

**TECHNOLOGY**  
METALS AUSTRALIA LIMITED

**ASX Announcement**

**8 June 2022**

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#### **Directors**

Michael Fry:  
**Chairman**

Ian Prentice:  
**Managing Director**

Jacqueline Murray:  
**Director**

Sonu Cheema:  
**Director and Company Secretary**

#### **Issued Capital**

209,824,557 ("TMT") Fully Paid  
Ordinary Shares

16,150,000 – Unquoted Options –  
various exercise prices and dates

5,525,000 Performance Rights

**ASX Code: TMT**

**FRA Code: TN6**



# **GAS PIPELINE EARLY WORKS AGREEMENT EXECUTED WITH APA**

## **A key step in the MTMP Implementation Phase**

- Early Works Agreement executed with APA Operations Pty Ltd, a wholly owned subsidiary of APA Group Limited (ASX: APA).
- APA Operations is currently constructing the Northern Goldfields Interconnect pipeline, from which the proposed Gabanintha Gas Pipeline would be connected.
- APA Operations to progress early works for the Proposed Pipeline, which includes the preparation of licences, initial engineering design and identification of long lead procurement items.
- The early works for the Proposed Pipeline are a key risk mitigation activity for TMT as part of the timely development and implementation of the MTMP.
- The Proposed Pipeline is anticipated to provide a cost effective, low risk and efficient energy supply solution with opportunity to source gas from the emerging Perth Basin.
- TMT and APA Operations will negotiate the associated development and gas transportation agreements for the Proposed Pipeline in parallel with the early works.

The Board of Technology Metals Australia Limited (ASX: **TMT**) (**Technology Metals**, or **the Company**) is pleased to announce that the Company has entered into an Early Works Agreement (**EWA**) with APA Operations Pty Ltd (**APA Operations**), a wholly owned subsidiary of APA Group Limited (ASX: **APA**) (**APA Group**), for the provision of certain early works by APA Operations in respect of the proposed development of the Gabanintha Gas Pipeline (**Proposed Pipeline**) as contemplated in the October 2020 Memorandum of Understanding (**MOU**) between APA Group and the Company. In addition to the early works, the EWA also provides a framework for the progression of the negotiations between APA Operations and the Company in respect of the further agreements required for the Proposed Pipeline.

The Proposed Pipeline will be linked to the Northern Goldfields Interconnect (**NGI**), that is currently being constructed by the APA Group, which is a key piece of infrastructure in the State of Western Australia where TMT will be a user of this new infrastructure with the development of the Proposed Pipeline.

#### **Managing Director Ian Prentice commented:**

*"Progressing the early works for the development of the Proposed Pipeline with APA Operations is an incredibly significant step as we continue to de-risk the development of the MTMP, the world's next large scale primary vanadium mine, with an anticipated cost effective, low risk energy supply solution. This is another key initiative of the MTMP's Implementation Phase."*

## INTEGRATED MTMP – STRATEGIC RATIONALE

The Murchison Technology Metals Project (**MTMP**) consists of the Gabanintha Project (**Gabanintha**) and the Yarrabubba Project (**Yarrabubba**), located to the south of Meekatharra in the mid-west of Western Australia. Gabanintha was the subject of a Definitive Feasibility Study as a stand-alone vanadium development project, delivering robust economics over an initial 16-year mine life. The satellite Yarrabubba deposit offers higher vanadium in concentrate grades (than Gabanintha) and a highly sought-after titanium co-product, making it an attractive addition to the MTMP.

The integration of Yarrabubba into the MTMP, and the resultant opportunity to enhance the economics of the MTMP as well as the acceleration of the delivery of vanadium production, combined with the advanced stage of Gabanintha approvals, provides opportunities for TMT to actively progress offtake discussions with a range of counterparties across a range of industries and geographic jurisdictions.

The MTMP will be a long term, low-cost stable producer of high purity vanadium, a critical mineral with a vital role to play in the efficient and effective deployment of renewable energy and reduction of emissions. The Project will also be a producer of the highly sought-after titanium by-product whilst mining and processing ore from Yarrabubba.

## PROPOSED PIPELINE – EARLY WORKS AGREEMENT

Technology Metals has executed an Early Works Agreement (**EWA**) with APA Operations, a wholly owned subsidiary of the APA Group, to progress the early works for development of the Proposed Pipeline, which is illustrated in Figure 1 below.

