Investing in a vanadium future with Australian Vanadium

February 2016

Vincent Algar
Chief Executive Officer

Disclaimer

Australian VANADIUM LIMITED

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Comment

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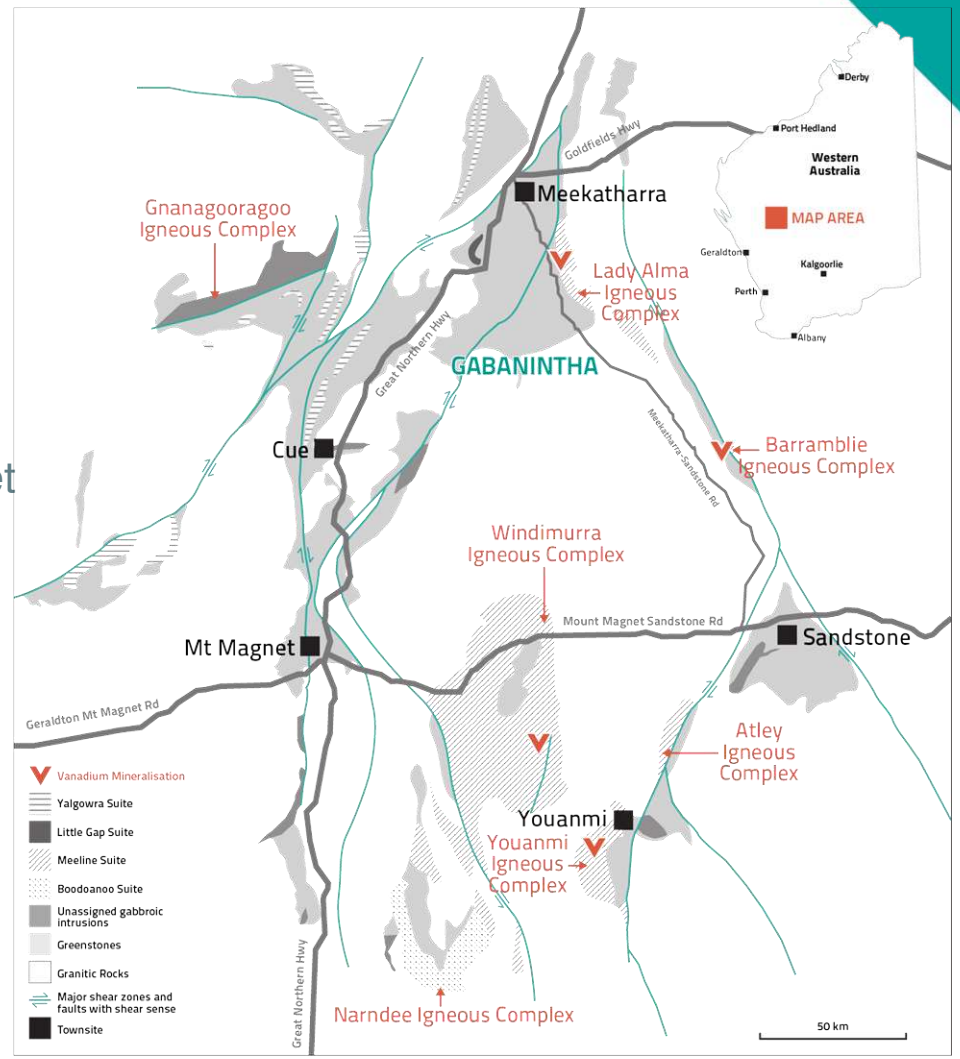
No representation or warranty is made as to the accuracy, completeness or reliability of the information contained in this release. Any forward looking statements in this presentation are prepared on the basis of a number of assumptions which may prove to be incorrect and the current intention, plans, expectations and beliefs about future events are subject to risks, uncertainties and other factors, many of which are outside Australian Vanadium Limited's control. Important factors that could cause actual results to differ materially from the assumptions or expectations expressed or implied in this presentation include known and unknown risks. Because actual results could differ materially to the assumptions made and Australian Vanadium Limited's current intention, plans, expectations and beliefs about the future, you are urged to view all forward looking statements contained in this release with caution. The release should not be relied upon as a recommendation or forecast by Australian Vanadium Limited. Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell shares in any jurisdiction.

Who is AVL ?

- Vanadium focused ASX listed company
- Active evaluation and development of a long-life, low-cost vanadium mine at Gabanintha in Western Australia
- Significant project with large, high-grade resource
- Believe vanadium energy storage market will disrupt global vanadium demand
- Key agreements with Vanadium Battery Suppliers and Solar Energy Installers to develop local market
- AVL offers investors exposure to entire vanadium energy storage value chain



Corporate Snapshot

Capital structure and major shareholders

Key Statistics (as at 24/2/16)	
Ordinary shares on issue	762.7m
Options on issue (ex at 1.5c expire Dec 2017)	261m
Share price	AUD $0.016
Market capitalisation	$12.2m (Cash ~$0.8m)
Shareholders	1,962
Substantial Shareholders	**% holding**
Mr Neale Parsons	4 %
Management	7 %

Board of Directors	Title
Brian Davis B.Sc, Dip.Ed RPGeo (AIG) MAusIMM, MAICD	Chairman
Leslie Ingraham	Executive Director
Brenton Lewis MBSc., BBSc.(Hons)	Non-Executive Director

Management	Title
Vincent Algar Bsc(Hons) Geol, MAusImm	CEO

Australian Vanadium:
Investing in a vanadium future

Strong news flow and growth expected in 2016

Company Milestones

- Resource update completed. Quality, grade and tonnage to support long life, low cost operation.
- Detailed metallurgical study completed, outstanding results support project advancement
- Updated Concept Study due for release in current quarter
- Detailed PFS and complete plant design planned for 2016, along with EIA progress.
- Negotiations with Asian vanadium and steel producers for project involvement
- Vanadium electrolyte plant design and specifications being developed for 2016 construction – to support local vanadium battery sales

VRB Market Development

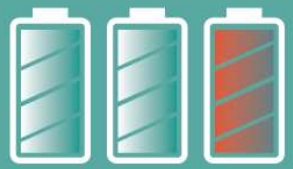
- Subsidiary (VSUN) formed to develop vanadium battery re-seller and electrolyte production.
- MOU signed with global leader in vanadium battery manufacturer
- MOU signed to collaborate with leading Australian commercial solar installer.
- Significant interest and demand for commercial scale solar and storage solutions in urban and rural environments countrywide.
- Research and collaboration opportunities cemented with battery inventor group at UNSW.

