

The World's Next HIGH GRADE Vanadium Mine

For personal use only

January 2018

For personal use only

Disclaimer

The views expressed in this presentation contain information derived from publicly available sources that have not been independently verified.

No representation or warranty is made as to the accuracy, completeness or reliability of the information.

СОММЕНТ

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. In addition surface sampling assays and drill sample results may also be discussed in the context of information describing the presence of anomalous metal content. The information relating to an Exploration Target should not be misunderstood or misconstrued as an estimate of Mineral Resources or Mineral Reserves. Hence the terms Resource(s) or Reserve(s) have not been used in this context. The potential quantity and grade is conceptual in nature, since there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource.

COMPETENT PERSON REFERENCES

Competent Person Statement – Metallurgical Results

The information in this statement that relates to Metallurgical Results is based on information compiled by independent consulting metallurgist David Pass B.Sc (Hons), Mr Pass is a Member of The Australian Institute of Mining and Metallurgy. David Pass is employed by Battery Limits Pty Ltd Mr Pass 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 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

Mr. Pass 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".

Competent Person Statement - Mineral Resource Estimation

The information in this report 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 Davis is a shareholder of Australian Vanadium Limited. Mr Barnes and Mr Davis are members of the Australasian Institute of Mining and Metallurgy and 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 report of the matters based on their information in the form and context in which they appear.

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 person's findings are presented has not been materially modified from the original market announcement.

FORWARD LOOKING STATEMENTS

This announcement may contain certain "forward-looking statements" which may not have been based solely on historical facts, but rather may be based on the Company's current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors which could cause actual results to differ materially from future results expressed, projected or implied by such 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 Companies other filings. Readers should not place undue reliance on forward looking information. The Company does not undertake any obligation to release publicly any revisions to any "forward looking statement" to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.







Or personal

Vanadium focused ASX listed company

Actively advancing a new, long-life vanadium project at Gabanintha in Western Australia

Significant project with large, high-grade Measured, Indicated and Inferred resources

Traditional steel markets actively seeking new sources of long term vanadium supply

Vanadium use in energy storage market will require increased global vanadium supply

Energy subsidiary VSUN Energy actively developing Australian energy storage market

- AVL offers investors exposure to entire vanadium value chain
- Focus offers leverage to rising vanadium prices and new applications in energy storage





One of the highest grade vanadium deposits being advanced globally, having a Mineral Resource of:

- 92.8Mt Massive High Grade Zone at 0.96% V₂O₅
- As part of a total 179.6Mt at 0.75% vanadium pentoxide (V₂O₅), extending over 11km of strike



Investment Highlights





Massive High Grade Vanadium Zone 92.8Mt at 0.96% V205

Extensive metallurgical test work completed. **Development being** fast-tracked.

for the

11 km PROJECT **STRIKE DRILLED 100% OWNED MINING APPROVAL UNDERWAY**

Experienced management are committed to see the Gabanintha resource to production

Australian Vanadium Limited | ASX: AVL







Australian Vanadium Limited | ASX: AVL

Investment Highlights

Key Statistics (as at 16-1-18)							
Ordinary shares on issue	1,497m						
Listed Options (ex at 2c exp Dec 2018) AVLO	402.8m						
Share price	AUD \$0.048						
Market capitalisation (undiluted)	A\$74.9m (Cash ~A\$3m)						
Shareholders	4,177						

Substantial Shareholders	% holding			
JP Morgan Stanley Australian Limited	3.03 %			
Management	7 %			

Board of Directors	Title			
Vincent Algar Bsc (Hons) Geol, MAusImm	Managing Director			
Leslie Ingraham	Executive Director			
Brenton Lewis MBSc, BBSc (Hons)	Non Executive Chairman			
Daniel Harris BSc Chem Eng	Non Executive Director			



Australian VANADIUM

Vanadium Markets - Steel

Despite reduced rate of steel production, demand for vanadium continues to grow. Steel remains a price driver for vanadium. Steel is primary market (92% of vanadium consumption)

Addition of 0.2% vanadium increases steel strength up to 100% and reduces weight up to 30%

Demand for use in rebar continues to increase at 6% annually (TTP Squared)

New standards for Chinese rebar require increased vanadium use, doubling to rest-of-world standards

New markets in steel will increase demand such as:

- Materials for automotive, aviation and aerospace
- Power lines and power pylons
- High-strength steel structures





Steel

Vanadium Markets - Steel

Global inventory levels are decreasing as evidenced by rising prices over the past three years.

