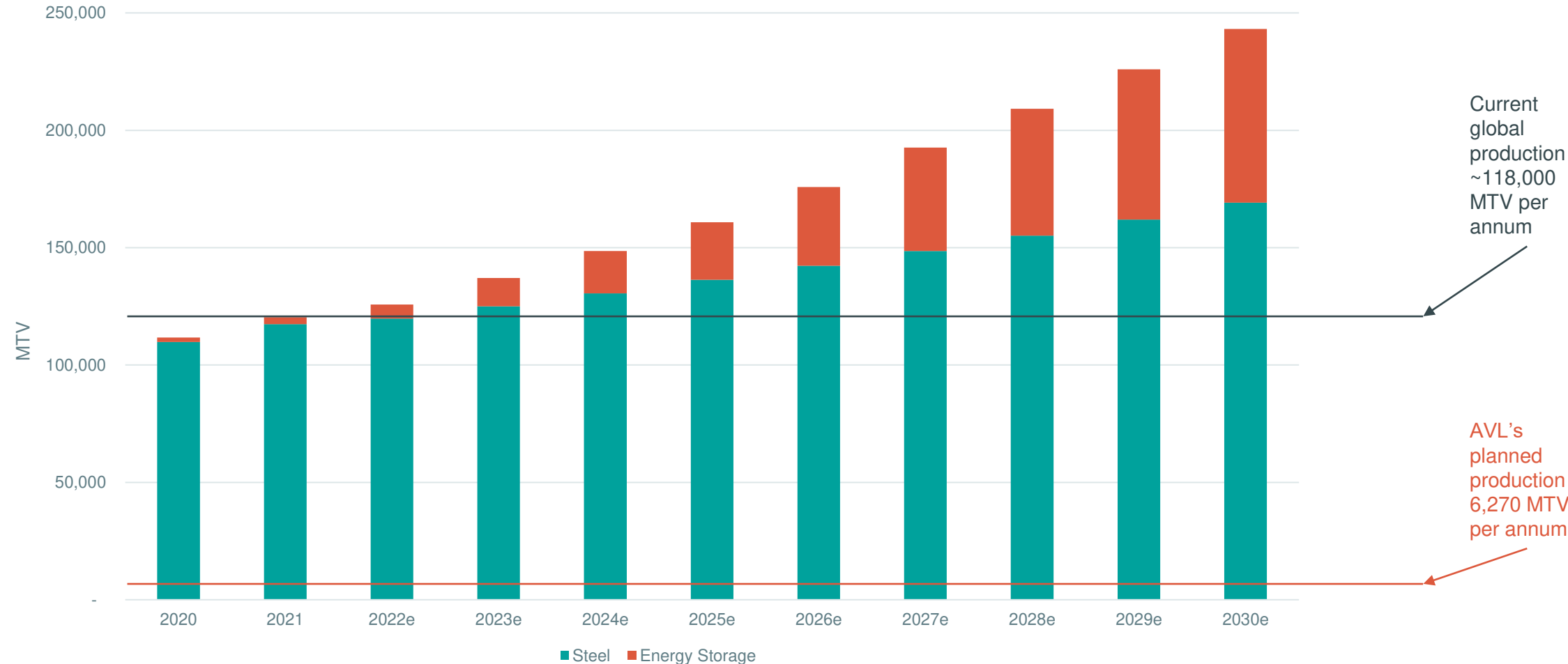


# Global Vanadium Dominated by China and Russia



VANADIUM MARKETS

# Projected energy storage growth to shift demand



Source – US based vanadium market specialist: TTP Squared, Inc

<sup>1</sup> See ASX Announcement "Bankable Feasibility Study for Australian Vanadium Project" dated 6<sup>th</sup> April 2022. All material assumptions underpinning the production target continue to apply and have not materially changed.





## CORPORATE OVERVIEW

## Experienced Corporate Team

*International vanadium credentials*

**Cliff Lawrenson**  
Non-Executive  
Director

Experienced Chair and extensive executive career in resources, energy, infrastructure and investment banking.



**Vincent Algar**  
Managing  
Director

Underground and open cut mining operations, greenfields exploration, project development and mining services experience and management of publicly listed companies.



**Daniel Harris**  
Technical  
Director

Over 40 years of **global vanadium experience** including processing and operation.



**Leslie Ingraham**  
Executive  
Director

Extensive experience as a director and in capital raising and mineral prospecting and exploration, corporate advisory and investor relations.



**Graham Arvidson**  
Chief Executive  
Officer

Mineral sector experience spans **vanadium** and lithium project development and operations.



**Todd Richardson**  
Chief Operating  
Officer

Over 20 years of **experience in the vanadium sector** and an expert in vanadium process design, commissioning and operations.



**Liesl Strachan**  
Chief Financial  
Officer

More than 15 years of experience in the resources sector, both in Australia and the UK.



**Samantha McGahan**  
VSUN Energy  
Manager

Has led the development of VSUN Energy since 2016. Fosters a strong network throughout both vanadium and energy markets.