Vanadium Markets
Energy Storage

Vanadium in 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



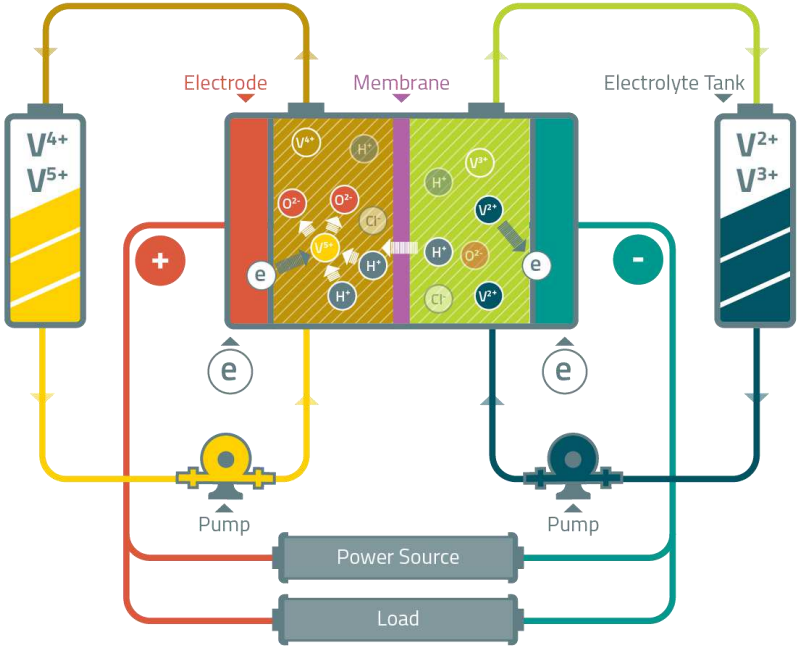
62 Gwh (30%) of this market demand expected to be taken up by Vanadium Redox Batteries

Results in 300,000 tonnes of new demand for vanadium

Vanadium in Energy Storage

Unique characteristics of Vanadium Redox Batteries (VRBs)

- VRBs provide a stable supply of renewable energy; very high capacity ideal for large-scale energy storage applications such as wind and solar
- VRBs have unique advantages over other batteries;
  - Scalability
  - Lifespan of 20 years
  - Immediate energy release
  - Excellent charge retention (up to 1 year)
  - High Cycling ability (000's)
  - Can discharge 100% with no damage
  - A key feature of using only one element in electrolyte, V_2O_5.
  - Improved safety and low replacement rate compared to Li-ion.



Redox Battery Market Beckons in Australia

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

- Rising power costs present good entry point in Australian market. For example reducing operating expenditures (power bills) by peak shifting
- Multiple fringe-of-grid and off-grid opportunities
- Battery storage on political agenda
- Australian storage market expected to grow to 3000MWh by 2030.
- VRB high capacity, long life and high cycle characteristics compliment new solar installs.
- AVL and subsidiary VSUN working with solar installers to develop opportunities for sales.
- Multiple large (+10kW to 200kW) storage opportunities being already identified and in qualifying stages.
- Li-ion proving to not be panacea for all situations- particularly when large power draw is required for many hours.

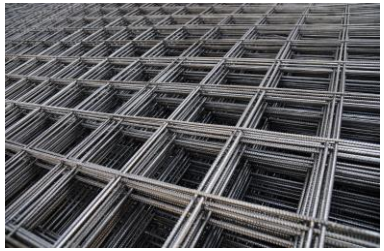
AVL Vertical Integration Strategy

Australian VANADIUM LIMITED

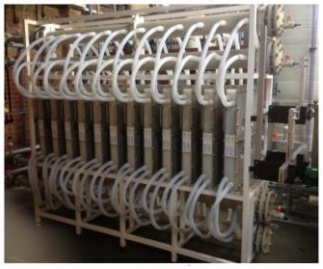
Australian Vanadium

Gabanintha V-Ti-Fe Project

Vanadium production for Steel Market



Vanadium production for Battery Market (when in production)



Initially, buy V_2O_5 inputs from existing producer

Construct Electrolyte Plant

V_2O_5 Electrolyte Producer

Battery sales and distribution

Subsidiary company VSUN created to distribute Vanadium Redox Batteries

Agreement to develop market and sell VRB

Renewable energy system installer

MOU with GILDEMEISTER Energy Storage

VRB Producer a global leader in commercial implementations

- GILDEMEISTER energy storage GmbH develops the CellCube, the world's most commercially advanced Vanadium Flow Battery based on 15 years of development with over 100 installations worldwide.
- MOU to facilitate future co-operation in developing the Australian vanadium flow battery market .
- Facilitate collaboration on a number of key strategic initiatives in Australia including;
  - The completion of a Distribution Agreement for distribution of CellCube energy storage systems.
  - Collaborating on and finalisation of sales leads prior to the completion of the Distribution Agreement.
  - Joint marketing of Vanadium flow battery technologies and CellCube products as the preferred solution to large-scale grid-energy storage across the energy consumer market.
  - Securing long-term local vanadium electrolyte supply for the Australian market through the development of AVL's high-grade Gabanintha Vanadium Project in Western Australia.