Execution of the EWA is the next step in progressing the development of the Proposed Pipeline as contemplated in the MOU between the parties executed in October 2020.

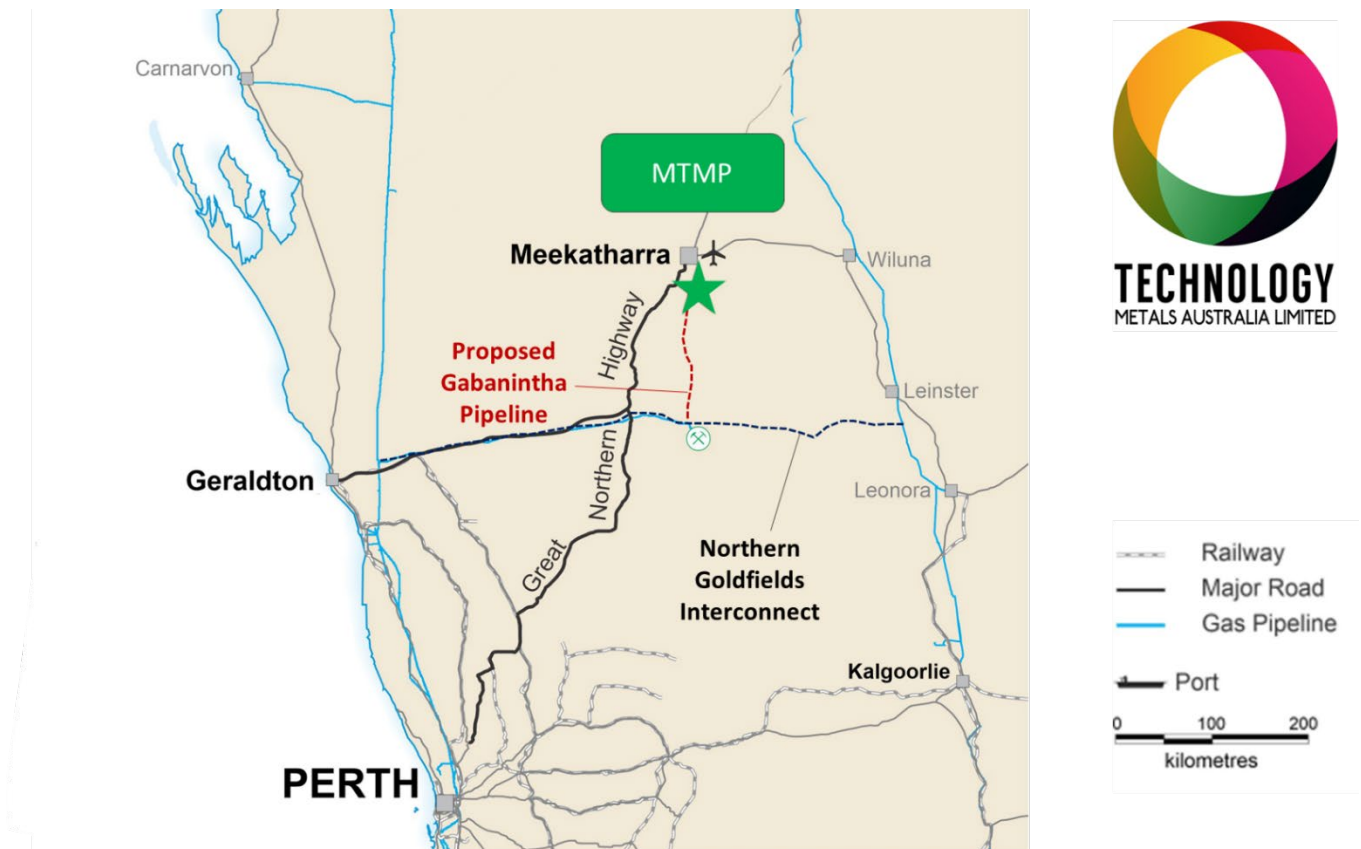


Figure 1: MTMP Location Plan showing Proposed Gabanintha Pipeline route

In addition to the provision of the early works, the EWA also sets out a framework for the negotiations between APA Operations and the Company in respect of the further agreements required to progress the Proposed Pipeline.

