

VSUN ENERGY RESIDENTIAL VRFB DEVELOPMENT

Vanadium redox flow battery (VRFB) design work awarded to WA design and consultancy group

KEY POINTS

- **Local Western Australian design and consultancy group appointed for work on residential VRFB design and prototyping.**
- **VSUN Energy is evaluating its recently imported 5kW/30kWh VRFB, manufactured by China's CEC, with Western Australian based CADDs Group.**
- **Grid-connect ready VRFB product testing and development underway at Bibra Lake facility.**
- **Curtin University engineering student assisting with testwork.**

Australian Vanadium Limited (ASX: AVL, "the Company" or "AVL") is pleased to announce that through its 100% owned VRFB subsidiary, VSUN Energy, it has engaged CADDs Group to undertake local design and consultancy for its 5kW/30kWh residential VRFB, which recently arrived from China.

As announced in September¹, AVL signed an MOU with Chinese VRFB manufacturer Gui Zhou Collect Energy Century Science and Technology Co Ltd, trading as CEC VRFB Co. Ltd (CEC), based in Guizhou province. The MOU includes product development for CEC's residential VRFB for the Australian market.

CADDs Group has been engaged to design a new housing for the VRFB system and to provide potential design changes to improve the battery for Australian residential market conditions. The VRFB will be tested onsite at CADDs with the help of engineering capability from Curtin University.

On successful completion of testing, VSUN Energy plans to deploy the unit to a residential customer with a single-phase system, for tests to be completed in a residential environment with solar energy input.

¹ See ASX announcement dated 16th September 2020 'Residential Vanadium Flow Battery Development and Vanadium Offtake MOU'

An engineering student from Curtin University will assist with the testwork and will receive training and support from VSUN Energy.

Managing Director Vincent Algar comments, *“We are looking forward to working with CADDs Group to develop the design for the residential VRFB. This will give us the opportunity to provide feedback to CEC and ensure that the product is ideal for the Australian market. By initiating market growth in smaller systems we anticipate a knock-on effect for larger VRFB uptake, which in turn will grow the market for vanadium pentoxide in energy storage. With the State and Federal Government’s eagerness for increasing manufacturing and green energy capability in Australia, this project is being launched at an ideal time. AVL’s plans for vanadium electrolyte production also aligns with both Federal and State Governments’ strategies.”*



Figure 1 CEC 5kW/30kWh VRFB package with vanadium electrolyte ready for assembly and testing at CADDs Group

VSUN Energy will refine market-ready residential and small business VRFB’s for the Australian energy storage market, with units available in early 2021.

Points in favour of long duration VRFB for residential use include:

- The large capacity (30kWh) enables higher energy self-consumption from the VRFB during peak hours of solar energy stored during the daylight hours. This significantly increases the renewable energy penetration when compared with other system configurations (eg solar only, or solar and Liion).

- The large capacity also allows option to export excess generation at Government of Western Australia Distributed Energy Buyback Scheme rates. This supports the purpose of the scheme which is to reduce the imbalance between peak energy demand and renewable energy production.
- Choice of timing of self-consumption or sale to the grid of VRFB stored energy allows the householder to make their best economic decision.

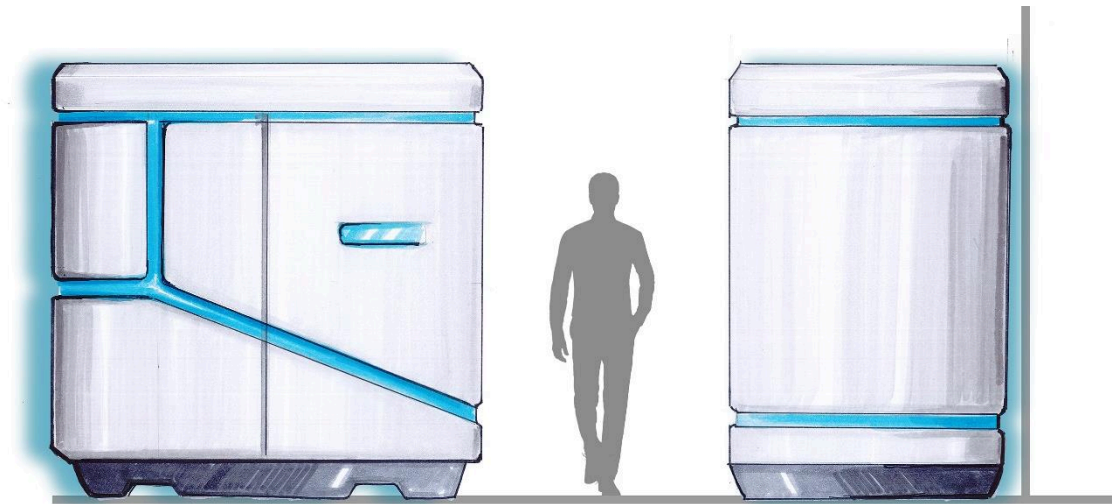


Figure 2 One of the initial VRFB concept designs

In addition to the work VSUN Energy is undertaking with CEC, the company has recently ordered a 5kW/30kWh VRFB from V-Flow Tech in Singapore for a regional residential customer in Western Australia² and a 5kW/30kWh VRFB from V-Flow Tech for the Beverley Caravan Park.

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 Board.

² See ASX announcement dated 1st December 2020 'Vanadium Offtake, Electrolyte Supply and Battery Sales MOU'

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 22 December 2020 ‘*Technical and Financial PFS Update*’ 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.

ABOUT CADDS GROUP

CADDS Group has been successfully delivering integrated engineering services to its clients for over 20 years. All engineering services offered are in-house, which enables delivery of faster turnarounds and cost efficiencies because the services are under one roof. Across an engineering design and construction project the team of professionals work together, applying their skills and experience over the complete range of tasks. The CADDS Engineering team consists of: Site representatives; Surveyors; Structural Engineers; Mechanical Engineers; Civil & Structural Designers; Product Designers; Steel Detailers and Fabricators.

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.