## ESG IN ACTION

# Strong ESG Focus

## Renewable energy strategy

- ▶ Use of solar and/or wind generation at the minesite and processing plant
- ▶ Installation of VRFBs at both sites for energy storage and EV charging
- ▶ Green hydrogen into the natural gas supply at the processing plant
- ▶ Potential use of electric or green hydrogen fuelled vehicles onsite and for haulage



## Community relationships

- ▶ Yugunga-Nya People employment opportunities
- ▶ Stephen Michael Foundation and Shooting Stars sponsorship
- ▶ Regional Engagement Manager based in Geraldton
- ▶ Sponsorship of awards and scholarships at Central Regional TAFE
- ▶ Mullewa community sponsorship



## Governance

- ▶ Experienced and competent Board of Directors
- ▶ Tight adherence to ASX listing rules
- ▶ Long term engagement with Environmental Protection Agency
- ▶ Company policies being refined by consultant Jukes Todd
- ▶ Strong corporate culture within the organisation at all levels

# THE AUSTRALIAN VANADIUM PROJECT

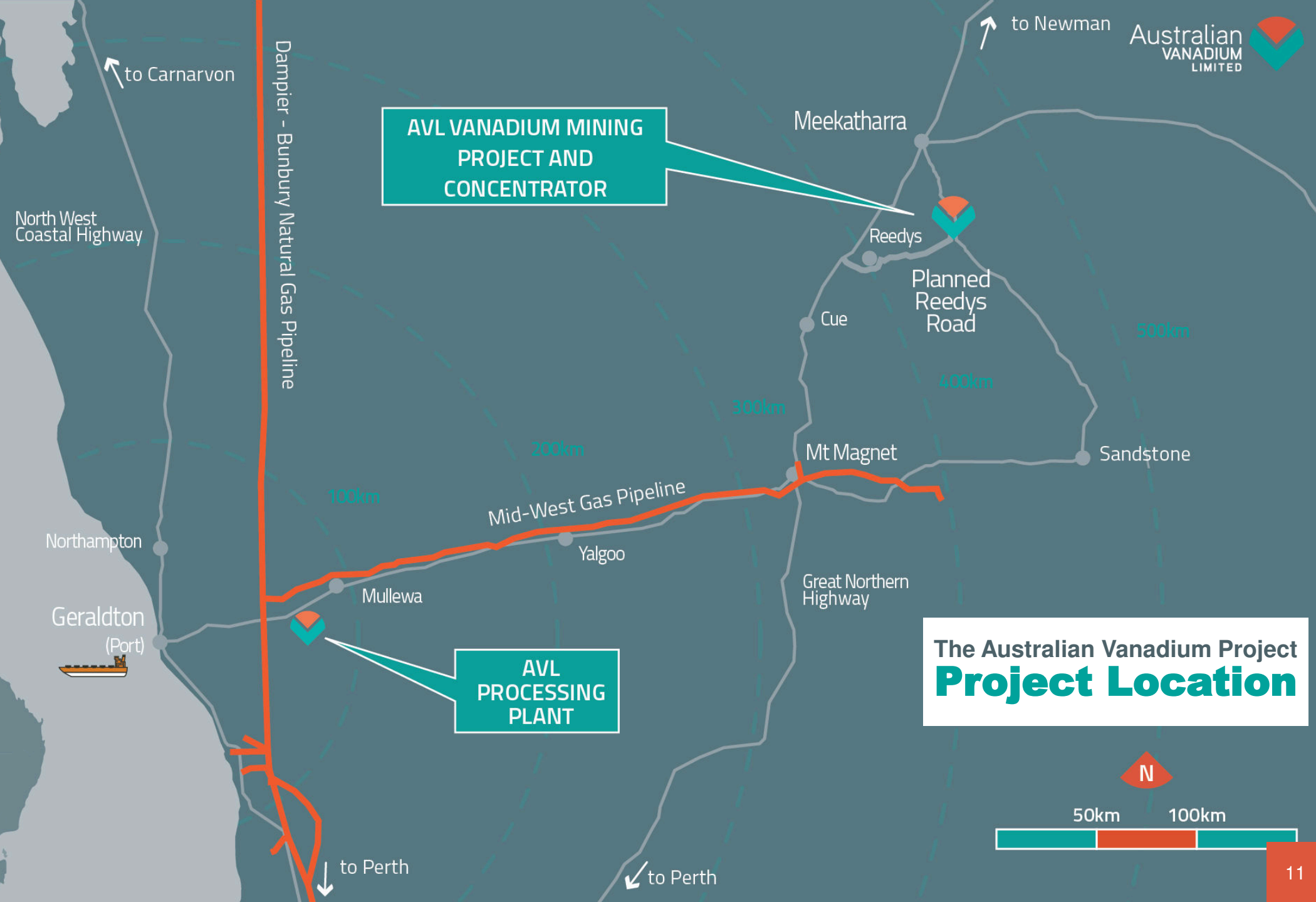


Unique FeTi  
coproduct sales  
opportunity

Infrastructure – port,  
water, gas, rail, road,  
power, airport

Access to local  
workforce

Abundant renewable  
energy resources



The Australian Vanadium Project  
**Project Location**



# Recent BFS – Robust Project Metrics



## RESOURCE

Total Resource

**239Mt @ 0.73% V<sub>2</sub>O<sub>5</sub>**

High-grade 95.6Mt @ 1.07 V<sub>2</sub>O<sub>5</sub>

Ore Reserve

**30.9Mt @ 1.09 V<sub>2</sub>O<sub>5</sub>**

Proved 10.5Mt @ 1.11% V<sub>2</sub>O<sub>5</sub>