The Proposed Pipeline, to be developed and operated by APA Operations, is anticipated to provide a cost effective, long term, low risk and efficient energy supply solution for the MTMP. Natural gas is to be used as the primary heating energy source in the rotary kiln and other parts of the MTMP process circuit. It will also be used as part of a hybrid electricity generation supply, which is also expected to include renewable energy generation and battery storage.

The Proposed Pipeline is designed to come from a point to the east of Mt Magnet as a spur off the major Northern Goldfields Interconnect (**NGI**) pipeline, which is currently being constructed by the APA Group. The NGI is a key piece of infrastructure for the State of Western Australia, further supporting mining and industrial development in the Mid-West and Goldfields regions, with the development of the MTMP being a user of this important development.

The location of the Proposed Pipeline and the NGI provides significant optionality for TMT in regard to gas supply, opening up the potential to source gas from the emerging Perth Basin as well as the traditional North West Shelf suppliers.

The Proposed Pipeline is less than half the length of the gas pipeline originally proposed in the Gabanintha Definitive Feasibility Study, which is expected to result in lower gas transportation charges than previously anticipated. It also provides optionality to source gas from the emerging Perth Basin via the NGI that may further reduce the project's gas transportation charges.

The works to be completed by APA Operations under the EWA will focus on access for the Proposed Pipeline corridor, including preparation of licences, initial engineering design and preparation for procurement of long lead items (the **Early Works**). It is envisaged that the Early Works will be completed over the course of 2022 to ensure that the construction of the Proposed Pipeline is completed in line with TMT's proposed MTMP development schedule.

In parallel with the Early Works TMT and APA Operations will progress the negotiations of the associated development and gas transportation agreements for the Proposed Pipeline

The progression of the Early Works by APA Operations for the Proposed Pipeline is a key component of TMT's strategy to further progress the implementation of the MTMP, which TMT anticipates will provide energy certainty for the world's next large scale primary vanadium mine.

## **ABOUT APA GROUP**

APA is a leading Australian Securities Exchange (ASX) listed energy infrastructure business. APA owns and/or manages and operates a diverse \$21 billion portfolio of gas, electricity, solar and wind assets.

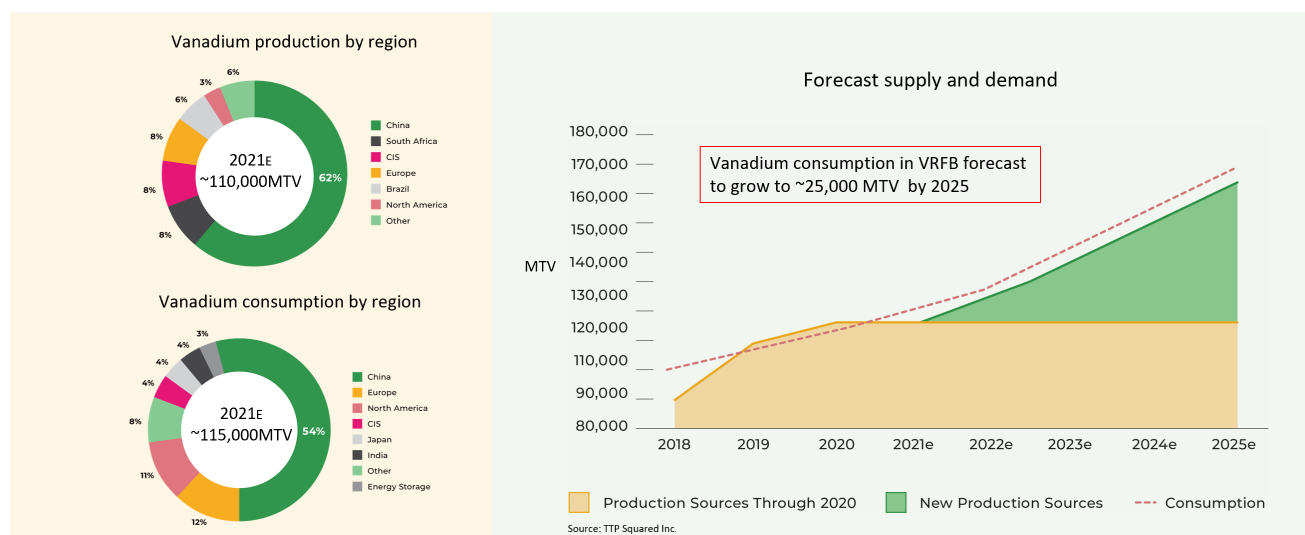
APA's purpose is to strengthen communities through responsible energy. It delivers approximately half of the nation's gas usage and connects Victoria with South Australia and New South Wales with Queensland through investments in electricity transmission assets. It is also one of the largest owners and operators of renewable power generation assets in Australia, with wind and solar projects across the country.

