



**TECHNOLOGY**  
METALS AUSTRALIA LIMITED

**ASX Announcement**

**20 November 2017**

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#### **Directors**

Michael Fry:  
**Chairman**

Ian Prentice:  
**Executive Director**

Sonu Cheema:  
**Director and Company Secretary**

#### **Issued Capital**

22,600,001 ("TMT") Fully Paid Ordinary Shares

12,500,000 Fully Paid Ordinary Shares classified as restricted securities

15,000,000 Unquoted Options exercisable at \$0.25 on or before 31 December 2019 classified as restricted securities

10,000,000 Class B Performance Shares classified as restricted securities

**ASX Code: TMT**

**FRA Code: TN6**

# GABANINTHA VANADIUM PROJECT UPDATE

## HIGHLIGHTS

**UPGRADE AND EXPANSION OF THE GABANINTHA MINERAL RESOURCE UNDERWAY WITH EXPECTED DELIVERY OF MAIDEN INDICATED RESOURCE WITHIN OVERALL GLOBAL MINERAL RESOURCE.**

**DETAILED METALLURGICAL TESTWORK ON DIAMOND CORE UNDERWAY AT ALS METALLURGY UNDER THE SUPERVISION OF METS METALLURGICAL CONSULTANTS.**

**BULK DENSITY DATA FROM WHOLE DIAMOND CORE PORTIONS HAS BEEN RECEIVED WITH VALUES EXCEEDING THOSE USED FOR THE MAIDEN INFERRED MINERAL RESOURCE.**

**THE COMPANY'S MARKETING CONSULTANT IN CHINA HAS ENGAGED WITH A NUMBER OF CHINESE VANADIUM END USERS.**

**ON GOING ENVIROMENTAL RESTRICTIONS AND EXPANDING CONSUMPTION OF VANADIUM IN CHINA HAS RESULTED IN AN INCREASING VANADIUM PRICE.**

## BACKGROUND

Technology Metals Australia Limited (ASX: **TMT**) ("**Technology Metals**" or the "**Company**") owns the Gabanintha Vanadium Project ("**Project**"), located 40km south east of Meekatharra in Western Australia, on which it defined a maiden Inferred Mineral Resource<sup>1</sup> ("**Resource**") in June 2017, six months after the Company listed on the Australian Securities Exchange. The Resource, which consists of 62.8Mt at 0.8% V<sub>2</sub>O<sub>5</sub> containing an exceptional high grade component of 29.5Mt at 1.1% V<sub>2</sub>O<sub>5</sub> places the Project comfortably amongst the highest grade vanadium deposits in the World.

Recently completed drilling, which consisted of 7,491m of RC drilling across 72 holes and 1,235m of HQ diamond drilling across 13 holes, infilled and extended the Resource area on the Northern Block and was the first drill testing by the Company at the Southern Tenement (see Figure 1). Drilling on the Northern Block was completed on a mix of 200m and 100m line spacing along the strike length of the Resource and to a maximum down hole depth of 219m. Drilling on the Southern Tenement was completed on 200m line spacing.

Drilling has confirmed the width and tenor of the high grade basal massive magnetite zone and the presence of broad zones of medium grade hanging wall disseminated mineralisation directly above the basal massive magnetite zone in the mineralised layered mafic igneous unit at both the Northern Block and the Southern Tenement.