- Ferrovanadium prices in China have risen to about \$60 per kilogram and to about \$43 per kilogram in Europe
- Vanadium pentoxide prices have risen to \$9.50/lb* and as high as \$13/lb in China
- Vanadium prices close to four times higher than 2016*
- Supply remains under pressure globally
- Vanadium electrolyte demand increasing
- New Rebar standard in place
- Environmental shutdowns of slag plants ongoing
- Slag imports to china banned from Jan1 2018



* Source Roskill and Metal Bulletin

Vanadium Markets - Overview



In 2017 (based on first half actual results annualized) vanadium consumption ^{*} will exceed production by more than 8,000 MTV, or 10% of the market.





Vanadium Peer Comparison

Gabanintha a globally significant deposit on grade and tonnage basis



Vanadium Peer Comparison

Market Capitalistion vs contained vanadium pentoxide (V₂O₅)









Globally Significant Project Gabanintha Vanadium Project in Western Australia

SABGENT



High grade resource in favourable mining jurisdiction - Murchison, Western Australia One of the highest-grade vanadium deposits being advanced globally

- The Mineral Resource includes a distinct massive magnetite high-grade zone of 92.8 Mt at 0.96% V₂O₅ consisting of:
- Measured Mineral Resource of 10.2Mt at 1.06% V₂O₅,
- Indicated Mineral Resource of 4.8Mt at 1.04% V₂O₅, and
- Inferred Mineral Resource of 77.8Mt at 0.94% V₂O₅.
- Deposit is at surface suitable for open pit operation and open at depth
- High-grade ore feed defined for 15 years @ 1Mt per year.
- Total Mineral Resource 179.6Mt at 0.75% vanadium pentoxide (V₂O₅) consisting of:
 - Measured Mineral Resource of 10.2Mt at 1.06% V₂O₅,
 - Indicated Mineral Resource of 25.4Mt at 0.62% V₂O₅, and
 - Inferred Mineral Resource of 144.1Mt at 0.75% V₂O₅.





SONAL

Deposit identified over 11km drilled strike length. Good access to infrastructure.







Discrete high-grade zone, simple geometry, suitable for open pit mining



Vanadium Resource



Resource Table

Material	JORC Resource Class	Million Tonnes	V ₂ O ₅ %	Fe%	TiO2 %	SiO2 %	Al2O3 %	LOI%
High grade	Measured	10.2	1.06	41.6	12	11.6	8.6	4.2
	Indicated	4.8	1.04	41.9	11.5	12	8	3.6
	Inferred	77.8	0.94	41.2	10.7	12.7	7.9	3.3
Subtotal High Grade		92.8	0.96	41.3	10.9	12.6	8	3.4
Low grade	Indicated	20.5	0.52	24.3	7.1	27.9	17.6	8.4
	Inferred	61.8	0.52	26.2	7	26.9	16.1	7.2
Subtotal Low grade		82.4	0.51	25.7	7	27.2	16.5	7.5
Subtotal Measured	Measured	10.2	1.06	41.6	12	11.6	8.6	4.2
Subtotal Indicated	Indicated	25.4	0.62	27.7	7.9	24.9	15.8	7.5
Subtotal inferred	Inferred	144.1	0.75	34.4	9	19.2	11.7	5.2
	TOTAL	179.6	0.75	33.8		19.6	12.1	5.4

Note: Mineral Resource estimate by domain and resource classification using a nominal 0.4% V_2O_5 wireframed cutoff for low grade and nominal 0.7% V_2O_5 wireframed cut-off for high grade (total numbers may not add up due to rounding)

Comment

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. In addition surface sampling assays and drill sample results may also be discussed in the context of information describing the presence of anomalous metal content. The information relating to an Exploration Target should not be misunderstood or misconstrued as an estimate of Mineral Resources or Mineral Reserves. Hence the terms Resource (s) or Reserve(s) have not been used in this context. The potential quantity and grade is conceptual in nature, since there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource.