GILDEMEISTER
energy solutions

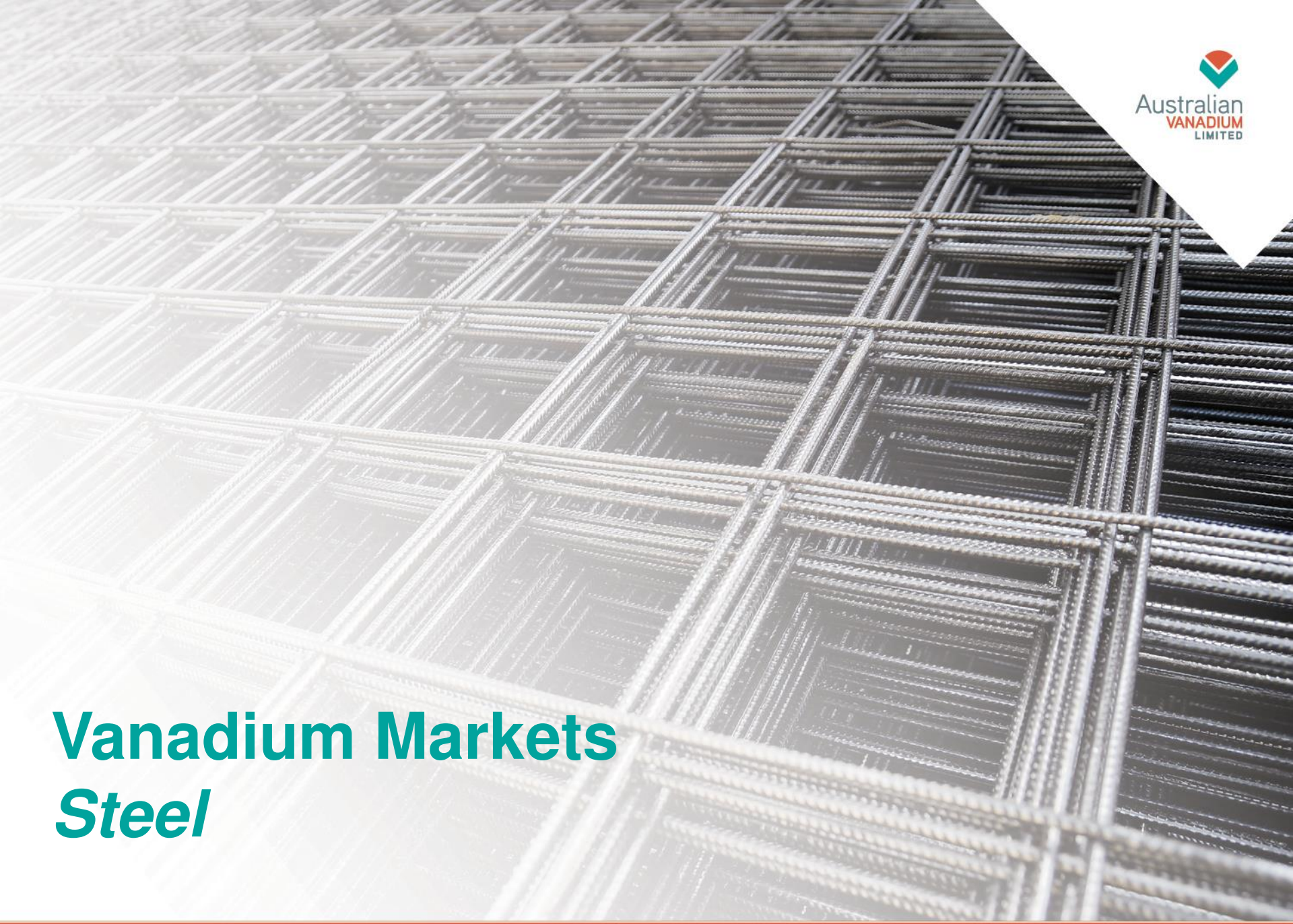
MOU with Sun Connect

AVL to work with Australian Commercial Solar leader for VRB market penetration

- Sun Connect is a nationally operated company a top-five national commercial solar solution company, recognised for its excellence with installing commercial renewable energy systems – making it an appropriate partner for AVL in the installation of integrated solar and VRB solutions.
- AVL and with commercial solar company Sun Connect Pty Ltd have signed an MOU to collaborate on future Vanadium Redox Flow Battery (VRB) installations throughout Australia.
- MOU allows for both partners to collaborate on renewable and energy storage opportunities suitable to VRB's.
- AVL and Sun Connect are actively evaluating several potential integrated solar and VRB installations throughout Australia.

