



## VSUN ENERGY TO INSTALL VRFB AT WATER CORPORATION SITE

*Trial of vanadium redox flow battery technology for water purification and pumping applications*

### KEY POINTS

- 5kW/30kWh vanadium redox flow battery (VRFB) to be installed to power a water purification chlorinator for Water Corporation WA.
- Water Corporation will also test the VRFB for use in pumping and other settings.
- Water Corporation is the principal supplier of water, wastewater, drainage and bulk irrigation services in Western Australia.
- Trial forms part of VSUN Energy rollout of systems demonstrating commercial and technical viability of VRFB in long duration energy storage and carbon footprint reduction through displacement of fossil fuel based systems.

Australian Vanadium Limited (ASX: AVL, “the Company” or “AVL”) is pleased to announce that its 100% owned subsidiary VSUN Energy will be installing a 5kW/30kWh vanadium redox flow battery (VRFB) for use on a trial basis at Water Corporation’s innovation hub in Shenton Park, WA at its Water, Research and Innovation Precinct. The VRFB will initially be trialled for use on a mobile water purification unit and will provide 100% renewable power to the system via a solar PV and VRFB standalone power system (SPS).

VSUN Energy will be working with Water Corporation to test, collect data and provide suitable options for potential future use cases for VRFBs throughout Water Corporation’s operations. Of particular interest are remote pumping applications and for supplying power to remote offgrid energy loads, currently powered by diesel generators.

Managing Director, Vincent Algar comments, *“Companies such as Water Corporation have a multitude of settings where a 100% renewable long life asset SPS is well suited. Being able to reduce or eliminate diesel usage almost entirely is a key step to cost optimisation and decarbonisation. Modern VRFBs provide a sustainable, technically advanced and proven energy storage solution that is safe and reliable and can be replicated many times over.”*



**Figure 1 MD Vincent Algar and Electrician Lee Bourke alongside 5kW/30kWh VRFBs**

Water Corporation is the principal supplier of water, wastewater, drainage and bulk irrigation services in Western Australia and is owned by the Western Australian Government. Water Corporation manages almost 35,000km of water mains across an area greater than 2.6 million kilometres. Water Corporation has a commitment to reducing its environmental footprint, with the use of renewable energy being one of the solutions for doing this.

The battery will be provided free of charge to Water Corporation for the duration of the trial, with an option to purchase at Water Corporation's discretion.

VSUN Energy is a 100% subsidiary of Australian Vanadium Limited and is focused on development of the renewable energy and VRFB market in Australia. AVL is developing a mine and processing plant in mid-west WA to produce 5% of global new supply of vanadium pentoxide which is a key ingredient in high-strength low alloy (HSLA) steel and VRFB systems. Both uses of vanadium

contribute significantly to CO<sub>2</sub> emission reduction<sup>1</sup>. Vanadium is listed as a critical mineral in Australia, the US, UK, Japan and Korea.

For further information, please contact:

**Vincent Algar, Managing Director** +61 8 9321 5594

*This announcement has been approved in accordance with the Company's published continuous disclosure policy and has been approved by the Board.*

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<sup>1</sup> Kumar, P.P., Santos, D.A., Braham, E.J., Sellers, D.G., Banerjee S., Dixit, M.K. (2021). Punching above its weight: life cycle energy accounting and environmental assessment of vanadium microalloying in reinforcement bar steel. Environmental Science: Processes & Impacts. 2021 (2), 275-290.

## ABOUT AUSTRALIAN VANADIUM LTD

AVL is a resource company focused on vanadium, seeking to offer investors a unique exposure to all aspects of the vanadium value chain – from resource through to steel and energy storage opportunities. AVL is advancing the development of its world-class Australian Vanadium Project at Gabanintha. The Australian Vanadium Project is currently one of the most advanced vanadium projects being developed globally, with 239Mt at 0.73% vanadium pentoxide ( $V_2O_5$ ), containing a high-grade zone of 95.6Mt at 1.07%  $V_2O_5$ , reported in compliance with the JORC Code 2012 (see ASX announcement dated 1<sup>st</sup> November 2021 ‘*Mineral Resource Update at the Australian Vanadium Project*’ and ASX announcement dated 22<sup>nd</sup> December 2020 ‘*Technical and Financial PFS Update*’).

VSUN Energy is AVL’s 100% owned subsidiary which is focused on developing the market for vanadium redox flow batteries for energy storage.

