

AVL LAUNCHES GREEN HYDROGEN STRATEGY

Vanadium processing carbon emission reduction strategy for a sustainable future

KEY POINTS

- **AVL's green hydrogen strategy includes:**
 - Use of hydrogen in ore reduction process
 - Introducing hydrogen into the natural gas pipeline
 - Transportation – from minesite vehicles through to haulage trucks
 - Use of hydrogen ammonia byproduct material in vanadium processing
- **Expression of Interest submitted to the Government of Western Australia for the Oakajee Strategic Industrial Area - Renewable Hydrogen opportunity**
- **Negotiations underway with key market participants in the hydrogen sector**

Australian Vanadium Limited (ASX: AVL, "the Company" or "AVL") provides this overview of its development of a green hydrogen strategy with resultant carbon emission reduction potential.

The mining industry has been making considerable steps towards a clean energy future in the past few years, with companies such as Sandfire Resources with its DeGrussa minesite solar plant and Gold Fields with the installation of one of the world's largest hybrid microgrids at the Agnew operation and a hybrid energy project at their Granny Smith minesite.

In addition to electrification, carbon emissions are being reduced through a growth in the green hydrogen market. Green hydrogen is produced by using an electric current, generated by a renewable energy source such as solar PV or wind, to break water into hydrogen and oxygen.

Managing Director, Vincent Algar comments, *"The use of green hydrogen could allow AVL to reduce its carbon footprint and leverage both the economical and environmental benefits of this growing market. The green steel opportunity is one that WA should particularly embrace, with the potential for many jobs to be created and a globally competitive steel industry. This strategy can assist with environmental approvals and in attracting finance partners with an environmental, social and corporate governance focus, for AVL to bring the Australian Vanadium Project into production."*

The Australian Vanadium Project ("the Project") is located approximately 40km south-east of Meekatharra and 740km north-east of Perth.

The proposed Project includes open pit mining, crushing, milling and beneficiation at the Meekatharra site and a processing plant for final conversion to high-quality vanadium pentoxide for use in steel, specialty alloys and battery markets, to be located at a site at Tenindewa, between Mullewa and Geraldton (see Figure 1).



Figure 1 Location of The Australian Vanadium Project

AVL's strategy to incorporate hydrogen into the Project includes the following areas:

- Introducing a percentage of green hydrogen into the natural gas feed for the processing plant. The purpose of this is to reduce carbon emissions. This will be analysed fully in the Company's Bankable Feasibility Study.
- Offtake of ammonia from green hydrogen production for use in the final vanadium precipitation step of processing. The CSIRO is working on an ARENA, (the Australian Government's Australian Renewable Energy Agency), funded project to develop a production process that does not contribute to greenhouse gas emissions.
- Powering minesite or haulage vehicles to move material from the minesite to the processing plant with green hydrogen. Hydrogen generation could be undertaken at the minesite and at

the processing plant for refueling. This is a new area of development for Australia and will need to be fully assessed for its financial implications. AVL is keen to work with the Federal and State Governments and haulage companies who have a forward plan for this technology.

- The use of green hydrogen for steel production in the ore reduction step. AVL is seeking partnerships with companies interested in this area as it would be a noble and efficient use for the Fe-Ti coproduct that the Company plans to produce.
- Through AVL's 100% owned subsidiary, VSUN Energy, integrating hydrogen electrolyzers in plant design, combined with energy storage utilising vanadium redox flow battery (VRFB) technology.

To support the Government of Western Australia's plans for a green hydrogen economy, AVL has submitted a formal response to the request for expressions of interest for the Oakajee Strategic Industrial Area Renewable Energy Strategy. Having a Project located in the Mid-West region, with a variety of ways for AVL to incorporate green hydrogen means that the Company is well-positioned to leverage the emerging hydrogen economy and its financial and environmental benefits.

For further information, please contact:

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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 Managing Director Vincent Algar.

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 highest-grade vanadium projects being advanced globally with 208.2Mt at 0.74% vanadium pentoxide (V_2O_5), containing a high-grade zone of 87.9Mt at 1.06% V_2O_5 , reported in compliance with the JORC Code 2012 (see ASX announcement dated 19 December 2018 '*Gabanintha Pre-Feasibility Study and Maiden Ore Reserve*' and ASX announcement dated 4 March 2020 '*Total Vanadium Resource at the Australian Vanadium Project Rises to 208 Million Tonnes*').

AVL has a 100% owned subsidiary called VSUN Energy 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% V₂O₅ wireframed cut-off for low-grade and nominal 0.7% V₂O₅ wireframed cut-off for high-grade (total numbers may not add up due to rounding).

2020 Feb	Category	Mt	V ₂ O ₅ %	Fe %	TiO ₂ %	SiO ₂ %	Al ₂ O ₃ %	LOI %
HG	Measured	10.1	1.14	43.9	13.0	9.2	7.5	3.7
	Indicated	25.1	1.10	45.4	12.5	8.5	6.5	2.9
	Inferred	52.7	1.04	44.6	11.9	9.4	6.9	3.3
	Subtotal	87.9	1.06	44.7	12.2	9.2	6.8	3.2
LG 2-5	Indicated	44.5	0.51	25.0	6.8	27.4	17.0	7.9
	Inferred	60.3	0.48	25.2	6.5	28.5	15.3	6.7
	Subtotal	104.8	0.49	25.1	6.6	28.0	16.1	7.2
Trans 6-8	Inferred	15.6	0.65	28.4	7.7	24.9	15.4	7.9
	Subtotal	15.6	0.65	28.4	7.7	24.9	15.4	7.9
Total	Measured	10.1	1.14	43.9	13.0	9.2	7.5	3.7
	Indicated	69.6	0.72	32.4	8.9	20.6	13.2	6.1
	Inferred	128.5	0.73	33.5	8.8	20.2	11.9	5.4
	Subtotal	208.2	0.74	33.6	9.0	19.8	12.1	5.6

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.