

# Investing in a vanadium future with Yellow Rock

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Vincent Algar
Chief Executive Officer

#### Disclaimer



The views expressed in this presentation contain information derived from publicly available the information has not materially changed since last reported. sources that have not been independently verified. No representation or warranty is made as to the accuracy, completeness or reliability of the information.

#### Comment

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#### Competent Persons Statement

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Results, Mineral Resources and Ore Reserves'. Mr. Davis 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 that refers to Exploration Results and Mineral Resources in this announcement was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that

#### Forward Looking Statements

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 Yellow Rock Resources 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 Yellow Rock Resources Limited's current intention, plans, expectations and beliefs release with caution. The release should not be relied upon as a recommendation or forecast by Yellow Rock Resources 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 iurisdiction.

### **Investment Highlights**



#### » VANADIUM DEMAND

- > Steel industry continues to use and need more vanadium
- > Use of vanadium in rebar steel sector continues to grow at 6.5% annually
- > New Vanadium Redox Battery (VRB) demand set to grow rapidly as grid energy storage options increase
- > VRB's could capture up to 30% of large-scale grid storage market

#### » GLOBALLY SIGNIFICANT VANADIUM-IRON-TITANIUM PROJECT

- > New drilling confirming historical high grades and widths intersecting up to 16m at 1.31% V<sub>2</sub>O<sub>5</sub>
- > Existing large JORC-2004 Indicated and Inferred Resource 125.8Mt @ 0.70% V<sub>2</sub>O<sub>5</sub>, 8.64% TiO2 and 32.60% Fe
- > Contains a separate high-grade resource of 60.4Mt @ 0.98% V<sub>2</sub>O<sub>5</sub>, 11.40% TiO2 and 42.15% Fe

#### » PROJECT ADVANCING TOWARDS FEASIBILITY

- > Active programs and news flow in 2015
- > Additional drilling results including diamond drilling to come
- Resource update to JORC 2012 status including upgrade
- Detailed metallurgical sampling to support upgrade to Scoping/PFS

#### » INVESTOR OPPORTUNITY

- Processing technology well known and many global installations for this type of deposit currently planning to produce a
   V<sub>2</sub>O<sub>5</sub> flake product lower risk
- High grade deposit (>0.7% V<sub>2</sub>O<sub>5</sub>) comparable to world best deposits lower risk
- Currently low share price entry position available with good recent share volume high leverage
- \$3.0m cash position provides strong funding to advance project studies



### Corporate Snapshot

#### Capital structure and major shareholders

Key Statistics (as at 1/6/15)				
Ordinary shares on issue	761.2m			
Options on issue (ex at 1.5c)	261m			
Share price	AUD \$0.012			
Market capitalisation	~\$9.1m (Cash ~\$3.0m)			
Shareholders	1,962			

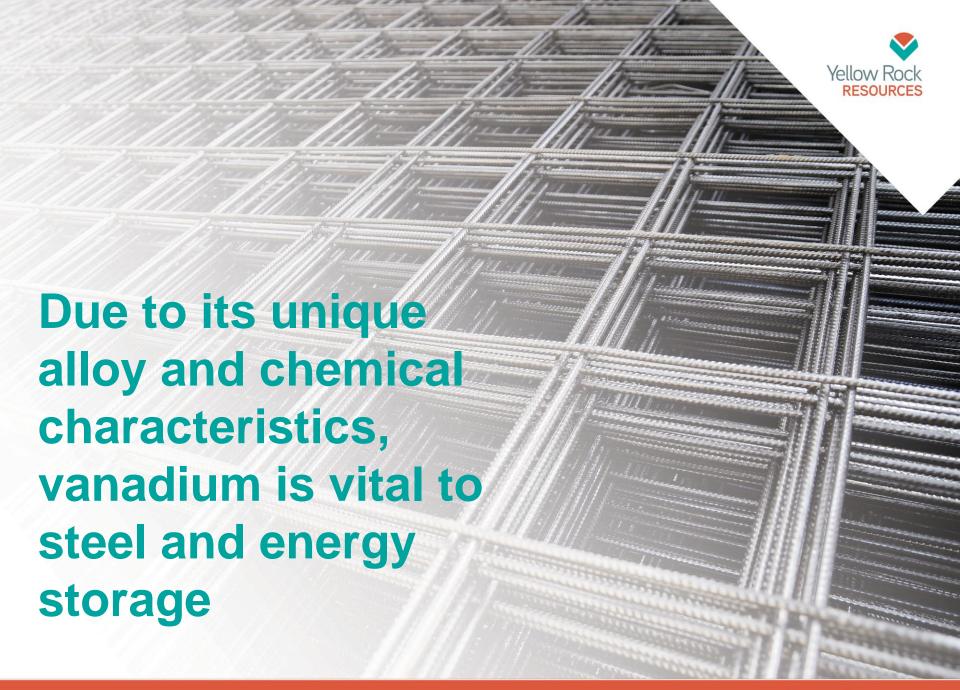
Substantial Shareholders	% holding		
Kimbriki Nominees	~5%		
Management	~7 %		