## VANADIUM MARKET OUTLOOK

The global vanadium price has appreciated significantly over the past 12 months. In recent times, the European vanadium price appreciation has accelerated significantly as a result of the conflict in Ukraine, with the expectation of significant supply disruptions following sanctions on Russia.

Russia (CIS) directly accounted for approximately 8% of global vanadium supply in 2021 (Figure 2: Vanadium Supply and Demand), with a further 5 – 6% of global vanadium supply indirectly attributable to Russia.

The chart below also highlights China's dominant position in the vanadium market.



**Figure 2: Vanadium Supply and Demand**

Figure 2 also highlights the forecast supply – demand dynamics of the global vanadium industry, excluding any potential short to midterm impacts of supply disruptions resulting from the conflict in Ukraine.

The chart highlights consistent growth in consumption from 2018, accelerating slightly from mid-2022 with an expected increase in vanadium use in VRFB's. Demand is forecast to grow to more than 160,000 MTV (~285,000 MT V<sub>2</sub>O<sub>5</sub> equivalent) from 2021 levels of around 115,000 MTV (~205,000 MT V<sub>2</sub>O<sub>5</sub> equivalent). This demand is expected to consistently outstrip supply, maintaining pressure for elevated vanadium prices over the forecast period, with production to meet this demand growth forecast to come from increased output from existing suppliers supplemented by new primary supply sources such as the MTMP.

## ABOUT VANADIUM

Vanadium is a hard, silvery grey, ductile and malleable speciality metal with a resistance to corrosion, good structural strength and stability against alkalis, acids and salt water. The elemental metal is rarely found in nature. The main use of vanadium is in the steel industry where it is primarily used in metal alloys such as rebar and structural steel, high-speed tools, titanium alloys and aircraft. The addition of a small amount of vanadium can increase steel strength by up to 100% and reduces weight by up to 30%. Vanadium high-carbon steel alloys contain in the order of 0.15 to 0.25% vanadium while high-speed tool steels, used in surgical instruments and speciality tools, contain in the range of 1 to 5% vanadium content. Global economic growth and increased intensity of use of vanadium in steel in developing countries will drive near term growth in vanadium demand.

An emerging and very significant use for vanadium is the rapidly developing energy storage (battery) sector with the expanding use and increasing penetration of the vanadium redox flow batteries (**VRFB's**). VRFB's are a rechargeable flow battery that uses vanadium in different oxidation states to store energy, using the unique ability of vanadium to exist in solution in four different oxidation states. VRB's provide an efficient storage and re-supply solution for renewable energy – being able to time-shift large amounts of previously generated energy for later use – ideally suited to micro-grid to large scale energy storage solutions (grid stabilisation). Some of the unique advantages of VRFB's are:

- a lifespan of 20 years with very high cycle life (up to 20,000 cycles) and no capacity loss,
- rapid recharge and discharge,
- easily scalable into large MW applications,
- excellent long-term charge retention,
- improved safety (non-flammable) compared to Li-ion batteries, and
- can discharge to 100% with no damage.

Global economic growth and increased intensity of use of vanadium in steel in developing countries will drive near term growth in vanadium demand.

This announcement has been authorised by the Board of Technology Metals Australia Limited.