SUNCONNECT

Kill Your Power Bill ™

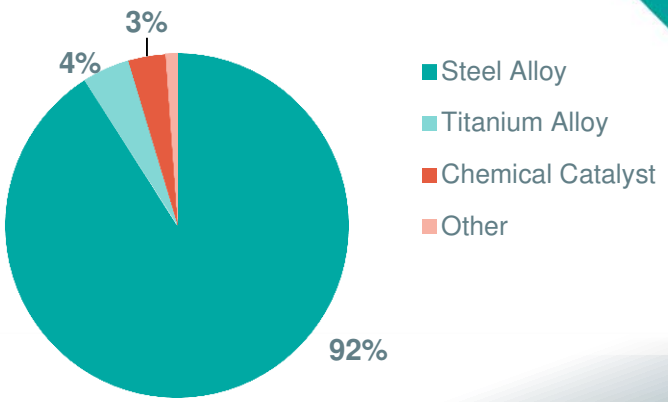


Vanadium Markets
Steel

Vanadium Markets - Steel

Despite reduced rate of steel production, demand for vanadium continues to grow

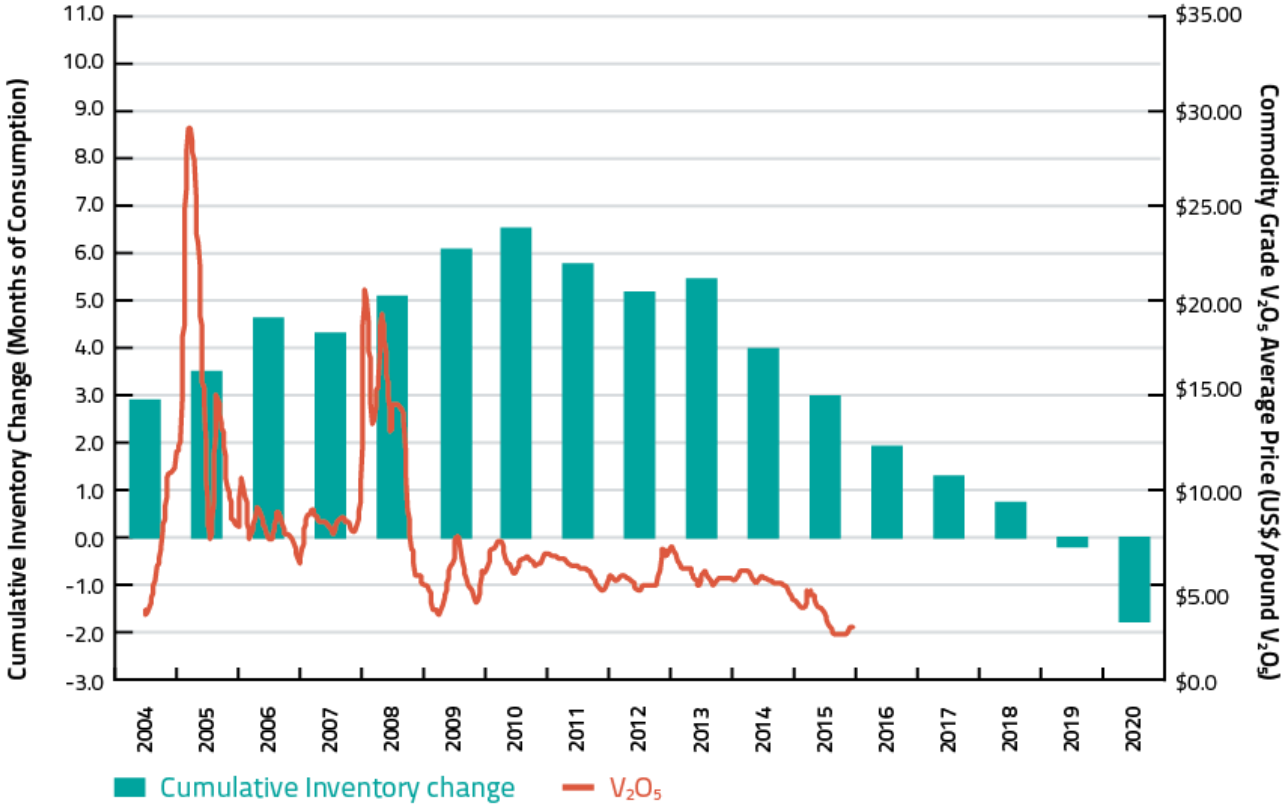
- Steel is primary market (92% of vanadium consumption)
- Addition of 0.2% vanadium increases steel strength up to **100%** and reduces weight up to **30%**
- Demand for use in rebar increasing at 6% annually (TTP Squared)
- New markets in steel will increase demand such as;
  - Materials for automotive, aviation and aerospace
  - Power lines and power pylons
  - High-strength steel structures



Vanadium Markets - Overview

Future outlook for supply and demand offers compelling opportunity for early involvement

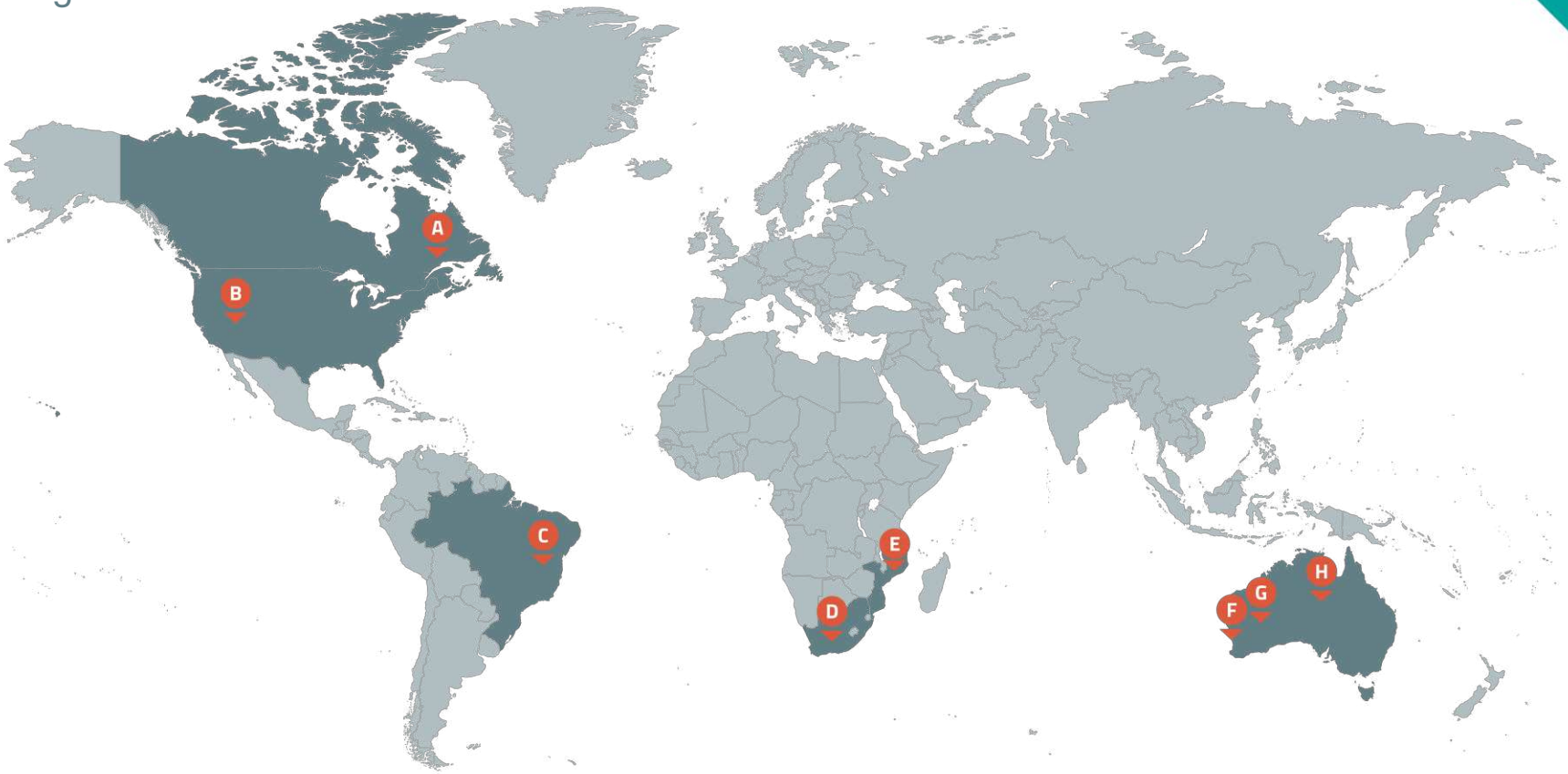
Global Vanadium Inventory Change vs V_2O_5 Price