Board of Directors	Title				
<b>Brian Davis</b> 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

#### Share Price Activity



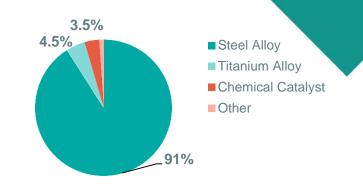




#### Vanadium Demand Drivers

Vanadium has extensive applications

- » Steel is primary market (91%)
- » Addition of 0.2% vanadium increases steel strength up to 100% and reduces weight up to 30%
- » Vanadium helps produce the highest strength to weight ratio of any alloy
- » Demand for use in rebar increasing at 6% annually
- » New markets in steel will increase demand such as;
  - Automotive parts
  - Aviation and aerospace
  - > Power lines and power pylons
  - High strength steel structures
- » Primary ingredient in Vanadium Redox Batteries (VRBs)



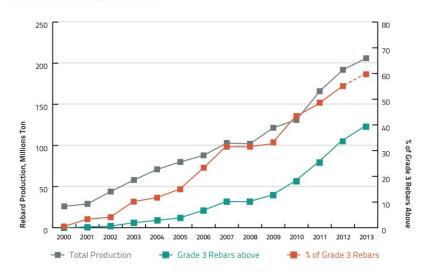




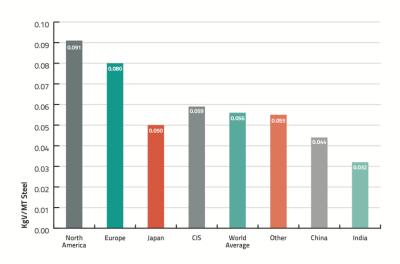
#### Vanadium Markets - Steel

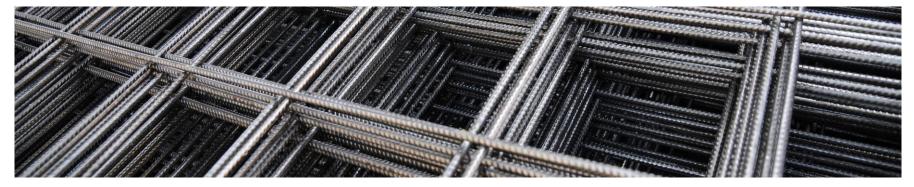
#### Increasing vanadium consumption a key driver