*For, and on behalf of, the Board of the Company,*

Ian Prentice

**Managing Director**  
**Technology Metals Australia Limited**

Andrew Rowell

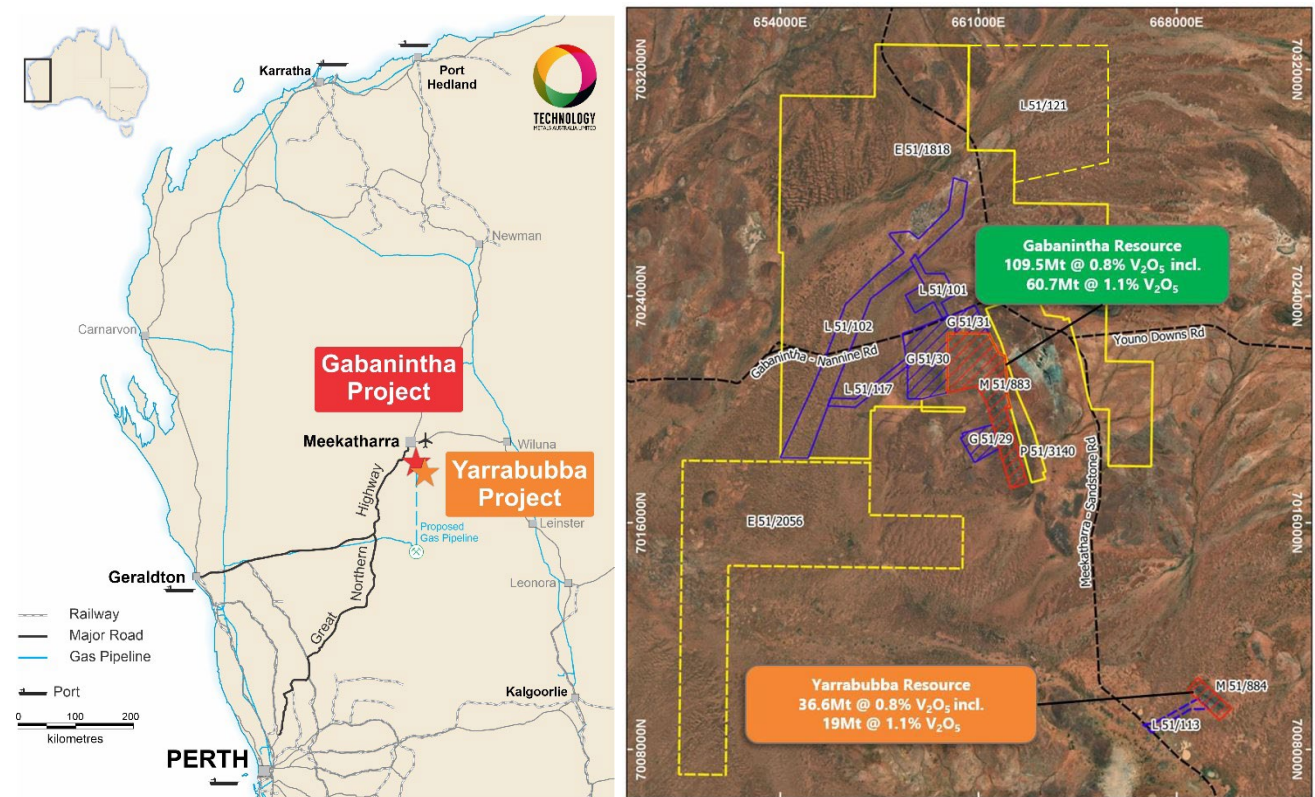
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**- ENDS -**

## About Technology Metals Australia Limited

**Technology Metals Australia Limited (ASX: TMT)** was incorporated on 20 May 2016 for the primary purpose of identifying exploration projects in Australia and overseas with the aim of discovering commercially significant mineral deposits. The Company's primary exploration focus has been on the Murchison Technology Metals Project located 40 km southeast of Meekatharra in the mid-west region of Western Australia with the aim to develop this project to potentially supply high-quality  $V_2O_5$  flake product to both the steel market and the emerging vanadium redox battery (VRFB) market.

The Project consists of twelve granted tenements and four applications divided between the Gabanintha Vanadium Project (14 tenements) and the Yarrabubba Project (2 tenements). Vanadium mineralisation is hosted by a northwest – southeast trending layered mafic igneous unit with a distinct magnetic signature. A key differentiation between Gabanintha and a number of other vanadium deposits is the consistent presence of the high-grade massive vanadium – titanium – magnetite basal unit, which results in an overall higher grade for the Murchison Technology Metals Project.



**Figure 3:** MTMP Location and Tenure

Data from the Company's 2017, 2018 drilling programs, including 111 RC holes and 53 HQ and PQ diamond holes at the Gabanintha Project and 46 RC holes and 27 PQ sized diamond holes completed in late 2018 and 2020/21 at the Yarrabubba Project, has been used by independent geological consultants CSA Global to generate a global Inferred and Indicated Mineral Resource estimate, reported in accordance with the JORC Code 2012 edition, for the combined Projects. The Resource estimate confirms the position of the Murchison Technology Metals Project as one of the highest-grade vanadium projects in the world.