Globally Significant Project

Global Player

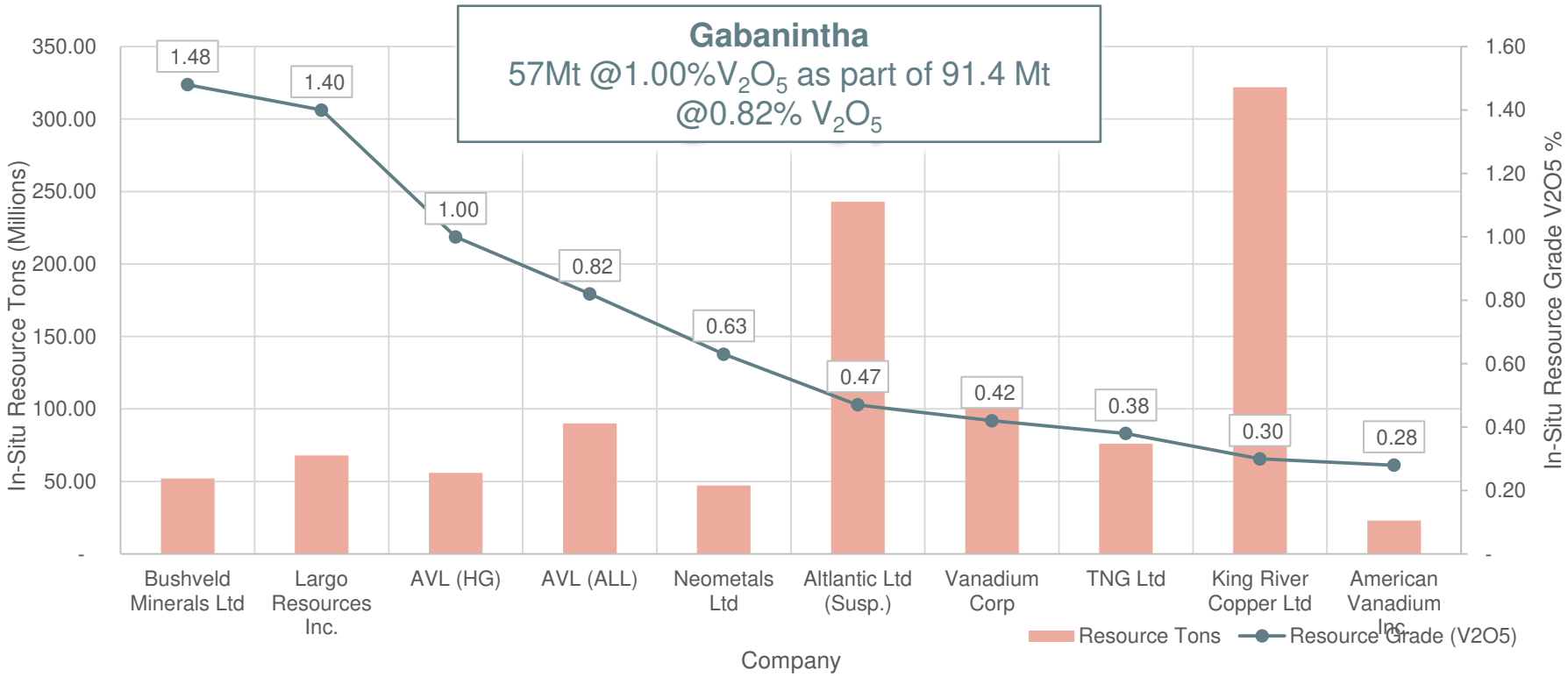
Gabanintha Project is significant development project on a global scale in grade and size



A Vanadium Corp
B American Vanadium
C Largo Resources
D Bushveld Minerals
E Syrah Resources
F Australian Vanadium
G Neometals
H TNG Limited