#### China Rebar Production Source: China Iron & Steel Reearch Institute (CISRI)



#### Specific Vanadium Consumption

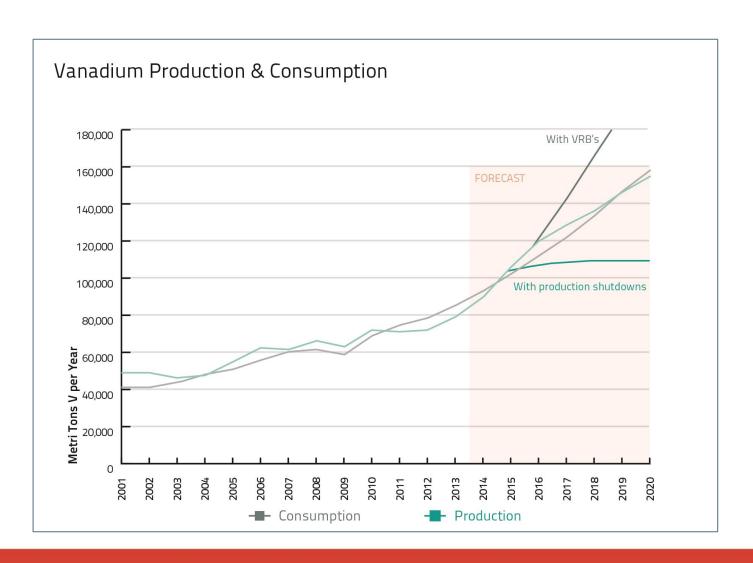






#### Vanadium Markets

Future outlook for supply and demand offers compelling investment case





## Yellow Rock

### Vanadium in Energy Storage

Global growth in renewable energy demand

"Energy storage has the potential to transform our entire energy system. Currently very little of the power we produce can be stored, meaning that power must be generated constantly to meet the demands of a modern society." – Clean Energy Australia Annual Report 2013



In Australia Solar PV systems have increased from 2,500 systems in 2007 to 1.2 million in 2014



### Vanadium in Energy Storage

Potential for huge growth in vanadium demand

- » In 2013 global installation of energy storage amounted to 0.34 gigawatts
- » Energy storage installation projected to increase 1664% to six gigawatts in 2017 and 40 gigawatts by 2022
- » In dollar terms, the market is expected to grow from \$US 2.8 billion to more than \$US 100 billion by 2020
- » Vanadium redox batteries are tipped to capture 30 per cent of this market
- » The V<sub>2</sub>O<sub>5</sub> electrolyte component in the batteries is close to 50% of current VRB battery cost
- » A real opportunity for vanadium producers such as Yellow Rock to be part of this new energy future



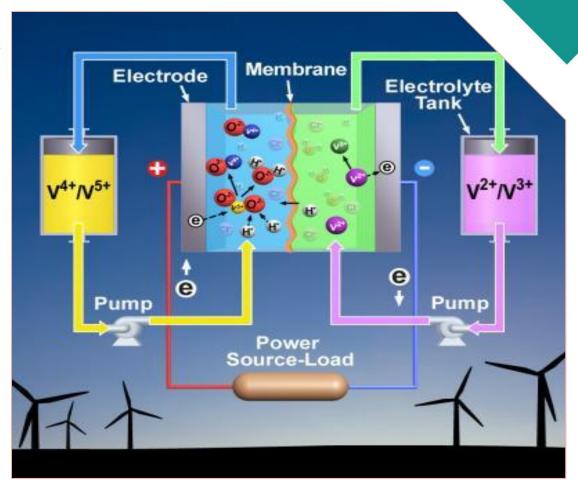
VRB systems are being produced for a wide variety of commercial applications around the world



### 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)
  - Suitable for grid connection
  - Can discharge 100% with no damage
  - A key feature of using only one element in electrolyte, V<sub>2</sub>O<sub>5</sub>.





### Redox Battery Market Developing

Strong sector interest and increasing implementations

- » Sumitomo completed demonstration power generation and storage system at Yokohama Works.
  - · Was then world's largest vanadium redox flow battery and
  - Japan's largest concentrated photovoltaic (CPV) units
- » Sumitomo Electric Industries' vanadium redox flow battery to assist Hokkaido Electric Power.
  - 60MWh device to enable Hokkaido to add increasing amounts of renewable energy to its grid
  - Grid serves millions of customers on the northernmost of Japan's four major islands