Probable 20.4Mt @ V<sub>2</sub>O<sub>5</sub>

**11,200tpa V<sub>2</sub>O<sub>5</sub>**

Vanadium production

**25+ years**

mine life



## STRONG FINANCIAL OUTCOMES

Pre-Tax NPV<sub>7.5</sub>

**A\$833M**

IRR

**20.6%**

EBITDA Annual Average

**A\$175M**

EBITDA Project

**A\$4.4B**

NPAT Project

**A\$2.2B**



## OPEX, CAPEX

**C1 OPEX**

**US\$4.43/lb V<sub>2</sub>O<sub>5</sub>**

**PRE-PRODUCTION**

**CAPEX US\$435M**

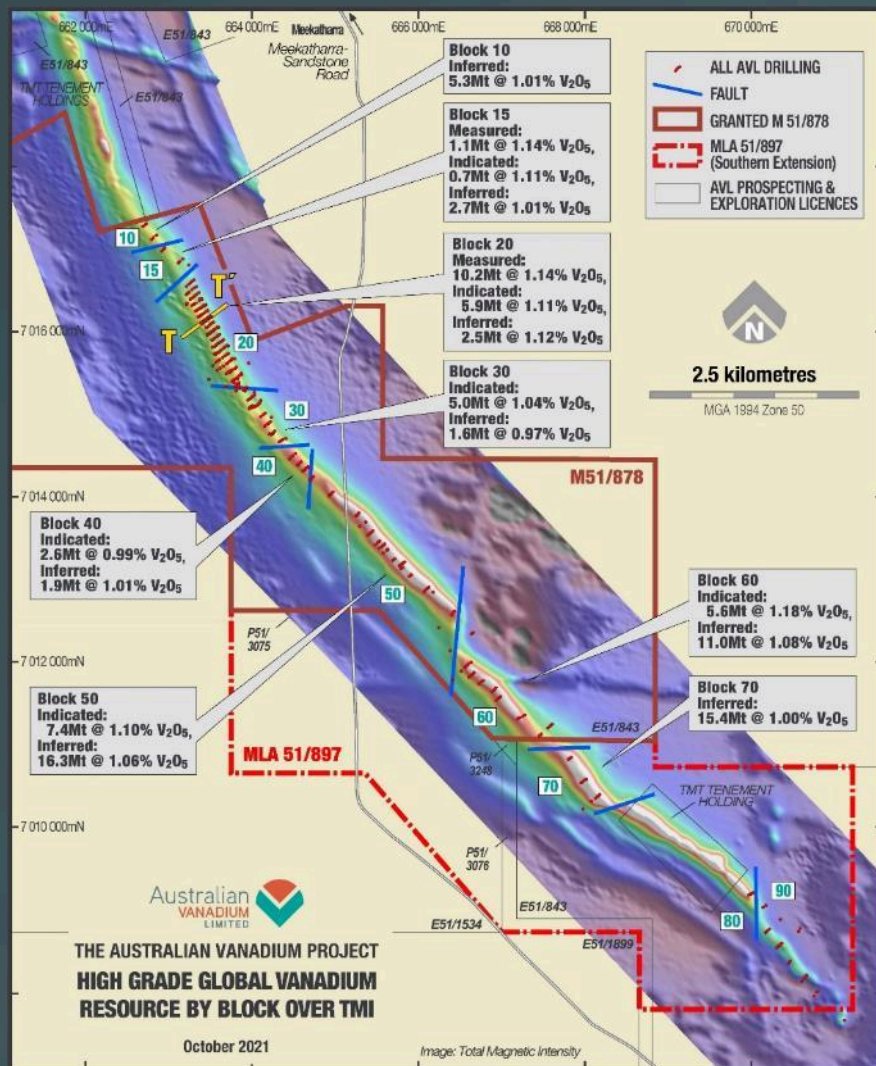
**900,000tpa**

FeTi coproduct annual export

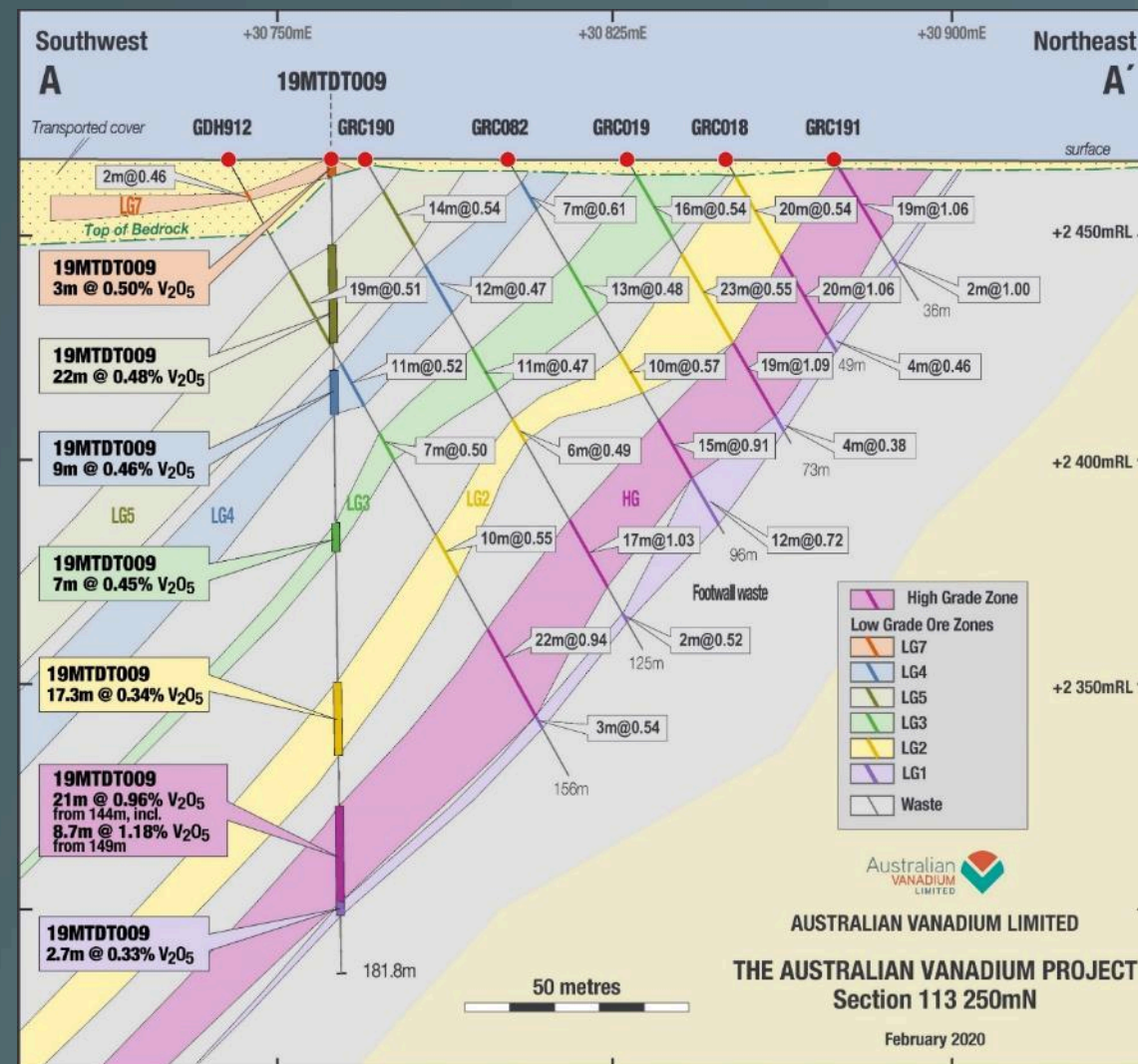


Resource Total Magnetic Intensity

THE AUSTRALIAN VANADIUM PROJECT



## Section



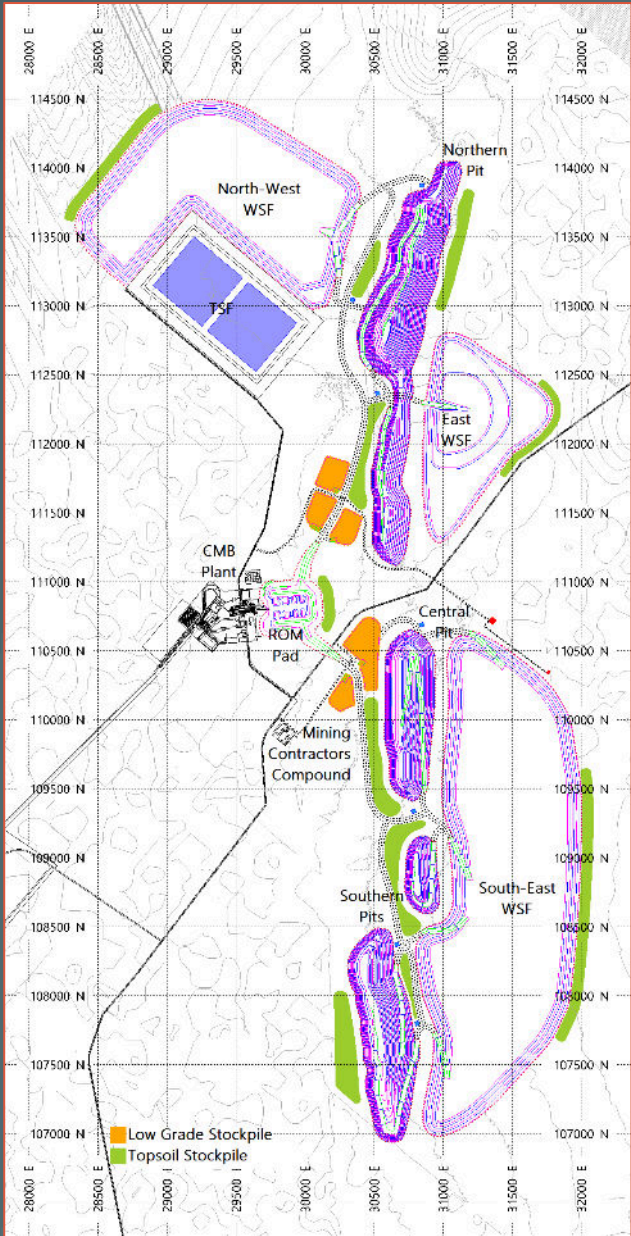
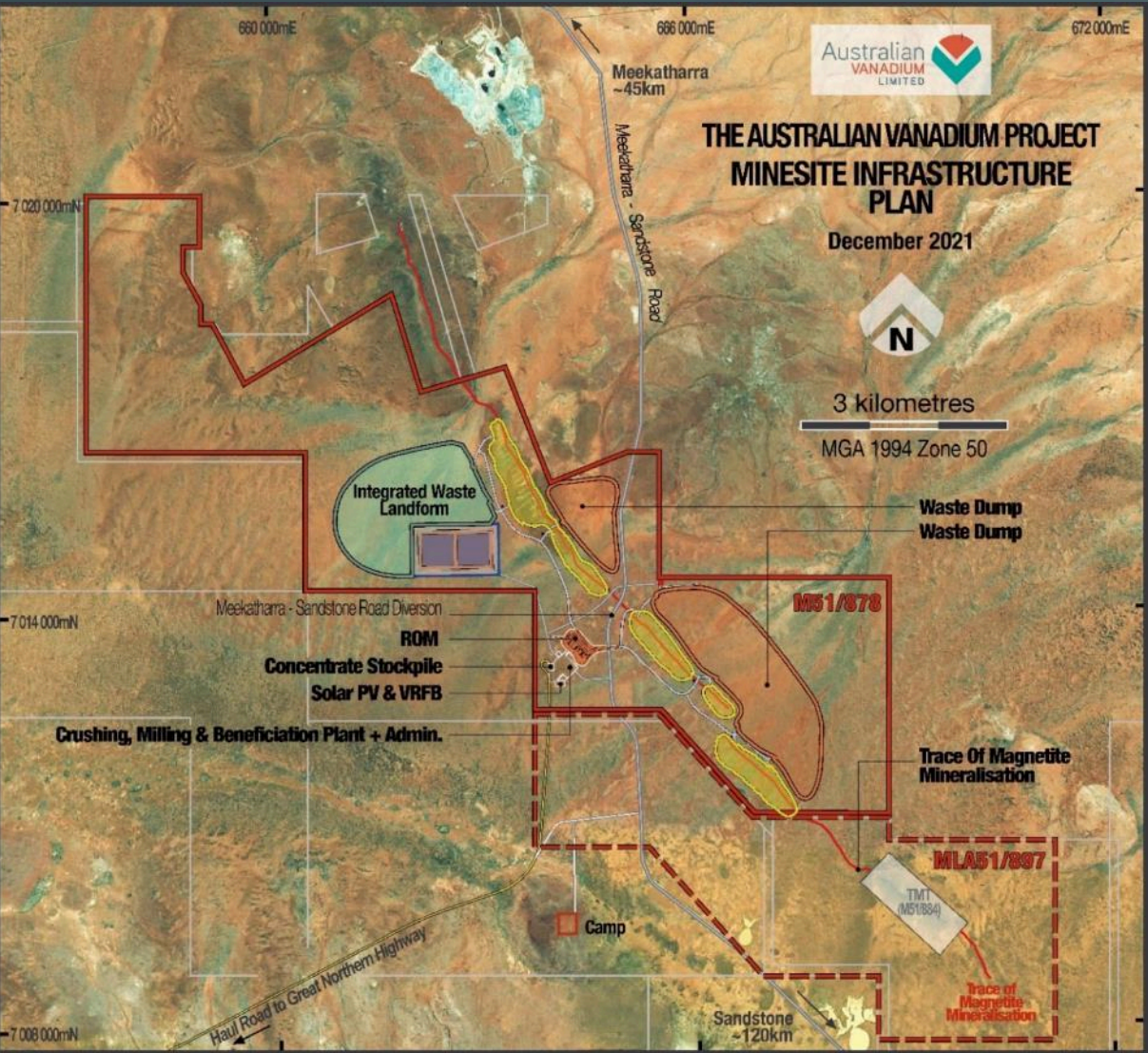
## ASX: AVL