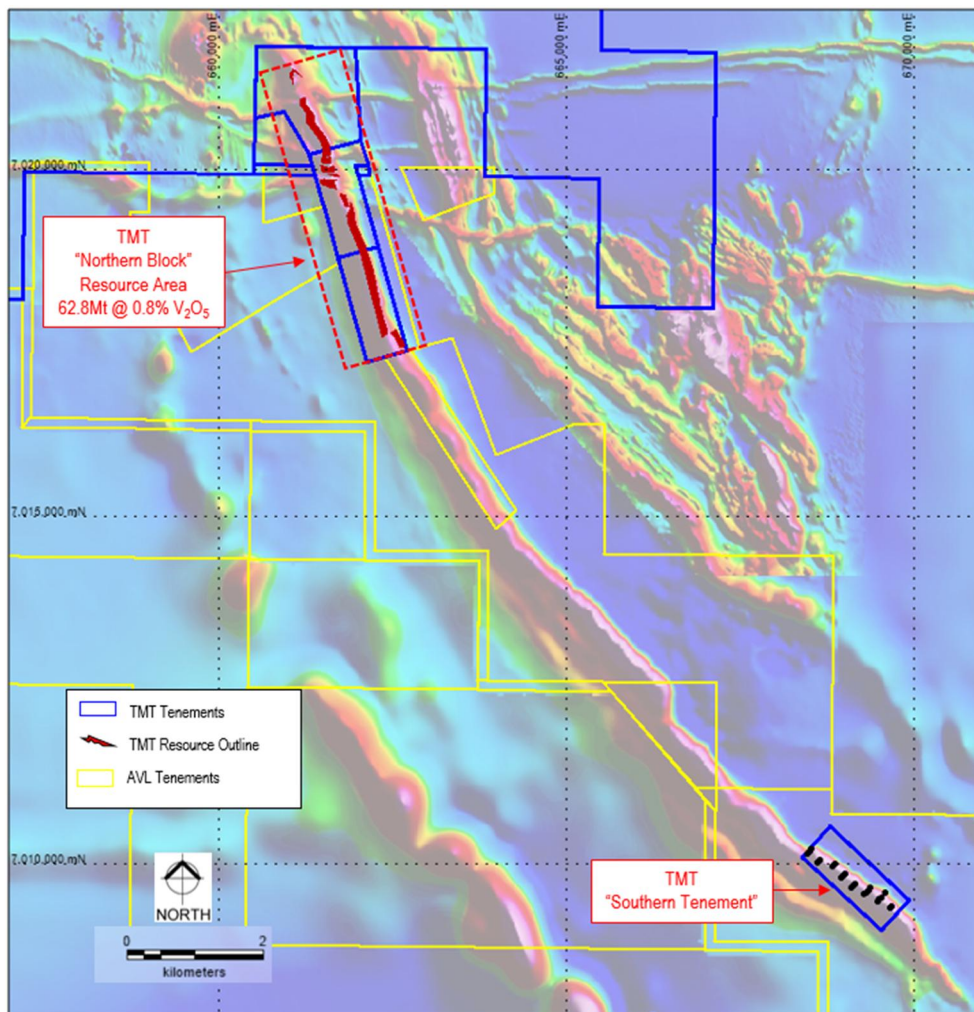
<sup>1</sup> – Technology Metals Australia – ASX Announcement dated 13 June 2017, Maiden Inferred Resource Defined at Gabanintha Including High Grade Component of 29.5Mt at 1.1% V<sub>2</sub>O<sub>5</sub>. Ian Prentice.

## Update of Mineral Resource Estimate

CSA Global, the Company's independent geological consultant, has been engaged to update the Mineral Resource for the Project, utilising the data from the recently completed drilling program, including geological and assay data as well as bulk density information from the diamond drilling. This work is expected to upgrade and expand the overall Resource tonnage for the Northern Block as well as provide an estimate of the maiden Mineral Resource for the Southern Tenement, delivering a Global Mineral Resource for the Project.

Importantly, it is expected that the confirmed continuity of mineralisation, particularly the high grade basal massive magnetite zone, and the areas of closer spaced drilling (100m line spacing) at the Northern Block will enable a portion of the updated Mineral Resource to be reported in the Indicated Resource category.

This work is ongoing with the Company expecting to be in a position to report the results as they are received over the course of the current quarter.



**Figure 1:** Gabanintha Vanadium Project – Location Diagram

## Metallurgical Testwork

The Company's metallurgical consultants Mineral Engineering Technical Services Pty Ltd ("**METS**") have developed a testwork program for the samples generated from the diamond drilling component of the resource infill and extension program completed on the Northern Block of tenements.

Representative samples for the detailed metallurgical testwork are being selected by METS in consultation with the Company's geological team. A number of samples will be selected across a range of zones within the Resource based on geological characteristics, with the aim of testing a mix of medium grade disseminated hanging wall and high grade basal massive magnetite across oxide, transitional and fresh material.