» Numerous new battery producers and applications emerging globally

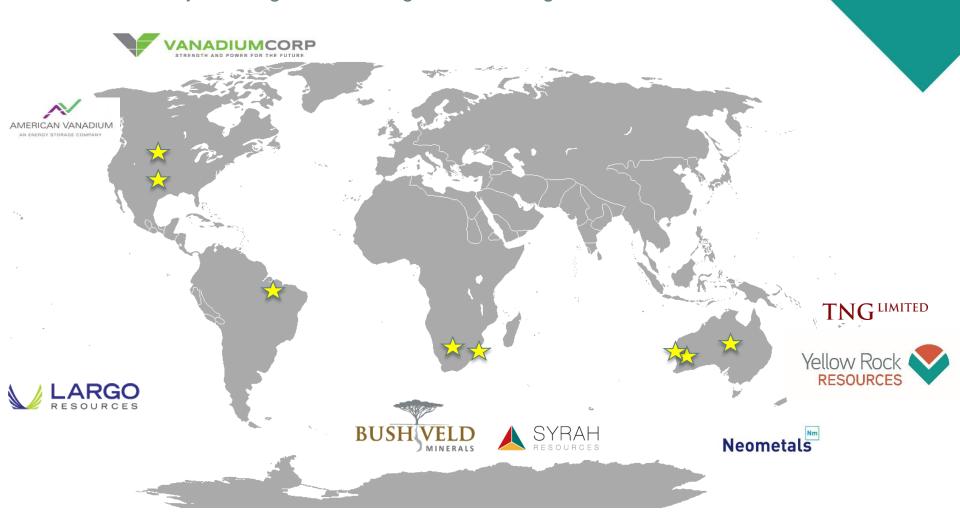






### Global Player

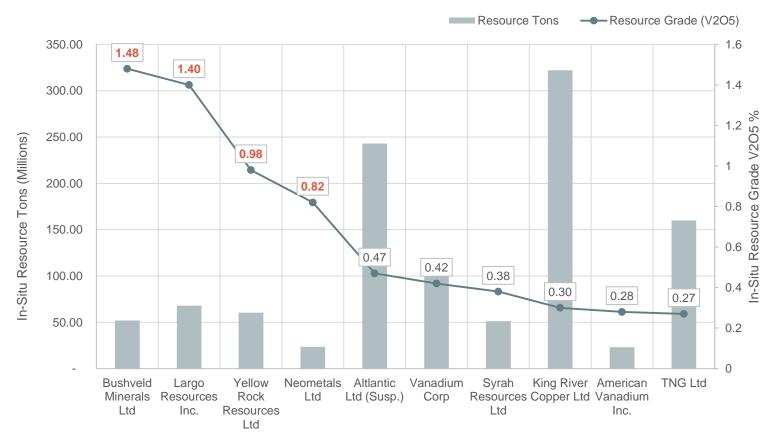
Gabanintha Project is significant on a global scale in grade and size





### **Publicly Listed Peers**

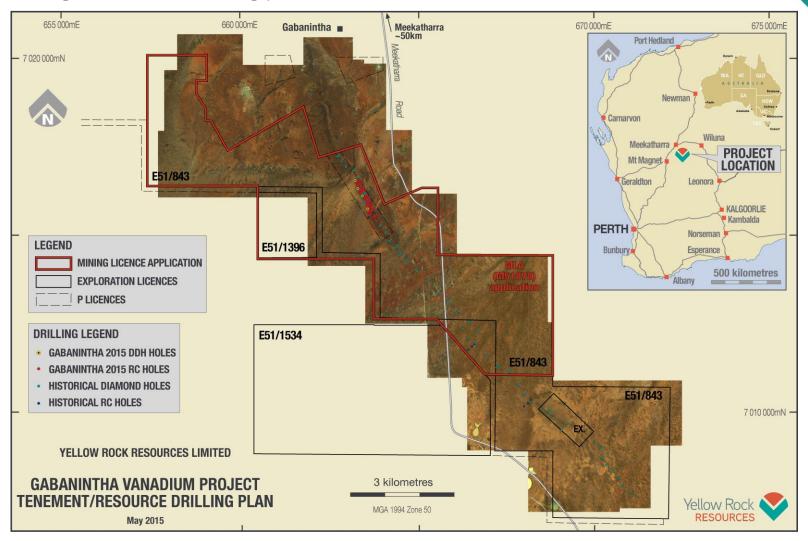
- Gabanintha globally significant deposit
- Undervalued with significant leverage to current share price