Competent Person Statement - Mineral Resource Estimation

"The information in this report 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 Davis is a shareholder of Australian Vanadium Limited. Mr Barnes and Mr Davis are members of the Australasian Institute of Mining and Metallurgy and 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 report of the matters based on their information in the form and context in which they appear.tes 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 Davis is a shareholder of Australian Vanadium Limited. Mr Barnes and Mr Davis are members of the Australasian Institute of Mining and Metallurgy and 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 report of the matters based on their information in the form and context in which they appear."

Metallurgical Test Work

Prior studies strongly support further work

- Metallurgy and economics focused on opportunities presented by exceptional high grade ore horizon (92Mt at 0.96% V₂O₅, 15Mt at 1.05% V₂O₅ Measured and Indicated Ore)
- High mass recovery from all high grade ores, including oxidised materials, from magnetic separation
- Strong recoveries achieved from coarse grind sizes, scope to maintain low operating costs
- Concentrate grades up to 1.5% V₂O₅ achieved from high grade ores.
- Low silica in concentrate offers significant downstream operating cost benefits.
- Focus on conventional vanadium roast-leach technology for processing





Weathered high-grade ore showing un-oxidised magnetite grain cores

Proposed Process Flowsheet



Mine to Market

- Simple, safe and reliable transport from our Australian fully owned vanadium resource
- Road transport option from Gabanintha to Geraldton Port
- Possibility for initial shipment of 1.5% V₂O₅ ore concentrate in good market conditions
- Potential to further process to final vanadium products in-country and value add to 99.5% V_2O_5





Timelines

Project feasibility study and approval applications during 2018

Australian VANADIUM

- Mine financing and construction planned for 2019
- First production of V₂O₅ ore concentrate planned for 2019/20 (subject to approvals, funding and market conditions)



* Timelines are heavily dependent on external consultants and variables and should be considered an estimate only.

Vanadium Markets – Energy Storage



"Energy storage has the potential to transform our entire energy system." Clean Energy Australia



Battery storage capacity expected to grow to 185 Gwh in the next few years



62 Gwh (30%) of this market demand expected to be taken up by Vanadium Redox Batteries 300,000 tonnes

Results in 300,000 tonnes of new demand for vanadium

Australian Vanadium Limited | ASX: AVL

VSUN energy

Vanadium Markets – Energy Storage



Unique characteristics of Vanadium Redox Flow Batteries (VRBs)

Flow battery technology is well established and at commercial deployment status

 VRBs provide a way to store and re-supply renewable energy. Their very high capacity is ideal for large-scale energy storage applications, unlocking the full potential of renewables while maintaining grid security.

- VRBs have unique advantages over other batteries:
 - Easily scaled into large MW scale solutions
 - Lifespan of 20 years with very high cycle life and no capacity loss over time
 - A key feature of using only one element in electrolyte, $\rm V_2O_5$ which can be recycled
 - Immediate and rapid energy release
 - Excellent charge retention (up to 1 year)
 - Suitable for grid connection
 - Can discharge 100% with no damage
 - Improved safety and low replacement rate compared to Liion (lower lifetime LCOE)



Vanadium Markets – Energy Storage

Defining the space for flow battery technology





VRBs have the unique ability to significantly Energy time-shift very large amounts of previously Centric generated energy. Vanadium-Redox Flow Batteries Lead Acid 1h 5h 2h 10h

Duration

Source: GILDEMEISTER Energy Storage

Australian Vanadium Limited | ASX: AVL

Redox Battery Market Beckons in Australia

Can VRBs be the ultimate grid energy storage solution for Australia?

