



TECHNOLOGY
METALS AUSTRALIA LIMITED

ASX Announcement

21 January 2022

ACN: 612 531 389

T: 08 6489 1600

F: 08 6489 1601

E: investors@tmtlimited.com.au

Suite 9, 330 Churchill Avenue,
Subiaco WA 6008

www.tmtlimited.com.au

Directors

Michael Fry:
Chairman

Ian Prentice:
Managing Director

Jacqueline Murray:
Director

Sonu Cheema:
Director and Company Secretary

Issued Capital

203,661,390 ("TMT") Fully Paid
Ordinary Shares

20,513,167 – Unquoted Options –
various exercise prices and dates

3,650,000 Performance Rights

ASX Code: TMT

FRA Code: TN6



STRENGTHENING OF VANADIUM ELECTROLYTE TECHNOLOGY PARTNERSHIP

MOU WITH GLOBAL VANADIUM ELECTROLYTE LEADER LE SYSTEM EXPANDED AND EXTENDED

- TMT and LE System, a leading Japanese VRFB R&D company, have mutually agreed to expand and extend the vanadium electrolyte Memorandum of Understanding (MOU)¹.
- Scope to build Australia's first fully integrated vanadium electrolyte plant utilising vanadium from TMT's Murchison Technology Metals Project, a key commercial advantage.
- Investigating development of vanadium electrolyte production capacity in Australia utilising LE System's proprietary technology.
- Feasibility Study (FS) to be prepared jointly with technical support provided by LE System.
- Vanadium electrolyte is the key component in vanadium redox flow batteries (VRFBs).

The Board of Technology Metals Australia Limited (ASX: **TMT**) (**Technology Metals, TMT or the Company**) is pleased to announce that it has mutually agreed with LE System Co., Ltd (**LES**) of Fukuoka, Japan, to extend and expand the MOU executed in March 2021.

The expanded MOU provides the framework for TMT and LES to jointly undertake a Feasibility Study into the development of vanadium electrolyte production capacity in Australia, utilising vanadium product from the Murchison Technology Metals Project (**MTMP**) and LES' proprietary vanadium electrolyte technology. LES will provide technical support and collaboration under a technology licencing agreement.

LE System Chief Executive Officer Junichi Sato commented:

"With the utility energy storage solutions market expanding very rapidly, we recognise the importance of broadening our regional vanadium electrolyte production capacity.

We have known TMT for some time and LE System are very pleased to be partnering with such a high quality Australian company to support its downstream processing initiatives".

Managing Director Ian Prentice commented:

"We view the downstream processing opportunities for vanadium from the MTMP as important for both the future demand of vanadium but also as key to addressing climate change.

TMT plans to build Australia's first fully integrated mine to battery vanadium electrolyte plant working with an exceptional global partner, LE System, a leader in the VRFB industry."

¹ – ASX Announcement dated 15 March 2021 – MOU Signed with Japanese VRFB Electrolyte Company

Extension to Memorandum of Understanding

On 15 March 2021, the Company announced that it had entered into a MOU for the potential use of LE System's VRFB electrolyte technology for the development of a new VRFB industry in Australia using vanadium produced from the MTMP.

The parties have now agreed to extend and expand the scope of the MOU to jointly prepare a Feasibility Study on the development of vanadium electrolyte production capacity in Australia, with technical support to be provided by LES, to the best of its ability, under a proposed technical support and technology licencing agreement (Licencing Agreement).

The Feasibility Study will focus on the operating, capital and permitting factors associated with the development of vanadium electrolyte production capacity, the application of LES' proprietary vanadium electrolyte technology to the premium purity vanadium to be sourced from the MTMP as well as assessing suitable locations for multiple vanadium electrolyte plants proximal to proposed large scale renewable energy production centres designed to service the major population centres of Australia.

TMT aims to be the first fully integrated mine to battery vanadium electrolyte producer in Australia.

This process will provide TMT with access to LES' proprietary processing technology and knowhow, based on intellectual capital accumulated over a decade or more, under the proposed Licencing Agreement. This will include support in sample analysis, flow sheet design, associated R&D and technology collaboration regarding the development of Australian based vanadium electrolyte production capacity.

The work to be undertaken by TMT and LES has scope to establish a significant downstream value add industry designed to target the rapidly emerging stationary storage battery market opportunities in Australia and support the growth of deployment of VRFB's in our region. This will further enhance the significant economic and social benefits for the Mid-West region of Western Australia, the State and the Nation that the development of MTMP is expected to generate over a long period of time.