Vanadium Resource Company Peer Comparison In Situ Resource Tons and Grade

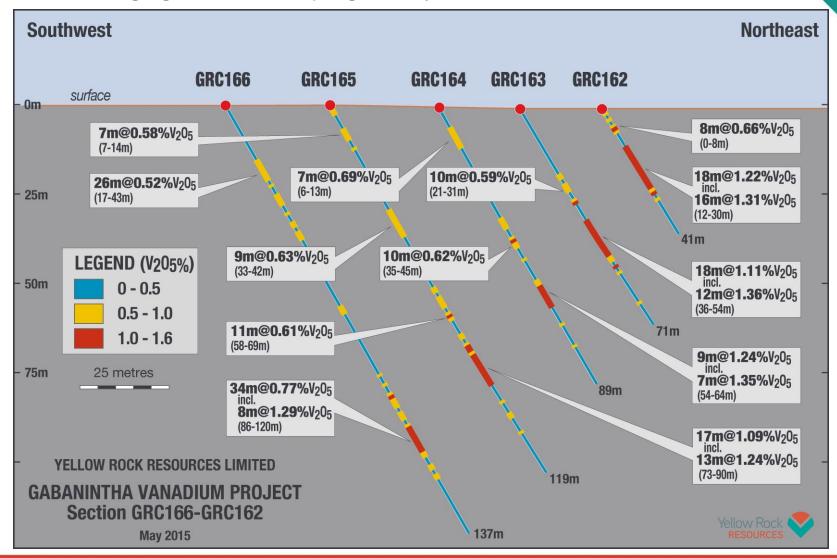


Drilling to advance existing potential





Discrete high-grade zone, simple geometry





High grade resource in favorable mining jurisdiction

- » 100% owned high-grade vanadium project located in the Murchison District of Western Australia,
- » Excellent project location 600km from the port of Geraldton
- » One of the highest-grade vanadium deposits being advanced globally;
  - ) JORC compliant Indicated & Inferred Resource of 125.8Mt @ 0.70%  $V_2O_5$ , 8.64% TiO2 and 32.60% Fe
  - Separate high-grade Indicated & Inferred Resource of 60.4Mt @ 0.98%  $V_2O_5$ , 11.40% TiO $_2$  and 42.15% Fe
  - > Deposit is at surface with open pit potential open at depth
  - > Drilled over 12km of strike
- » Recent drilling confirmed high grades
  - $\sim$  34m at 0.77%  $V_2O_5$  from 86m including 8m at 1.29%  $V_2O_5$
  - $\rightarrow$  16m at 1.31%  $V_2O_5$  from 12m
  - > 12m at 1.24% V<sub>2</sub>O<sub>5</sub> from 36m
  - $\rightarrow$  13m at 1.24%  $V_2O_5$  from 77m
  - $\sim$  17m at 0.87%  $V_2O_5$  from 84m including 9m at 1.17%  $V_2O_5$
  - More drilling results to be announced
- » Historical high grades
  - $_{
    m >}$  64% of 167 historical holes intersected greater than 4m over 1%  $V_2O_5$





#### Vanadium Resource

#### Large high-grade resource

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	Indicated	14.4	4.17	1.03	42.14	12.07	11.42	7.84	3.37
	Inferred	46.0	4.16	0.97	42.15	11.19	12.37	8.28	3.20
Subtotal		60.4	4.16	0.98	42.15	11.40	12.15	8.17	3.24
Low grade	Indicated	42.7	2.71	0.44	23.37	6.08	29.25	18.09	8.94
	Inferred	22.7	2.67	0.42	22.65	6.08	30.62	16.96	6.92
Subtotal	Indicated	57.0	2.97	0.59	28.10	7.59	24.76	15.51	7.54
Subtotal	Inferred	68.8	3.51	0.79	35.70	9.50	18.40	11.15	4.43
	Total	125.8	3.25	0.70	32.60	8.64	21.29	13.13	5.84

Note: In-situ dry bulk density has been assigned based on V2O5 grade, therefore 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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Yellow Rock RESOURCES

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. There is a low level of geological confidence associated with Indicated and Inferred Mineral Resources and 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 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 potential

Engineering concept study completed in September 2014

- » Technically low risk and long life (+20 years)
- » Estimated C1 cash operating cost¹ of A\$7.26/kg (A\$3.29/lb) vanadium pentoxide could position Yellow Rock as a competitive open pit producer (current V2O5 pricing around A\$7-9/lb)
- » Estimated capital cost of A\$230 million
- » Study investigated potential plant capacity options of between 5,000 10,000 t V2O5 flake
- » Production of high-purity (+98.5% V2O5 Flake) via open pit mining, feed preparation/beneficiation and a salt roast-leach extraction process is well understood and commonly available technology
- » Infill drilling and selective resource estimation techniques to better define high grade vanadium zones within the current Gabanintha JORC-2004 Mineral Resource Estimate have the potential to improve project economics

<sup>1</sup>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.

### Investing in a Vanadium Future



Strong news flow and growth expected in 2015 and 2016

Strong existing steel market and exciting new market for vanadium in redox flow batteries

Significant grade confirmed in recent drill results confirming globally relevant deposit with grade and tonnage upside

Test work and studies to continue in 2015 with a goal of updating resource and undertaking new scoping study

Current share price offers leverage and exposure to a growing vanadium future