- Rising power costs: VRBs can reduce power bills by peak/off-peak shifting and demand management
- Australia has world's most extended networks: many fringe-of-grid and off-grid opportunities exist
- Battery storage strongly on political agenda: efforts to reduce power price rises and carbon dependency
- VRB rollout can assist with Australian networks' primary goal capital cost deferment
- Australian storage market expected to grow to 3000MWh by 2030 (CEC Report 2012).
- VSUN Energy actively identifying multiple residential and commercial storage opportunities, ranging from 5kW of power with 15kWh of energy storage to 40MW of power with 160MWh of energy storage.





VSUN energy



Management

At Australian Vanadium Ltd our management are committed to fast-track this significant global resource.

Our team brings together experts in geoscience, mining, chemical engineering, marketing and corporate governance and has an extensive vanadium network.

Within a reliable Australian mining jurisdiction, we believe we have the right team to develop the world's next high grade vanadium mine.

Vincent Algar Managing Director

Mr Vincent Algar BSC (Hons) Geology, MAusIMM, is a geologist by profession with over 25 years' experience in the mining industry spanning underground and open cut mining operations, greenfields exploration. project development and mining services in Western Australia and Southern Africa. He has significant experience in the management of publicly listed companies, which includes the entire compliance, marketing and management process and encompasses the development of internal geological and administrative systems, exploration planning and execution, plus project acquisition and deal completion.

Leslie Ingraham Executive Director

Mr Leslie Ingraham has been in private business for over 26 years, he has worked successfully as a consultant for private companies and public companies listed on the Australian Securities Exchange.

Core competencies are in Corporate advisory, Investor relations, Capital raising, prospecting and exploration in Australia, building long lasting relationships with high end investors in Australia and overseas.

Daniel Harris Non-Exec. Director

Mr. Daniel Harris has a vast amount of expertise in the vanadium industry and an understanding of the resource sector from both a technical and financial perspective. Recent roles include interim CEO and Managing Director at Atlas Iron; Chief Executive & Operating Officer at Atlantic; Vice President & Head of Vanadium Assets at Evraz Group; Managing Director at Vametco Alloys; General Manager of Vanadium Operations at Strategic Minerals Corp, and acting as an independent technical and executive consultant to GSA Environmental Limited in the United Kingdom.

Vincent Algar (left) and Daniel Harris (right)

Brenton Lewis Non-Exec. Chairman

Mr. Brenton Lewis BBSC (Hors) MBSC was a Senior Academic having spent the past 20 years in the tertiary education sector. He has held management positions including Head of Department and Head of Post Graduate Studies and chaired Boards of Management in both academia and community organisations. He has taught, published and researched in areas including Ethics and Psychopathology.



Gabanintha Forward Plan

- Previous (2016) Concept Engineering Study and pit optimisation satisfied Board to advance with definitive studies.
- Appointment of vanadium industry expert Daniel Harris to the Board of AVL brings key expertise and relationships to execute project.
- Previous metallurgical work identified significant opportunities of Gabanintha high grade ore (92Mt at 0.96% V₂O₅).
- Ore highly amenable to producing high mass yield in magnetic concentration up to 1.5% V₂O₅, with very low silica (<2.5% SiO₂), ideal feed for secondary processing.
- Appointment of globally recognised consultants Wood Group to manage test programmes and circuit design.
- Detailed metallurgical test work nearing completion in Q1 2018, followed by processing circuit design.
 - Mining optimisation and scheduling study to follow metallurgical test results.
 - Pre-Feasibility Study (PFS) on concentration plant to follow metallurgical work.
- AVL considering all paths to lower time and capital cost to achieve production from Gabanintha.

Summary



The World's Next High Grade Vanadium Mine

At Australian Vanadium we believe we have the opportunity to be the world's next vanadium mine. Our Gabanintha project is world class and in the top few deposits for size and high grade.

Located in what's considered one of the world's best mining jurisdictions, Gabanintha has the best potential to fill any future shortages.

We believe we have the best combination of management and specialist consultants guiding this world class resource. As we move closer to production, AVL will look to develop strong partnerships that bring mutual success and opportunities to all parties.



For personal use only

Vincent Algar | Managing Director

info@australianvanadium.com.au australianvanadium.com.au +61 (8) 9321 5594 Level 1, 85 Havelock Street West Perth Western Australia 6005

For personal



Australian Vanadium Limited | ASX: AVL

