# **ASX Announcement**



# Battery Installation, Electrolyte Pilot Plant and Marketing Update

# **Highlights:**

- First vanadium redox flow battery en route to Western Australia, due to arrive in late August 2016.
- Site works and preparation underway.
- Battery expected to be installed during the week ending 12 September 2016
- Electrolyte pilot plant delivery on track.
- VSUN working on over 40 potential battery sales leads.

Australian Vanadium Limited (ASX: AVL, "the Company" or "AVL") is pleased to provide investors with an update on the progress of the installation of their first vanadium redox flow battery (VRFB) energy storage system and on the progress of the electrolyte pilot plant and on VRFB marketing.

## **Battery update**

VSUN Pty Ltd, AVL's VRFB sales-focused subsidiary, is currently co-ordinating the installation and commissioning of the first VRFB system in Western Australia. The timeline for the project is as follows:

- Site preparation including the installation of conduits and the concrete pad is currently underway (see photograph below).
- The VRFB is due to arrive in Port Klang, Malaysia on 18<sup>th</sup> August 2016, where it will be transferred onto a vessel (MV Xin Lin Yun Gang) bound for Fremantle Port.
- The VRFB is due to arrive at Fremantle Port on 29<sup>th</sup> August 2016.
- Once custom requirements have been met, the battery will be transported to the installation site in Busselton.
- Solar photo-voltaic panels of 15kW output will be installed by VSUN solar collaboration partner Sun Connect Pty Ltd, during the week commencing Monday 5<sup>th</sup> September 2016.
- During that same week VRFB system installation and commissioning training of Australia-based personnel will also occur.
- The VRFB installation and acceptance testing will be undertaken during the week commencing Monday 12<sup>th</sup> September 2016.

The installation will provide an opportunity for potential clients to see the battery system in operation and for the Company to acquire live data for analysis.

The training of Sun Connect and VSUN staff will mean that there will be staff based on both the east and west coasts of Australia who are able to install VRFB systems from future sales.

17 August 2016

#### **ASX ANNOUNCEMENT**

# Australian Vanadium Limited

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Gabanintha Vanadium Gabanintha Gold, Copper



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Concrete pad preparation on-site in Busselton, Western Australia.

## **Electrolyte Pilot Plant**

As per the ASX announcement dated 7<sup>th</sup> June 2016, the electrolyte pilot plant remains on schedule to be completed by C-Tech Innovation Limited in the first week of September, with shipping from the United Kingdom to Perth, Western Australia due to take approximately 45 days.

The potential location of the pilot plant is in a university laboratory facility in the Perth metropolitan area. Installing the pilot plant at a university provides a cost effective solution for AVL and represents an excellent opportunity for collaboration between the commercial and educational fields in this technology space.

## Marketing

VSUN is currently working on over 40 active leads ranging in progress from initial enquiries through to detailed proposals being supplied to potential clients.

Lead generation is partly from inbound contact and partly from contacts the Company has initiated with potential clients and consultants in the energy sector. The Company is working to build its network of contacts and educate the market about the benefits that a VRFB energy storage solution can provide.

#### **About Australian Vanadium Limited**

AVL is a diversified resource company with an integrated strategy with respect to 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 100%-owned, world-class Gabanintha vanadium project. Gabanintha is currently one of the highest-grade vanadium projects being advanced globally with measured, indicated and inferred resources of 91.4Mt, grading 0.82%  $V_2O_5$  and containing a discrete high-grade zone of 56.8Mt, grading 1.0%  $V_2O_5$  reported in compliance with the JORC Code 2012 (ASX Announcement 10 November 2015 and Table 1).

AVL also aims to develop a local production capacity for high-purity vanadium electrolyte, which forms a key component of VRFB. The Company has recently purchased a vanadium electrolyte pilot plant from C-Tech Innovation Limited, a research, technology and innovation organisation based in the UK (ASX Announcement 7 June 2016). C-Tech Innovation Limited has developed technologies for electrochemical preparation of vanadium electrolyte as well as many other chemical and electrochemical technologies.

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The pilot plant purchase will enable AVL to develop unique vanadium electrolyte production expertise and capability in Australia, through both stand-alone and planned mine-attached facilities. The pilot plant will be used to test and verify the production of vanadium electrolyte products that are suitable and approved for use in third party VRFB products being sold in Australia, New Zealand, the Pacific and Asia.

AVL, through its 100%-owned subsidiary VSUN Pty Ltd, is also actively marketing VRFB in Australia through a distribution agreement with world-leading flow battery manufacturer, GILDEMEISTER Energy Storage GmbH (ASX Announcement 11 April 2016).

For further information, please contact:

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# **Competent Person References**

"The information relating to the Gabanintha Mineral Resource estimate was compiled by Mr John Tyrrell. Mr Tyrrell is a Member of the Australian Institute of Mining and Metallurgy (AusIMM) and a full time employee of AMC (Australian Mining Consultants Pty Ltd). Mr Tyrrell has more than 25 years' experience in the field of Mineral Resource Estimation. He has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and in resource model development to qualify as a Competent Person as defined in the 2012 JORC Code.

Mr. Tyrrell consents to the inclusion in the report of the matters based on the information made available to him, in the form and context in which it appears".

The information is extracted from the report entitled "Substantial high-grade vanadium resource highlights Gabanintha's world-class potential" released to ASX on 10 November 2015 and is available on the company website at 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, in the case of estimates of Mineral Resource 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 persons findings are presented has not been materially modified from the original market announcement.

http://www.australianvanadium.com.au/wp-content/uploads/2015/02/Gabanintha-Resource-Update-2015-10-Nov-Final.pdf

Material	JORC Resource Class	Million Tonnes	In situ bulk density	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%
High grade	Measured	7.0	3.73	1.09	43	12	10	8	3.4
	Indicated	4.3	3.29	1.07	41	12	12	9	4.6
	Inferred	45.5	3.67	0.97	42	11	12	8	2.8
Subtotal		56.8	3.65	1.00	42	11	12	8	3.0
Low grade	Indicated	13.4	2.39	0.55	24	7	27	19	8.7
	Inferred	21.1	2.48	0.53	25	7	27	17	7.0
Subtotal		34.6	2.45	0.53	25	7	27	18	7.6
Subtotal	Measured	7.0	3.73	1.09	43	12	10	8	3.4
Subtotal	Indicated	17.8	2.61	0.68	28	8	23	16	7.7
Subtotal	Inferred	66.7	3.29	0.83	37	10	17	11	4.1
	TOTAL	91.4	3.19	0.82	35	10	18	11	4.8

Table 1. Gabanintha Project – Mineral Resource estimate using a  $0.3\% \ V_2O_5$  cutoff for low grade and  $0.7\% \ V_2O_5$  cutoff for high grade (total numbers may not add up due to rounding)

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