Global Mineral Resource estimate for the MTMP as at 9 November 2021

Material Type	Classification	Mt	V <sub>2</sub> O <sub>5</sub> %	Fe%	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %	TiO <sub>2</sub> %	LOI%	P%	S%
Massive Magnetite	<b>Measured (North)</b>	<b>1.2</b>	<b>1.0</b>	<b>44.7</b>	<b>6.2</b>	<b>10.4</b>	<b>11.4</b>	<b>0.0</b>	<b>0.009</b>	<b>0.2</b>
	Indicated (North)	18.5	1.1	49.1	5.2	5.8	12.9	-0.1	0.007	0.2
	Indicated (South)	12.0	1.1	48.2	5.4	7.4	12.5	1.8	0.010	0.3
	<b>Total Indicated</b>	<b>30.6</b>	<b>1.1</b>	<b>48.8</b>	<b>5.3</b>	<b>6.4</b>	<b>12.7</b>	<b>0.6</b>	<b>0.008</b>	<b>0.2</b>
	Inferred (North)	41.0	1.1	47.7	5.6	7.1	12.6	0.3	0.008	0.2
	Inferred (South)	7.0	1.1	47.4	5.7	8.3	12.3	2.1	0.010	0.3
	<b>Total Inferred</b>	<b>48.1</b>	<b>1.1</b>	<b>47.7</b>	<b>5.6</b>	<b>7.3</b>	<b>12.6</b>	<b>0.5</b>	<b>0.008</b>	<b>0.2</b>
	<b>Massive Global</b>	<b>79.8</b>	<b>1.1</b>	<b>48.1</b>	<b>5.5</b>	<b>7.0</b>	<b>12.6</b>	<b>0.6</b>	<b>0.008</b>	<b>0.2</b>
Disseminated / Banded Magnetite	Indicated (North)	10.3	0.6	28.6	13.1	25.5	7.5	3.0	0.030	0.2
	Indicated (South)	8.1	0.6	28.5	12.0	25.2	7.3	2.4	0.018	0.2
	<b>Total Indicated</b>	<b>18.4</b>	<b>0.6</b>	<b>28.6</b>	<b>12.6</b>	<b>25.4</b>	<b>7.4</b>	<b>2.7</b>	<b>0.025</b>	<b>0.2</b>
	Inferred (North)	38.5	0.5	27.1	12.7	27.4	6.9	3.3	0.027	0.2
	Inferred (South)	9.4	0.5	26.6	13.3	27.1	6.9	2.4	0.014	0.3
	<b>Total Inferred</b>	<b>47.9</b>	<b>0.5</b>	<b>27.0</b>	<b>12.8</b>	<b>27.4</b>	<b>6.9</b>	<b>3.1</b>	<b>0.025</b>	<b>0.2</b>
	<b>Diss / Band Global</b>	<b>66.3</b>	<b>0.5</b>	<b>27.4</b>	<b>12.8</b>	<b>26.8</b>	<b>7.0</b>	<b>3.0</b>	<b>0.025</b>	<b>0.2</b>
<b>Combined</b>	<b>Global Combined</b>	<b>146.2</b>	<b>0.8</b>	<b>38.7</b>	<b>8.8</b>	<b>16.0</b>	<b>10.1</b>	<b>1.7</b>	<b>0.016</b>	<b>0.2</b>

*\* Note: The Mineral Resources were estimated within constraining wireframe solids using a nominal 0.9% V<sub>2</sub>O<sub>5</sub>% lower cut-off grade for the massive magnetite zones and using a nominal 0.4% V<sub>2</sub>O<sub>5</sub>% lower cut-off grade for the banded and disseminated mineralisation zones. The Mineral Resources are quoted from all classified blocks within these wireframe solids above a lower cut-off grade of 0.4% V<sub>2</sub>O<sub>5</sub>%. Differences may occur due to rounding.*

Data from the previous global Mineral Resource estimate and the 2019 DFS on the GVP were used by independent consultants CSA Global to generate a Proven and Probable Ore Reserve estimate based on the Measured and Indicated Mineral Resource of 39.6 Mt at 0.9% V<sub>2</sub>O<sub>5</sub> located at Gabanintha and Yarrabubba (see ASX announcement dated 16 September 2020). Work is underway to update the Proven and Probable Ore Reserve estimate for the MTMP as part of the Yarrabubba integration work.