*Note: Information within this slide as detailed in ASX Announcement "Bankable Feasibility Study for Australian Vanadium Project" dated 6<sup>th</sup> April 2022*



AUSTRALIAN VANADIUM PROJECT

# Mining Layout

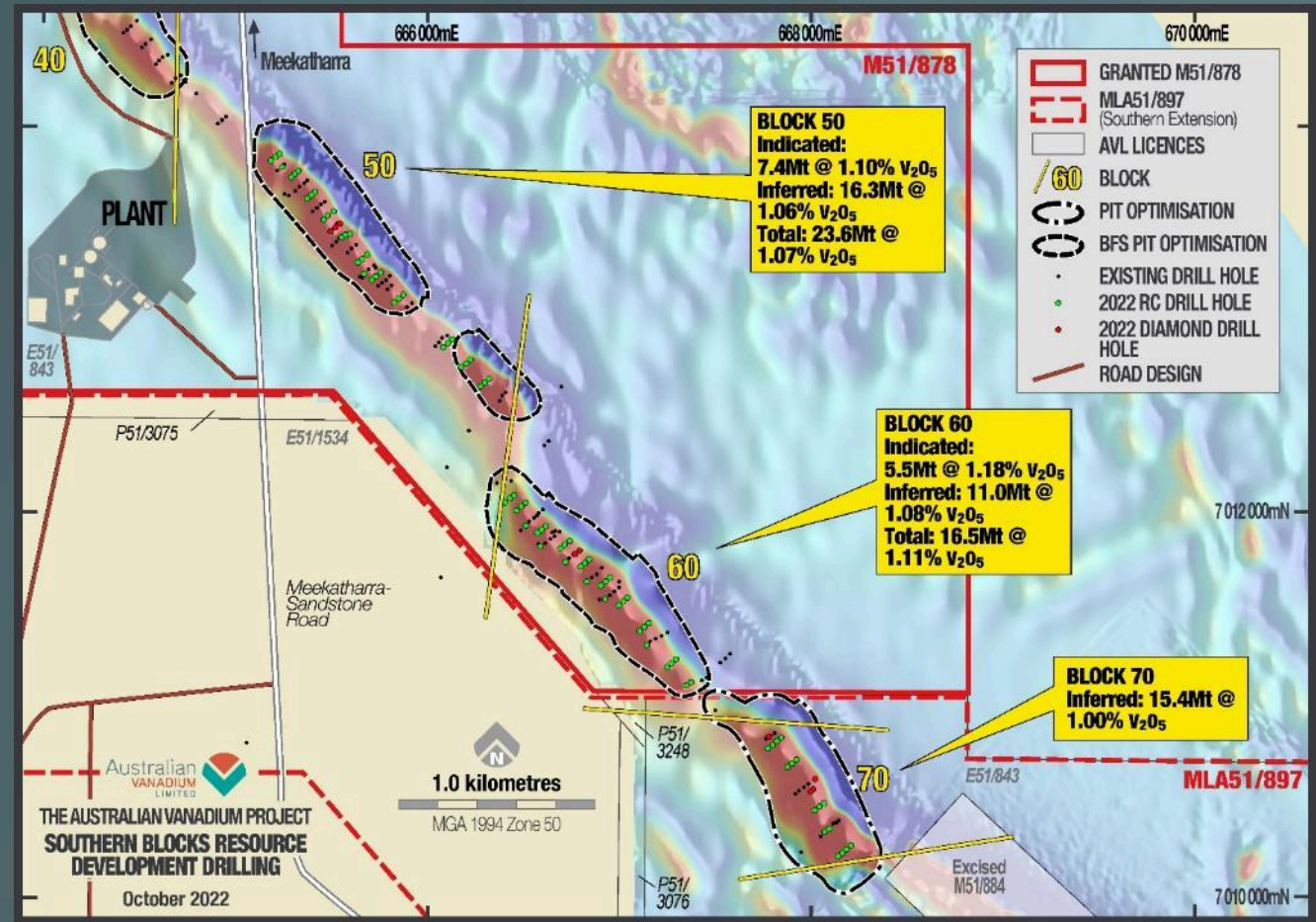




## AUSTRALIAN VANADIUM PROJECT

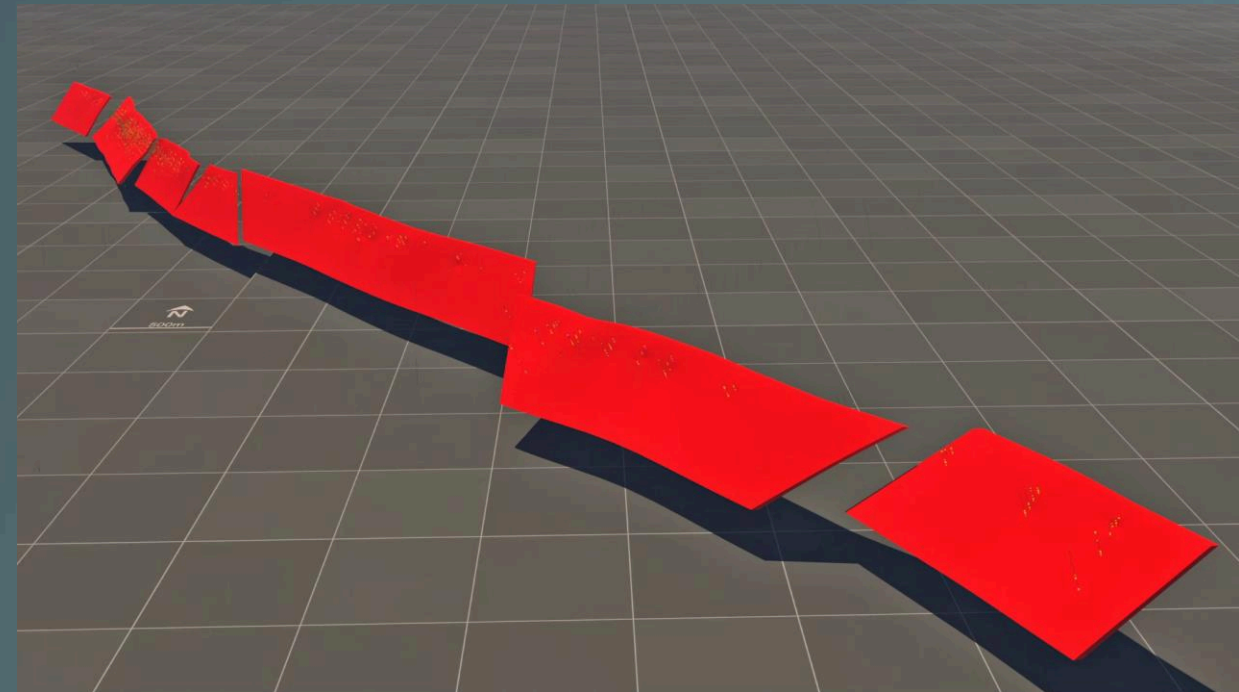
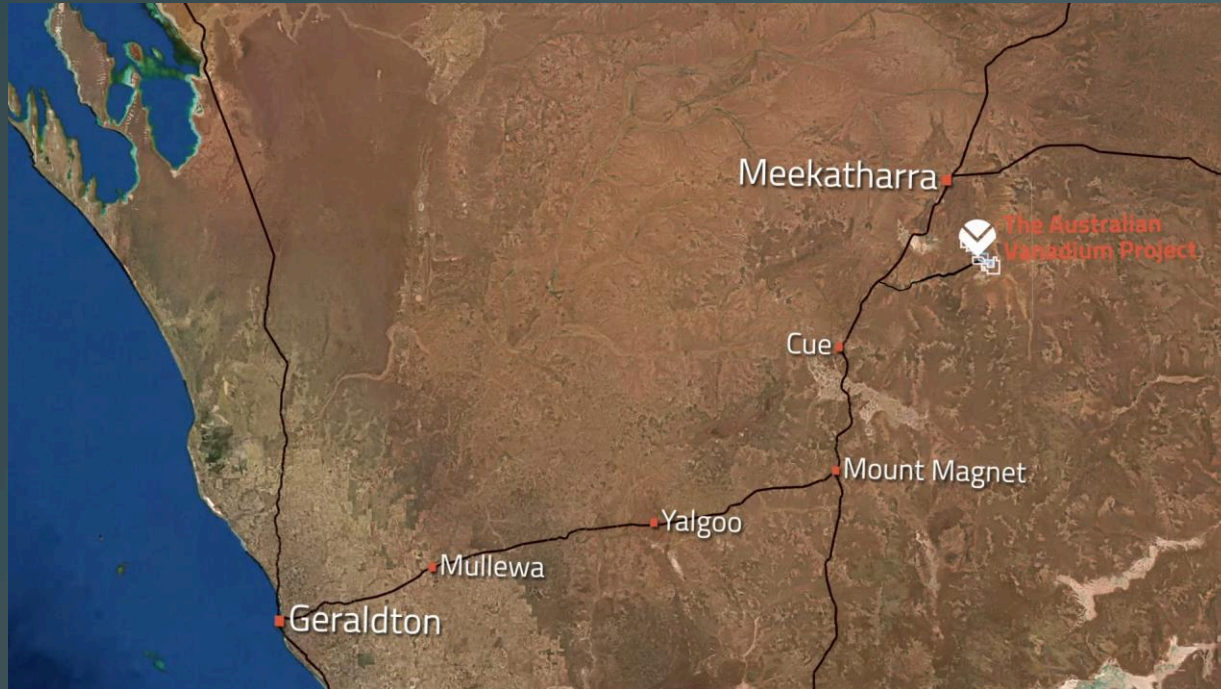
## Recent Drilling – infill completed

- 7,283 metres of Reverse Circulation (RC) drilling completed during September and October 2022
- 813.5 metres of diamond drilling completed during August 2022
- RC infills previous drilling to underpin updated Mineral Resource with increased classification level
- Updated Mineral Resource Estimate scheduled for early 2023