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, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant 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.

## APPENDIX 1

The Australian Vanadium Project – Mineral Resource estimate by domain and resource classification using a nominal 0.4% V<sub>2</sub>O<sub>5</sub> wireframed cut-off for low-grade and nominal 0.7% V<sub>2</sub>O<sub>5</sub> wireframed cut-off for high-grade (total numbers may not add up due to rounding).

2021 Nov	Category	Mt	V <sub>2</sub> O <sub>5</sub> %	Fe %	TiO <sub>2</sub> %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	LOI %
<b>HG</b>	Measured	11.3	1.14	43.8	13.0	9.2	7.5	3.7
	Indicated	27.5	1.10	45.4	12.5	8.5	6.5	2.9
	Inferred	56.8	1.04	44.6	11.9	9.4	6.9	3.3
	<b>Subtotal</b>	<b>95.6</b>	<b>1.07</b>	<b>44.7</b>	<b>12.2</b>	<b>9.1</b>	<b>6.8</b>	<b>3.2</b>
<b>LG 2-5</b>	Indicated	54.9	0.50	24.9	6.8	27.6	17.1	7.9
	Inferred	73.6	0.48	25.0	6.4	28.7	15.3	6.6
	<b>Subtotal</b>	<b>128.5</b>	<b>0.49</b>	<b>24.9</b>	<b>6.6</b>	<b>28.2</b>	<b>16.1</b>	<b>7.2</b>
<b>Trans 6-8</b>	Inferred	14.9	0.66	29.0	7.8	24.5	15.1	7.8
	<b>Subtotal</b>	<b>14.9</b>	<b>0.66</b>	<b>29.0</b>	<b>7.8</b>	<b>24.5</b>	<b>15.1</b>	<b>7.8</b>
<b>Total</b>	Measured	11.3	1.14	43.8	13.0	9.2	7.5	3.7
	Indicated	82.4	0.70	31.7	8.7	20.7	12.0	5.4
	Inferred	145.3	0.71	33.0	8.7	20.7	12.0	5.4
	<b>Subtotal</b>	<b>239.0</b>	<b>0.73</b>	<b>33.1</b>	<b>8.9</b>	<b>20.4</b>	<b>12.3</b>	<b>5.6</b>

### **COMPETENT PERSON STATEMENT — MINERAL RESOURCE ESTIMATION**

The information in this announcement that relates to Mineral Resources is based on and fairly represents information compiled by Mr Lauritz Barnes, (consultant with Trepanier Pty Ltd) and Mr Brian Davis (consultant with Geologica Pty Ltd). Mr Barnes and Mr Davis are both members of the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG). Both have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Specifically, Mr Barnes is the Competent Person for the estimation and Mr Davis is the Competent Person for the database, geological model and site visits. Mr Barnes and Mr Davis consent to the inclusion in this announcement of the matters based on their information in the form and context in which they appear.

### **COMPETENT PERSON STATEMENT – EXPLORATION RESULTS AND TARGETS**

The information in this report that relates to Exploration Results and Exploration Targets is based on and fairly represents information and supporting documentation prepared by Mr Brian Davis (Consultant with Geologica Pty Ltd) and Ms Gemma Lee who is employed by Australian Vanadium Ltd as a Resource Geologist. Mr Davis is a member of the Australasian Institute of Mining and Metallurgy and Ms Lee is a member of the Australian Institute of Geoscientists. Both Mr Davis and Ms Lee have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken, to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Specifically, Mr Davis and Ms Lee consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.

### **COMPETENT PERSON STATEMENT – METALLURGICAL RESULTS**

The information in this announcement that relates to Metallurgical Results is based on information compiled by independent consulting metallurgist Brian McNab (CP. BSc Extractive Metallurgy). Mr McNab is a Member of AusIMM. He is employed by Wood Mining and Metals. Mr McNab has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is undertaken, to qualify as a Competent Person as defined in the JORC 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr McNab consents to the inclusion in the announcement of the matters based on the information made available to him, in the form and context in which it appears.

## FORWARD-LOOKING STATEMENTS

This release 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 reflect the view of AVL only as of the date of this release.

The forward-looking statements made in this announcement relate only to events as of the date on which the statements are made.

AVL will not undertake any obligation to release publicly any revisions or updates to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this announcement except as required by law or by any appropriate regulatory authority.