



ASX ANNOUNCEMENT

15 DECEMBER 2023

# VANADIUM ELECTROLYTE FACILITY CONSTRUCTION COMPLETE

## KEY POINTS

- Construction of AVL's Western Australian vanadium electrolyte manufacturing facility has been completed without injury
- Facility has potential to produce up to 33MWh of high purity electrolyte per annum
- Vanadium electrolyte production to deliver product into a growing demand market and allows for qualification of AVL material with battery manufacturers

Australian Vanadium Limited (ASX: AVL, "the Company" or "AVL") is pleased to announce the completion of construction of its vanadium electrolyte manufacturing facility ("Facility").<sup>1</sup>

The Facility is located in the northern suburbs of Perth and has been designed to produce up to 33MWh per year of high purity electrolyte for vanadium flow batteries (VFBs). The construction of the Facility has been supported by the majority of a \$3.69 million Australian Government Modern Manufacturing Initiative grant awarded to AVL<sup>2</sup> and demonstrates the value of investing in domestic downstream processing capability, allowing more value from Western Australia's battery mineral endowment to be captured and retained in Australia.

Construction of the Facility was undertaken by Western Australian-based engineering company Primero Group (subsidiary of NRW Holdings, ASX: NWH) and was completed without injury. AVL has issued a certificate of practical completion to Primero Group, which allows for the formal handover of the Facility from the construction team to the commissioning team.

The Facility utilises proven electrolyte manufacturing technology which is licensed from U.S. Vanadium LLC (USV) exclusively to AVL in Australia and New Zealand. Using this technology has greatly reduced the development risk for the Facility.

USV will assist with commissioning of the Facility, which is anticipated to be completed early in 2024. The vanadium electrolyte produced by the Facility will initially be employed in the VFB projects being developed by AVL's wholly owned subsidiary, VSUN Energy Pty Ltd, and will allow AVL to qualify its product with key global VFB manufacturers.

<sup>1</sup> See ASX announcement dated 15 March 2023 'Vanadium Electrolyte Manufacturing Facility Update.'

<sup>2</sup> See ASX announcement dated 21 July 2021 'AVL Awarded \$3.69M Federal Government Manufacturing Grant'

Demand for vanadium electrolyte within the region is expected to grow rapidly over the coming years. According to Guidehouse Insights, *“Asia Pacific leads significantly, with a compound annual growth rate (CAGR) of 25.7% for revenue and 37.4% for energy capacity. By 2031, it is estimated that Asia Pacific will reach around 14.5 GWh of annual VFB energy capacity”*.<sup>3</sup>

Construction and subsequent operation of the Facility demonstrates AVL’s technical capabilities and ensures that the Company remains engaged with downstream aspects of the vanadium and VFB markets.

Vanadium pentoxide for electrolyte manufacture will initially be sourced from USV, prior to supply being available from the Company’s Australian Vanadium Project in Western Australia. The experience gained from the construction of the Facility is anticipated to be of great use in the construction of the Australian Vanadium Project.

AVL’s Chief Executive Officer, Graham Arvidson comments, *“We are pleased to have been able to successfully and safely execute another segment of our ‘pit to battery’ strategy through the construction of Western Australia’s first vanadium electrolyte manufacturing facility. We are grateful to the teams at Primero and USV for their contributions in delivering a facility that is first of its kind for Western Australia. Production of AVL’s first vanadium electrolyte will position the Company to become a trusted supplier for battery projects in Australia and the wider region.”*



**Figure 1 AVL and Primero Group staff at the AVL vanadium electrolyte manufacturing facility**

<sup>3</sup> Guidehouse Insights White Paper, commissioned by Vanitec, entitled ‘Vanadium Redox Flow Batteries – Identifying Market Opportunities and Enablers’, Published 2Q 2022

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*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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## 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 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%  $V_2O_5$  and an Ore Reserve of 30.9Mt at 1.09%  $V_2O_5$  comprised of a Proved Reserve of 5Mt at 1.11%  $V_2O_5$  and a Probable Reserve of 20.4Mt 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 6<sup>th</sup> April 2022 '*Bankable Feasibility Study for the Australian Vanadium Project*').

VSUN Energy is AVL's 100% owned renewable energy and energy storage subsidiary which is focused on developing the Australian market for vanadium flow batteries for long duration energy storage. VSUN Energy was established in 2016 and is widely respected for its VFB expertise. AVL's vertical integration strategy incorporates processing vanadium to high purity, manufacturing vanadium electrolyte and working with VSUN Energy as it develops projects based on renewable energy generation and VFB energy storage.

## 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).

| Zone        | 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 %      |
|-------------|-----------------|--------------|---------------------------------|-------------|--------------------|--------------------|----------------------------------|------------|
| HG          | 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> |
| LG          | 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               | 15.4                             | 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> |
| Transported | 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> |
| Total       | Measured        | 11.3         | 1.14                            | 43.8        | 13.0               | 9.2                | 7.5                              | 3.7        |
|             | Indicated       | 82.4         | 0.70                            | 31.7        | 8.7                | 21.2               | 13.5                             | 6.2        |
|             | 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> |

The Australian Vanadium Project - Ore Reserve Statement as at April 2022, at a cut-off grade of 0.7% V<sub>2</sub>O<sub>5</sub>.

| Ore Reserve      | Mt          | V <sub>2</sub> O <sub>5</sub> % | Fe <sub>2</sub> O <sub>3</sub> % | TiO <sub>2</sub> % | SiO <sub>2</sub> % | LOI%       | V <sub>2</sub> O <sub>5</sub> production kt | Ore Reserve    | Mt    |
|------------------|-------------|---------------------------------|----------------------------------|--------------------|--------------------|------------|---|----------------|-------|
| Proved           | 10.5        | 1.11                            | 61.6                             | 12.8               | 9.5                | 3.7        | 70.9  | Waste          | 238.5 |
| Probable         | 20.4        | 1.07                            | 63.4                             | 12.2               | 9.2                | 3.0        | 152.9                                       | Total Material | 269.4 |
| <b>Total Ore</b> | <b>30.9</b> | <b>1.09</b>                     | <b>62.8</b>                      | <b>12.4</b>        | <b>9.3</b>         | <b>3.2</b> | <b>223.8</b>                                | Strip Ratio    | 7.7   |



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

### ASX Listing Rules 5.19 and 5.23

#### ASX Listing Rule 5.19

The information in this announcement relating to production targets, or forecast financial information derived from a production target, is extracted from the announcement entitled 'Bankable Feasibility Study for the Australian Vanadium Project' released to the ASX on 6<sup>th</sup> 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 announcement relating to exploration results and mineral resource and ore reserve estimates for the Australian Vanadium Project is extracted from the announcement entitled 'Bankable Feasibility Study for the Australian Vanadium Project' released to the ASX on 6<sup>th</sup> 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 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.