In addition, the parties will continue to explore opportunities to apply LES' proprietary processing technology to the extraction of vanadium from MTMP waste streams. Successful application of this technology to the MTMP waste streams would provide LES with access to a low cost stable supply of vanadium products and provide TMT with potential environmental management benefits, supporting the Company's key objectives of sustainability and environmental responsibility.

The parties are also continuing to progress discussions to develop a vanadium supply plan (offtake) to assist LES in meeting its forecast demand for electrolyte production to support its participation in the global VRFB market.

The Western Australian Governments Japan based representative of the Department of Jobs, Tourism, Science and Innovation has continued to support the development of TMT's relationship with LES. TMT would like to thank the Government of Western Australia for its ongoing assistance, consistent with the Lead Agency Support in place for the development of the MTMP.

The MoU is effective until 30 June 2022, unless the parties mutually agree to formally terminate or extend the term, with the parties seeking to finalise a binding Licencing Agreement and an offtake agreement to supply vanadium products to LES during the term of the MOU.



Figure 1: LE System's Recently Commissioned Namie, Fukushima, Commercial Scale Vanadium Electrolyte Plant

ABOUT LE SYSTEM CO., LTD.

LE System Co., Ltd. is one of Japan's leading research and development companies for Vanadium Redox Flow Batteries (VRFB) and is on track to become a leading supplier of electrolytes to VRFB manufacturers. Established in 2011, the company is the top electrolyte supplier in Japan and is located in Fukuoka. LE System enjoys strong relationships with the Japanese government and key Japanese enterprises throughout Japan. LE System supports the construction of next-generation energy systems that store and efficiently use electricity to transform the global energy market.

LES commissioned its start of the art commercial scale vanadium electrolyte plant utilising its proprietary technology in Namie, Fukushima Prefecture, Japan, in October 2021. The plant has a production capacity of approximately 5,000m³ of vanadium electrolyte per annum, equivalent to approximately 100MWh of energy storage capacity.

LES' shareholders include Innovation Network Corporation of Japan (INCJ), and TOA ELECTRIC INDUSTRIAL CO., LTD. INCJ was established in July 2009 with the aim of nurturing key industries via open innovation for the prosperity of future generations. INCJ is wholly owned by Japan Investment Corporation (JIC). JIC is owned by the Government of Japan and twenty-five leading Japanese corporations. It aims to address the growing demand for risk capital for long-term, large-scale growth investments with a governance structure conducive to quick and flexible investment decision making. TAO is a leading trading and manufacturing company established in 1947 with 34 offices in nine countries with strong global distribution capabilities. It focuses on electrical and electronic materials and parts, capital investment as well as advanced technology.

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

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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 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_2O_5 flake product to both the steel market and the emerging vanadium redox battery (VRFB) market.

The Project consists of eleven granted tenements and three applications divided between the Gabanintha Vanadium Project (12 tenements) and the Yarrabubba Project (2 tenements). Vanadium mineralisation is hosted by a north west – south east 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.