A focus of this testwork program will be to assess the magnetic separation characteristics of the medium grade hanging wall disseminated mineralisation independent of the basal massive magnetite zone. METS are of the view that the medium grade hanging wall disseminated mineralisation may beneficiate to produce a higher vanadium grade concentrate, largely due to the higher proportion of gangue minerals in this material which may report to the non-magnetic concentrate. This is supported by the higher concentrate grades reported for the Transition zone composite from the original RC drilling samples

This testwork program is designed to build on the data from the preliminary (sighter) round of testwork completed on composite samples from the original RC drilling program and consists of:

- comminution testwork,
- generation of in-situ bulk density data,
- geometallurgical characterisation,
- establishment of grind sensitivity on beneficiation, and
- magnetic separation testwork.

ALS Metallurgy has been engaged to conduct the testwork under the supervision of METS, with the comminution testwork and in-situ bulk density measurements having already been completed. This work was completed on six portions of whole core, three of the medium grade disseminated hanging wall zone, from transitional to fresh material, and three of the high grade basal massive magnetite zone, from fresh material.

The in-situ bulk density data from the portions of whole core range from 4.41t/m<sup>3</sup> to 4.54t/m<sup>3</sup> for the high grade basal massive magnetite material and 3.02t/m<sup>3</sup> to 3.22t/m<sup>3</sup> for the medium grade disseminated material. The in-situ bulk density values recorded from the laboratory compare very well with data recorded in the field from the diamond drill core when it was geologically logged. This data will be used by CSA Global in the update of the Mineral Resource for the Project. Density values used for the estimation of the maiden Inferred Mineral Resource were 3.6t/m<sup>3</sup> for the high grade basal magnetite zone and 2.4t/m<sup>3</sup> for the hanging wall disseminated zone. It needs to be noted that these values included a portion of oxide material which would deliver an overall lower bulk density, so they are not directly comparable with the data recorded from the portions of whole core.

### **Scoping / Pre-feasibility Study**

The results of the Resource upgrade work and the detailed metallurgical testwork program will form the basis of a scoping / pre-feasibility study, which is expected to commence toward the latter part of the December quarter. This study is designed to:

- assess potential processing flowsheet options,
- provide conceptual open pit mine designs / pit optimisations,
- provide indicative capital expenditure estimates, and
- provide indicative operating cost estimates.

### **Marketing Activities**

The Company, via its corporate adviser, has engaged a China based marketing consultant with extensive experience in the Chinese natural resources industry. The marketing consultant has engaged with a number of Chinese vanadium end users, in both the energy storage (VRB) and steel sectors, on behalf of the Company. These developing relationships are an important component of the Company's strategy to align itself with potential vanadium end users as it progresses the development of the Gabanintha Vanadium Project.

In addition, the Company recently completed an investor roadshow in Europe which included a presentation at the Invest in Australian Resources conference in Frankfurt, attendance at the International Precious Metals and Commodities Show in Munich and a presentation at the Invest in Australian Resources Dinner event at Munich. This marketing activity is in support of the Company's listing on the Frankfurt Stock Exchange and its European based investors.

The Company is also planning to complete Australian investor briefings over the course of November.

## 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 likely very significant use for vanadium is the rapidly developing energy storage (battery) sector with the expanding use and increasing penetration of the vanadium redox batteries (“VRB’s”). VRB’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 VRB’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.

The global vanadium market has been operating in a deficit position for the past five years (source: TTP Squared Inc), with a forecast deficit of 9,700 tonnes in 2017. As a result vanadium inventories have been in steady decline since 2010 and they are forecast to be fully depleted in 2017 (source: TTP Squared Inc). Significant production declines in China and Russia have exacerbated this situation, with further short term production curtailment expected in China as a result of potential mine closures resulting from impending environmental inspections.

The tightening supplies of vanadium are resulting in a global shortage, with prices appreciating dramatically in recent months, with reports out of China indicating significant increases in the “spot” market for vanadium pentoxide.