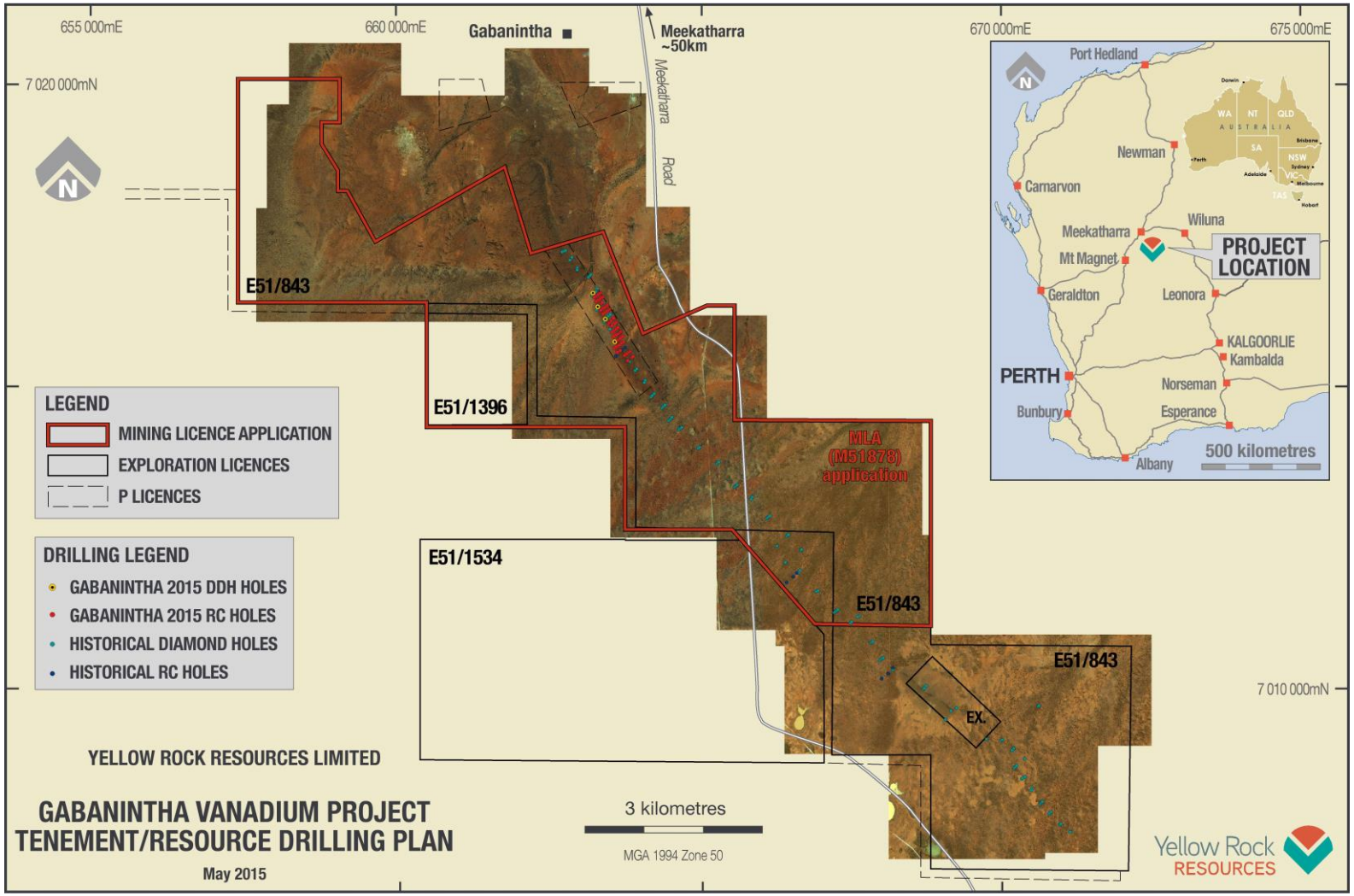
Vanadium Peer Comparison

- Gabanintha a globally significant deposit.
- Measured and Indicated Resources of 24.7Mt
- Undervalued with significant leverage to current share price
- TNG Market Cap of 110M. BMN 24M . AVL is 12m