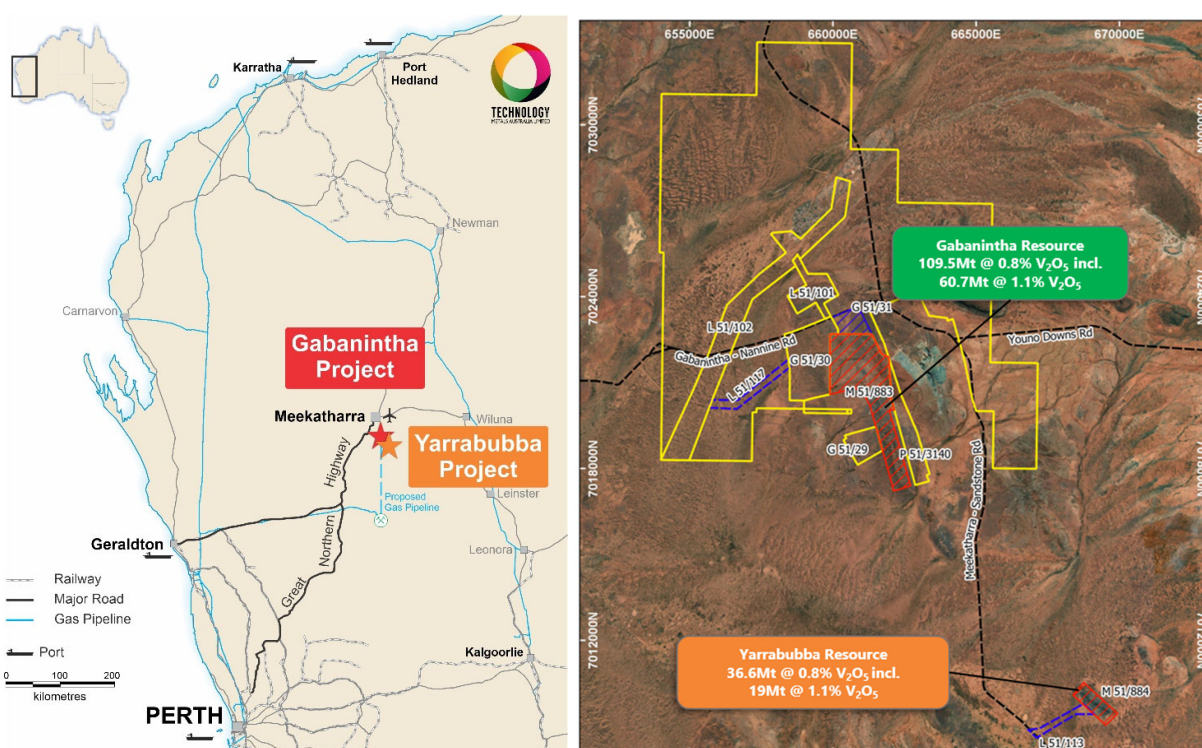


Figure 2: GVP and Yarrabubba Location and Tenure

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 ₂ O ₅ %	Fe%	Al ₂ O ₃ %	SiO ₂ %	TiO ₂ %	LOI%	P%	S%
Massive Magnetite	Measured (North)	1.2	1.0	44.7	6.2	10.4	11.4	0.0	0.009	0.2
	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
	Total Indicated	30.6	1.1	48.8	5.3	6.4	12.7	0.6	0.008	0.2
	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
	Total Inferred	48.1	1.1	47.7	5.6	7.3	12.6	0.5	0.008	0.2
	Massive Global	79.8	1.1	48.1	5.5	7.0	12.6	0.6	0.008	0.2
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
	Total Indicated	18.4	0.6	28.6	12.6	25.4	7.4	2.7	0.025	0.2
	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
	Total Inferred	47.9	0.5	27.0	12.8	27.4	6.9	3.1	0.025	0.2
	Diss / Band Global	66.3	0.5	27.4	12.8	26.8	7.0	3.0	0.025	0.2
Combined	Global Combined	146.2	0.8	38.7	8.8	16.0	10.1	1.7	0.016	0.2
* Note: The Mineral Resources were estimated within constraining wireframe solids using a nominal 0.9% V ₂ O ₅ % lower cut-off grade for the massive magnetite zones and using a nominal 0.4% V ₂ O ₅ % 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 ₂ O ₅ %. 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% V₂O₅ 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 ₂ O ₅ %	Contained V ₂ O ₅ Tonnes (Mt)
Proven	1.1	0.96	0.01
Probable	37.9	0.90	0.34
Total	39.0	0.90	0.26

- 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% V₂O₅, and North Pit dilution for banded and disseminated ore of 29% at 0.0% V₂O₅; a Central Pit dilution for massive magnetite ore of 10% at 0.46% V₂O₅, and Central Pit dilution for banded and disseminated ore of 20% at 0.0% V₂O₅; a Southern Pit dilution for massive magnetite ore of 12% at 0.49% V₂O₅, and Southern Pit dilution for banded and disseminated ore of 15% at 0.21% V₂O₅
- Rounding errors may occur

Capital Structure	
Fully Paid Ordinary Shares on Issue	203.7m
Unquoted Options (\$0.20 – 10/05/23 expiry) ¹	8.00m
Unquoted Options (\$0.50 – 01/01/24 expiry) ²	4.35m
Unquoted Options (\$0.25 – 15/06/22 expiry)	6.16m
Unquoted Options (\$0.60 – 30/06/25 expiry) ³	2.00m
Class B Performance Rights ⁴	1.825m
Class C Performance Rights ⁵	1.325m
Class D Performance Rights ⁶	0.50m

1. Director and employee options – 3.875m vested on grant of the mining licences, 4.125 million vest on Gabanintha FID
2. Employee options – 3.925million vest and subject to the Company making a final investment decision (FID) for the MTMP prior to 30 October 2023 and 0.425 million vest subject to the Company achieving first commercial production from 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 C 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 Yarrabubba Project prior to 30 October 2023.
6. 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.