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

Ian Prentice  
**Executive Director**  
**Technology Metals Australia Limited**

- 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 is on the Gabanintha Vanadium Project located 40km south east of Meekatharra in the mid-west region of Western Australia with the aim to develop this project to potentially supply high-quality V<sub>2</sub>O<sub>5</sub> flake product to both the steel market and the emerging vanadium redox battery (VRB) market.

The Project, which consists of five granted tenements and one exploration licence application, is along strike from, and covers the same geological sequence as, Australian Vanadium Limited's (ASX: AVL) Gabanintha Vanadium project. Vanadium mineralisation is hosted by a north west – south east trending layered mafic igneous unit with a distinct magnetic signature. Mineralisation at Gabanintha is similar to the Windimurra Vanadium Deposit, located 270km to the south, and the Barambie Vanadium-Titanium Deposit, located 155km to the south east. The key difference between Gabanintha and these deposits is the consistent presence of the high grade massive vanadium – titanium – magnetite basal unit, which is expected to result in an overall higher grade for the Gabanintha Vanadium Project.

Data from the Company's maiden drilling program was used by independent geological consultants CSA Global to generate a maiden Inferred Mineral Resource estimate, reported in accordance with the JORC Code 2012 edition, for the Northern Block of tenements at the Project. The Resource estimate confirmed the position of the Gabanintha Vanadium Project as one of the highest grade vanadium projects in the world.

**Table 2 Mineral Resource estimate for Gabanintha Vanadium Project as at 12 Jun 2017**

Mineral Resource estimate for Technology Metals Gabanintha Vanadium Project as at 12 Jun 2017									
Mineralised Zone	Classification	Million Tonnes	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 %	Density t/m <sup>3</sup>
Basal massive magnetite	Inferred	29.5	1.1	46.4	6.1	8.2	12.6	1	3.6
Hanging wall disseminated	Inferred	33.2	0.5	26.6	14.9	27.1	7.2	5.1	2.4
<b>Combined Total</b>	<b>Inferred</b>	<b>62.8</b>	<b>0.8</b>	<b>35.9</b>	<b>10.8</b>	<b>18.3</b>	<b>9.7</b>	<b>3.2</b>	<b>2.8</b>
* Note: The Mineral Resource was estimated within constraining wireframe solids using a nominal 0.9% V <sub>2</sub> O <sub>5</sub> lower cut off for the basal massive magnetite zone and using a nominal 0.4% V <sub>2</sub> O <sub>5</sub> lower cut off for the hanging wall disseminated mineralisation zones. The Mineral Resource is 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.									

<b>Capital Structure</b>	
Tradeable Fully Paid Ordinary Shares	22.6m
Escrowed Fully paid Ordinary Shares <sup>1</sup>	12.5m
Fully Paid Ordinary Shares on Issue	35.1m
Unquoted Options <sup>2</sup> (\$0.25 – 31/12/19 expiry)	15.0m
Class B Performance Shares <sup>3</sup>	10.0m

<sup>1</sup> – 12.5 million fully paid ordinary shares will be tradeable from 21 December 2018.

<sup>2</sup> – 13.7 million unquoted options are subject to restriction until 21 December 2018.

<sup>3</sup> - Convert in to 10 million fully paid ordinary shares on achievement of an indicated resource of 20 Million tonnes at greater than 0.8% V<sub>2</sub>O<sub>5</sub> on or before 31 December 2019. All Performance Shares and any fully paid ordinary shares issued on conversion of the Performance Shares are subject to restriction until 21 December 2018.

### **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 its forward-looking statements are reasonable; 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 Ian Prentice. Mr Prentice is a Director of the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Prentice 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 Prentice 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 are based on information compiled by Mr Galen White. Mr White is a Principal Consultant with CSA Global and a Fellow of the Australian Institute of Mining and Metallurgy. Mr White 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 White 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 the Processing and Metallurgy for the Gabanintha project is based on and fairly represents, information and supporting documentation compiled by Damian Connelly who is a Fellow of The Australasian Institute of Mining and Metallurgy and a full time employee of METS. Damian Connelly 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 a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Damian Connelly consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.