## THE AUSTRALIAN VANADIUM PROJECT

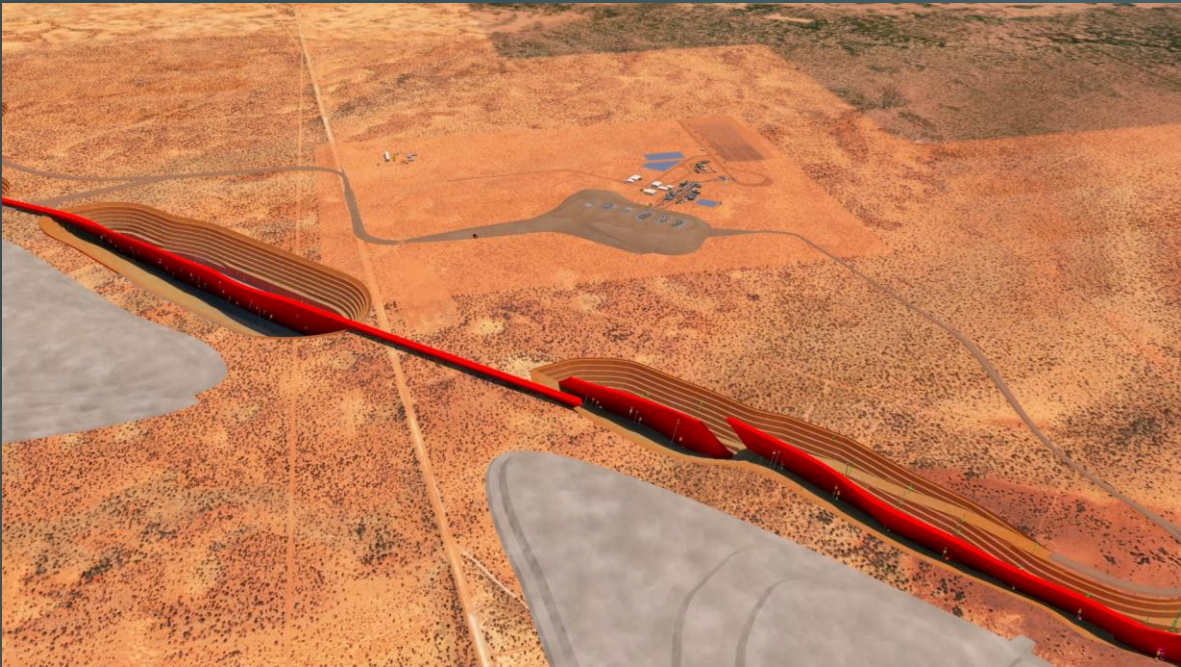
# Mining Sequence





## THE AUSTRALIAN VANADIUM PROJECT

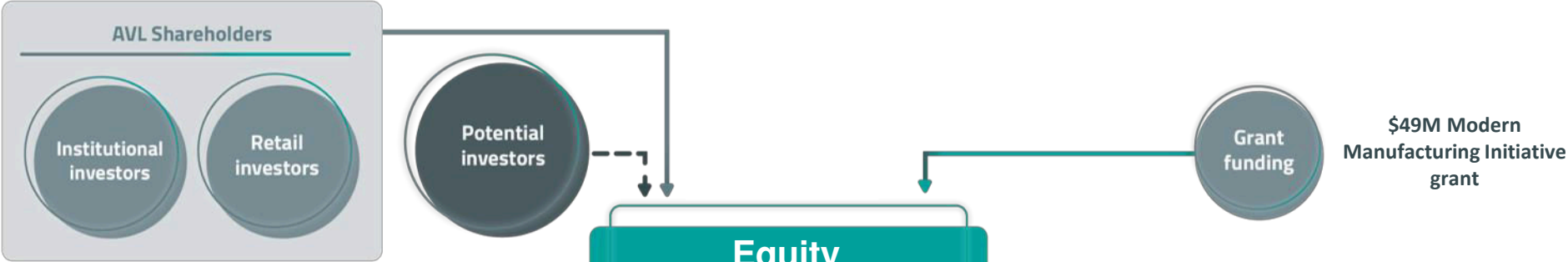
# Pit, Beneficiation Plant and Processing Plant