Ore Reserve Estimate as at 15 September 2020

Reserve Category	Tonnes (Mt)	Grade V <sub>2</sub> O <sub>5</sub> %	Contained V <sub>2</sub> O <sub>5</sub> Tonnes (Mt)
Proven	1.1	0.96	0.01
Probable	37.9	0.90	0.34
<b>Total</b>	<b>39.0</b>	<b>0.90</b>	<b>0.26</b>

- Note: Includes allowance for mining recovery (98% for massive magnetite ore and 95% for banded and disseminated ore) and mining dilution applied as a 1 metre dilution skin; resulting in a North Pit dilution for massive magnetite ore of 13% at 0.45% V<sub>2</sub>O<sub>5</sub>, and North Pit dilution for banded and disseminated ore of 29% at 0.0% V<sub>2</sub>O<sub>5</sub>; a Central Pit dilution for massive magnetite ore of 10% at 0.46% V<sub>2</sub>O<sub>5</sub>, and Central Pit dilution for banded and disseminated ore of 20% at 0.0% V<sub>2</sub>O<sub>5</sub>; a Southern Pit dilution for massive magnetite ore of 12% at 0.49% V<sub>2</sub>O<sub>5</sub>, and Southern Pit dilution for banded and disseminated ore of 15% at 0.21% V<sub>2</sub>O<sub>5</sub>
- Rounding errors may occur

<b>Capital Structure</b>	
Fully Paid Ordinary Shares on Issue	209.8m
Unquoted Options (\$0.20 – 10/05/23 expiry) <sup>1</sup>	8.00m
Unquoted Options (\$0.50 – 01/01/24 expiry) <sup>2</sup>	4.075m
Unquoted Options (\$0.60 – 30/06/25 expiry) <sup>3</sup>	4.075m
Class B Performance Rights <sup>4</sup>	2.950m
Class D Performance Rights <sup>5</sup>	2.575m

1. Director and employee options – vested on grant of the mining licences, vest on MTMP FID.
2. Employee options – vest and subject to the Company making a final investment decision (FID) for the MTMP prior to 30 October 2023.
3. Employee options vest subject to the Company achieving first commercial production from the MTMP prior to 30 June 2025.
4. Each Class B Performance Right is a right to receive one fully paid ordinary share in TMT, subject to the terms of the employee incentive scheme and subject to the Company making a final investment decision (FID) for the MTMP prior to 30 October 2023.
5. Each Class D Performance Right is a right to receive one fully paid ordinary share in TMT, subject to the terms of the employee incentive scheme and subject to the Company achieving first commercial production from the MTMP prior to 30 June 2025.

### **Forward-Looking Statements**

This document includes forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Technology Metal Australia Limited's planned exploration programs, corporate activities, and any, and all, statements that are not historical facts. When used in this document, words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should" and similar expressions are forward-looking statements. Technology Metal Australia Limited believes that it has a reasonable basis for its forward-looking statements; however, forward-looking statements involve risks and uncertainties, and no assurance can be given that actual future results will be consistent with these forward-looking statements. All figures presented in this document are unaudited and this document does not contain any forecasts of profitability or loss.

### **Competent Persons Statement**

The information in this report that relates to Exploration Results are based on information compiled by Mr John McDougall. Mr McDougall is the Company's Exploration Manager and a member of the Australian Institute of Geoscientists. Mr McDougall has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this report and to the activity which they are 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' (**JORC Code**). Mr McDougall consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mr Aaron Meakin. Mr Aaron Meakin is a Principal Consultant of CSA Global Pty Ltd and is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr Aaron Meakin has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**). Mr Aaron Meakin consent to the disclosure of the information in this announcement in the form and context in which it appears.

The information that relates to Ore Reserves is based on information compiled by Mr Daniel Grosso formerly an employee of CSA Global Pty Ltd. Mr Grosso takes overall responsibility for the Report as Competent Person. Mr Grosso is a Member of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition). The Competent Person, Daniel Grosso has reviewed the Ore Reserve statement and given permission for the publication of this information in the form and context within which it appears.

The information in this report that relates to the Processing and Metallurgy for the Murchison Technology Metals project is based on and fairly represents, information and supporting documentation compiled by Mr Brett Morgan, a full-time employee of Technology Metals Australia. Mr Morgan is a Member of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition). The Competent Person, Brett Morgan consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.