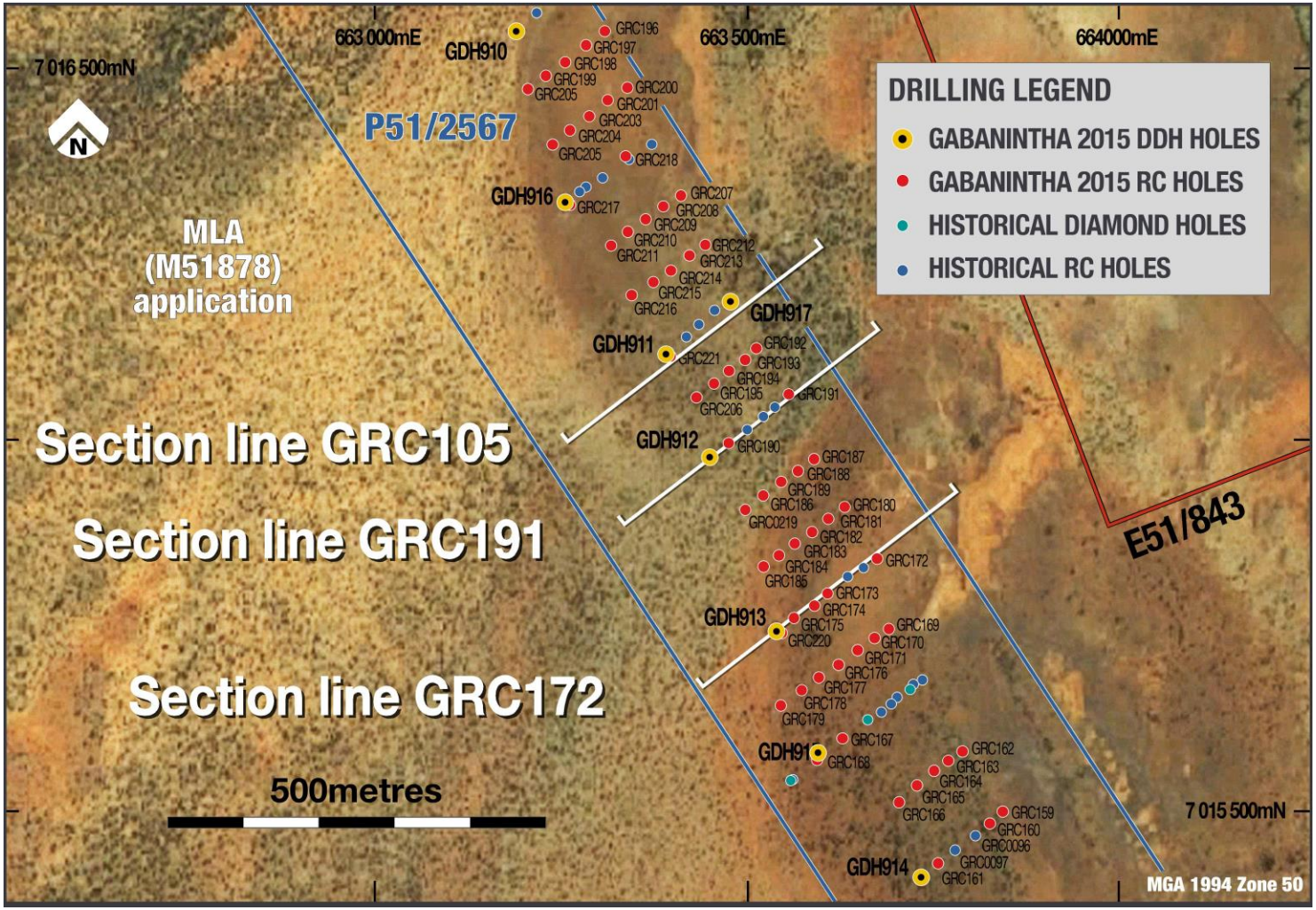
Gabanintha Vanadium Project

Drilling to advance existing potential



Gabanintha Vanadium Project

Discrete high-grade zone, simple geometry



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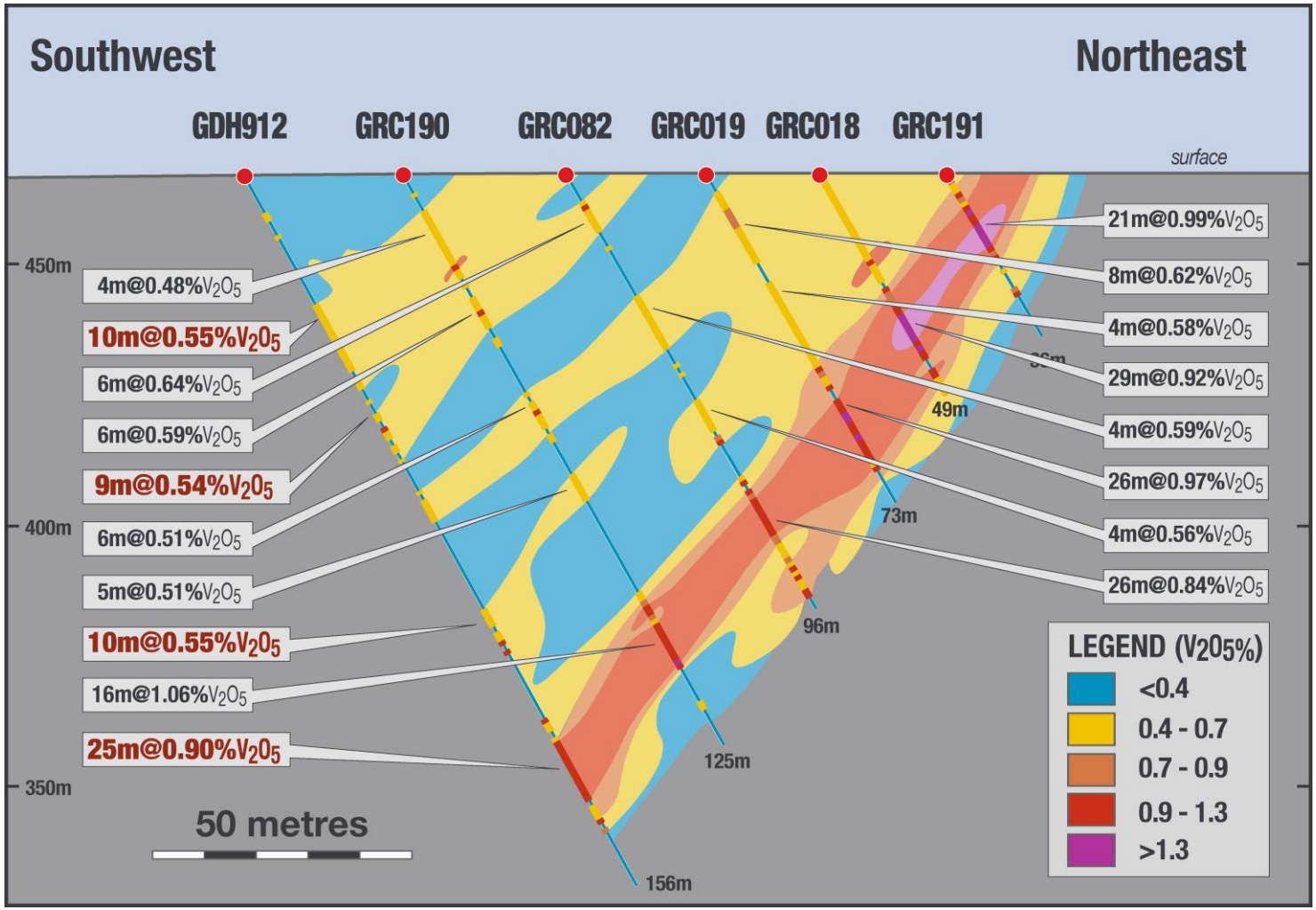

Gabanintha Vanadium Project

High grade resource in favorable mining jurisdiction

- Project located in the Murchison District of Western Australia
- 600km from the port of Geraldton, 30km from Mining Town of Meekatharra
- One of the highest-grade vanadium deposits being advanced globally;
  - JORC 2012 compliant Total Resource of 91.4Mt @ 0.82% V_2O_5, 10% TiO_2 and 35% Fe
  - Separate high-grade Measured Indicated & Inferred Resource of 56.8Mt @ 1.0% V_2O_5, 11% TiO_2 and 42% Fe
- Deposit is at surface suitable for open pit operation– open at depth
- Drilled over 12km of strike
- New Drilling identified 158 significant intersections >4m and >0.5% V_2O_5
- Multiple “Sweet spots” in the high grade zone containing >1.35% V_2O_5
- Close drill spacing confirms continuity and grade in low and high grade zones

Vanadium Resource

Large high-grade resource

Material	JORC Resource Class	Million Tonnes	In situ bulk density	V_2O_5 %	Fe%	TiO_2 %	SiO_2 %	Al_2O_3 %	LOI%
High grade	Measured	7	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 High Grade		**56.8**	**3.65**	**1.0**	**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
Subtotal Low grade		**34.6**	**2.45**	**0.53**	**25**	**7**	**27**	**18**	**7.6**
Subtotal Measured	Measured	7.0	3.73	1.09	43	12	10	8	3.4
Subtotal Indicated	Indicated	17.8	2.61	0.68	28	8	23	16	7.7
Subtotal inferred	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**

Note: density values quoted here are weighted average values. The Mineral Resource was estimated as a block model within constraining wireframes based upon logged geological boundaries and grade cut-offs of 0.30% V2O5 for Low Grade (LG) and 0.70% V2O5 for High Grade (HG). Tonnages have been rounded to reflect that this is an estimate.