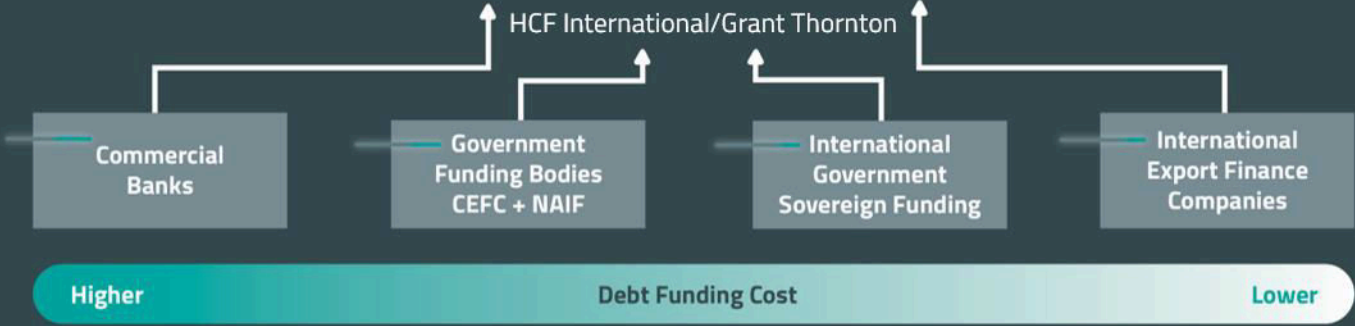


# Funding Model

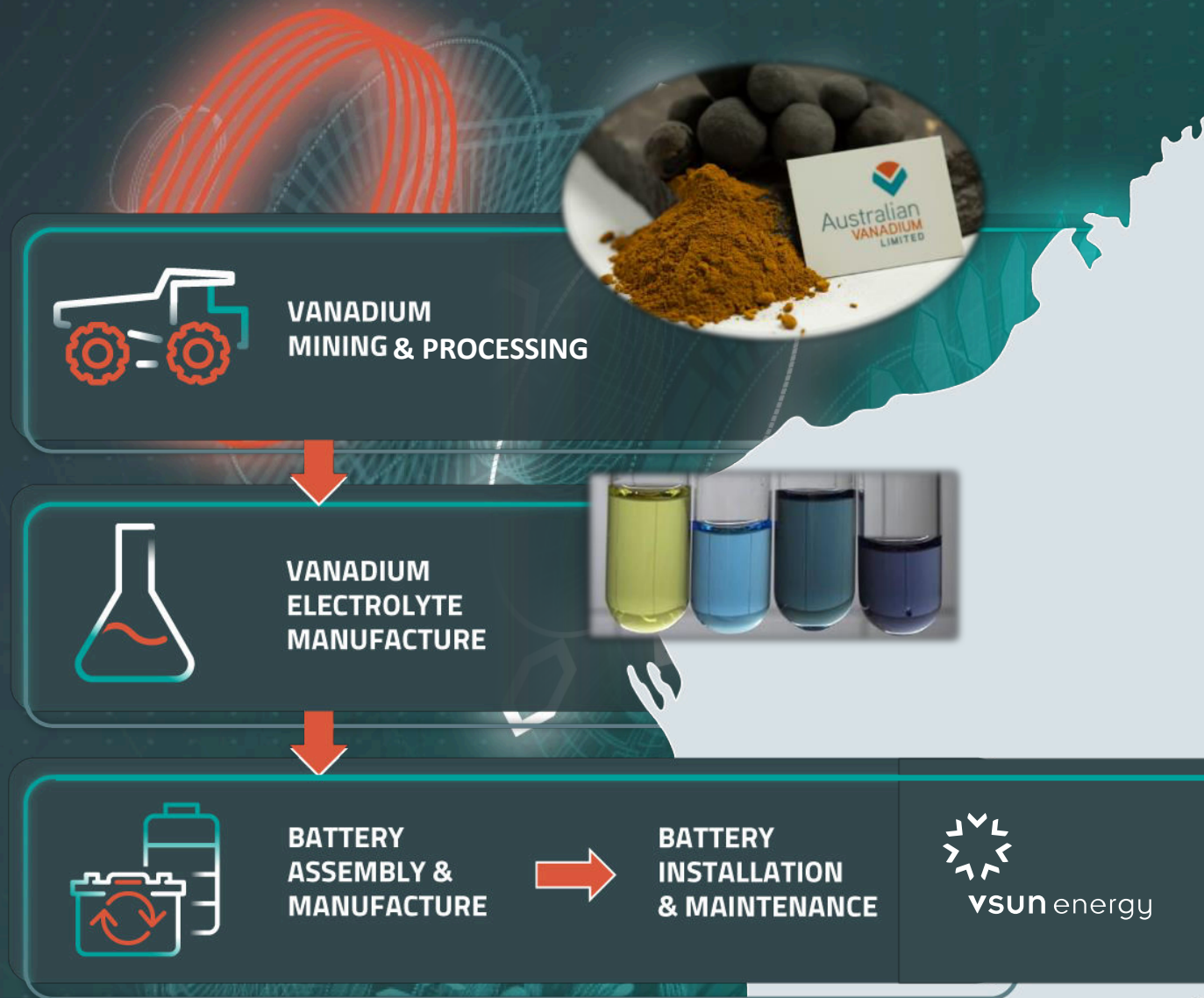
EQUITY FUNDING



DEBT FUNDING



# Vertical Integration Vanadium Production



## THE AUSTRALIAN VANADIUM PROJECT

# Vanadium Electrolyte Plant

- Vanadium electrolyte plant to be located at Kwinana industrial area, south of Perth
- Partly funded by Australian Government manufacturing grant of \$3.69M
- Vanadium electrolyte technology and vanadium feedstock to be provided by U.S. Vanadium LLC
- Plant build being undertaken by WA engineering group Primero
- Initial plant to produce 1.6M litres per annum (able to store 33MWh) of vanadium electrolyte for use in Australian deployed VRFBs
- Local electrolyte production provides AVL and VSUN Energy with competitive advantage

ASX:AVL



*U.S. Vanadium LLC electrolyte plant in Arkansas, US*



AUSTRALIAN VANADIUM PROJECT

# Project Delivery



Australian  
VANADIUM  
LIMITED



E22



vsunenergy

# VSUN ENERGY

A 100% owned subsidiary of AVL, dedicated to energy storage and focused on growing the vanadium redox flow battery (VRFB) market in Australia

VSUN ENERGY

# Why use the VRFB for energy storage?



Able to store large amounts of **energy** for later use



**Easy to scale** power and energy separately



Lifespan over 20 years with **no degradation in performance** over time



**Non-flammable** making it safer than other batteries on the market



Multiple daily cycles, with **100% depth of discharge** available



Vanadium electrolyte can be **reused indefinitely** or V used in steel market





## IN SUMMARY

# Australian Vanadium Project



## Expertise

International vanadium experience, skilled knowledgeable technical and commercial team



## Timing

Increased vanadium consumption in the steel market, steel alloys and vanadium's use in VRFBs are major global drivers



## Project

Globally significant resource, strong business fundamentals, long mine life and a focus on more than mining



## Business Model

Vertically integrated approach, collaboration with renewable energy and battery markets, underpinned by an action-based approach to assist global pathway to Net Zero Emissions





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