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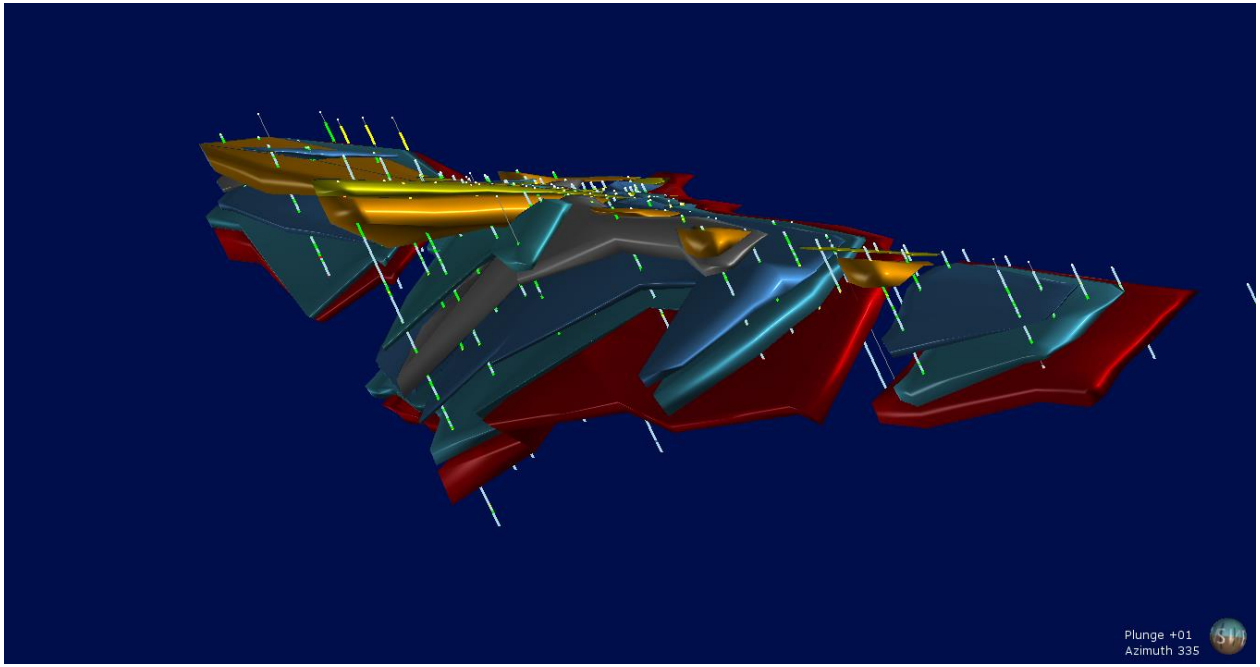
Gabanintha Vanadium Project

Robust Resource with significant optionality and upside for development

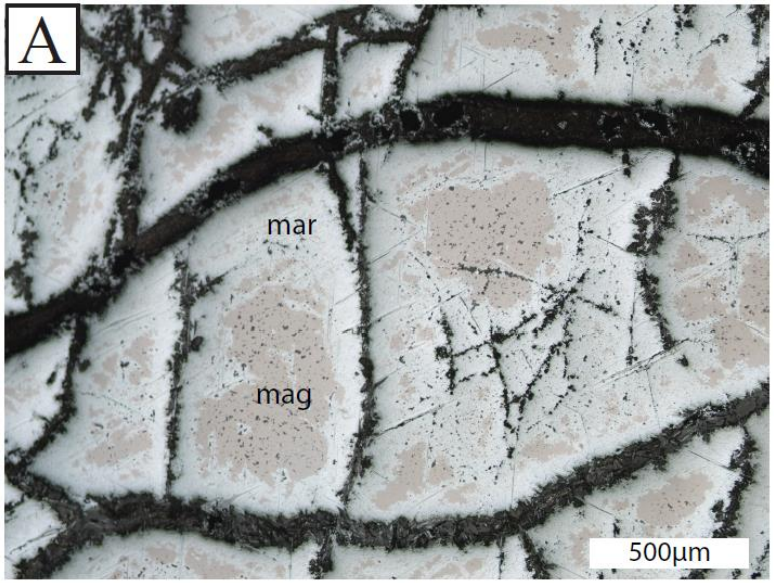


Blend	Summary	Tonnes (Mt)	V2o5	Fe2o3	Sio2	Tio2
15	LGOX	10.4	0.54	34.22	27.19	7.19
10	LGFR	8.4	0.55	36.54	27.24	7.25
50	HGOX	4.9	1.06	59.16	11.70	12.29
25	HGFR	13.7	1.02	60.41	11.84	11.84
	Total	**37.5**	**0.79**	**47.62**	**19.54**	**9.58**
	Feed		**0.92**	**53.47**	**15.61**	**10.91**

Metallurgical Test Work Update

New test work defines processing path forward

- High recovery rates from all ore types, including oxidised materials
- Strong recoveries achieved from coarse grind sizes, scope to maintain low operating costs
- Concentrate grades up to 1.5% V2O5 achieved from high and low grade ores
- Silica content removed easily, benefiting both capex and recovery.
- Titanium readily recovered to concentrates demonstrates potential for additional revenue options
- Mineralogy and Petrology analysis completed at UWA. Finding compliment Met studies



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

Gabanintha Vanadium Project

Concept engineering study shows potential

CONCEPT STUDY PARAMETERS – CAUTIONARY STATEMENT

The Concept Study in this presentation (nominal +/- 50% accuracy) is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the current conclusions of the Concept Study will be realised. While there is a high level of geological confidence associated with Measured and Indicated Mineral Resources, there is no certainty that further exploration and development work will result in the estimation of Ore Reserves.

The Company advises the Concept Study results reflected in this presentation are highly preliminary in nature as conclusions are drawn from the average grade of Measured ,Indicated and Inferred Resources. A generic mining cost per tonne of material moved and an average resource grade has been used to determine overall mining and processing costs as opposed to a detailed mining block model evaluation to produce a detailed mining schedule.

Gabanintha Concept Study

Concept engineering study shows economic potential

- Engineering concept study being updated from 2014 to include new resource and metallurgical data
- New study considers high and low grade zones including oxide high grade utilizing 37.4 Million Tonnes feeding a blend of 0.9% V_2O_5, 53.5% Fe_2O_3 and 10.9% TiO_2 as part of an initial pit scenario
- In new study, High quality Vanadium electrolyte plant will be part of design , offering significant value opportunity.
- With new resource base, new study offers potential and opportunity to improve project economics
- Detailed announcement will be released before end of Q1 2016
- 2014 study considered production of high-purity (+98.5% V_2O_5 Flake) via open pit mining, feed preparation/beneficiation and a salt roast-leach extraction process is well understood and commonly available technology
- Study investigated potential plant capacity options of between 5,000 – 10,000 t V_2O_5 flake,
- Outcome showed technically low risk project with long life (+20 years)
- Estimated C1 cash operating cost[1] of A$7.26/kg (A$3.29/lb) V_2O_5 - could position AVL as a competitive open pit producer (compare Bushveld Minerals PFS C1 Cost of U$3.28/lb)
- Estimated capital cost of 2014 study of A$170 million to A$230 million (based on capacity options)

[1]Estimated C1 cash operating cost

Estimated C1 cash operating cost is as defined in the Tables on page 8 of the ASX announcement dated 15 September 2014, Only site based General and Administration is included

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drilling
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analysis

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