

INTRODUCTION | KEY POINTS





WORLD CLASS

One of the world's largest vanadium deposits. Indicated and inferred JORC resource 612 Mt @ $0.78\%~V_2O_5$ in situ incl. 167 Mt @ $1.07\%~V_2O_5$.

EXCEPTIONAL QUALITY

Long life open pit mining generates high grade Vanadium concentrate +2% V₂O₅ post beneficiation with low silica / alumina.





THE BUSHVELD COMPLEX

Within the famous Bushveld Complex, home to some of the richest deposits word-wide.

INFRASTRUCTURE

Close to existing underutilized processing plants.

Power and water nearby with proven road & rail options to port.





ALL OPTIONS CONSIDERED

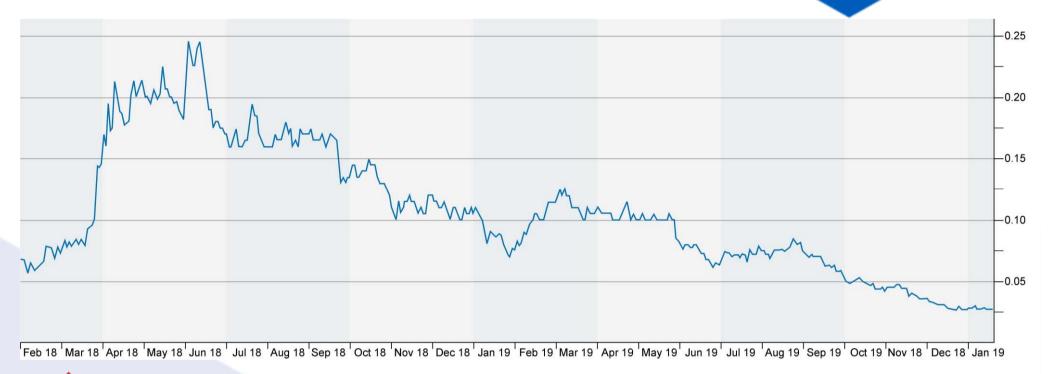
Fast track of studies underway to verify a clear pathway of options through to full V_2O_5 production.

LICENSE GRANTED – FAST TRACK

One of few world resources with mining right granted which includes environmental approval.



CORPORATE OVERVIEW



- Vanadium Resources has the legal right to 73.95% of the SPD Project.
- Vendor group of prominent South African mining identities who have joined board.
- Directors hold ~ 26% of the issued share capital.
- Balance sheet flexibility no debt, no encumbrances over project.

| Capital Structure | | | | | |
|---|--------------|--|--|--|--|
| Current Shares | 374,277,438 | | | | |
| Listed Options (\$0.12, exp. 01/06/2021) | 10,029,413 | | | | |
| Unlisted Options (\$0.053, exp. 01/12/2021) | 10,000,000 | | | | |
| Unlisted Options | 64,680,001 | | | | |
| Mkt. Cap. at 2.6c | ~\$9,730,000 | | | | |
| Cash (31 Jan) | ~\$1,181,000 | | | | |

^{*} Currently owns 50%, with final 23.95% interest subject to section 11 approval by the Department of Mineral Resources

A stand-out amongst all peers

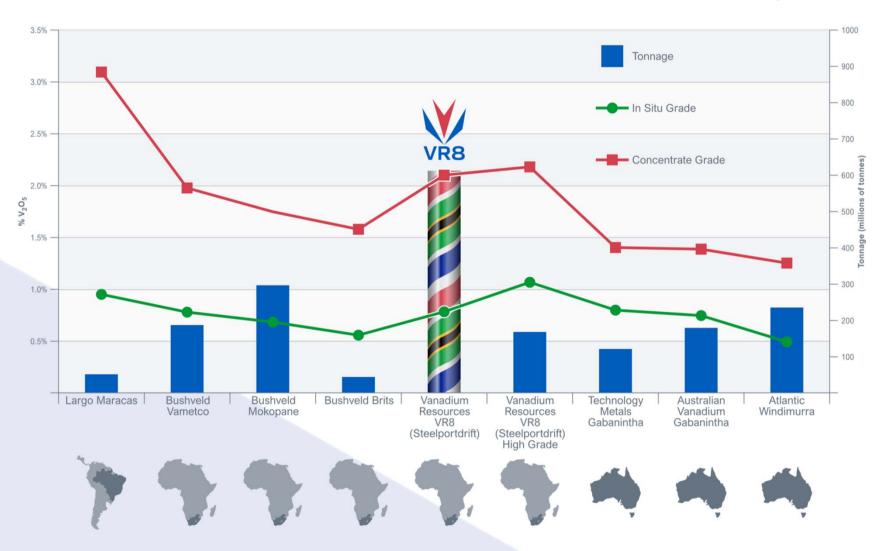
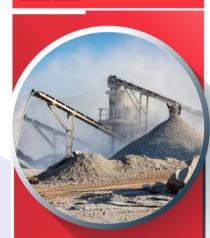


Chart compares resources reported under different codes and companies at different stages of development as detailed in slide 31. Only resources with a quoted in situ grade > $0.45\% V_2O_5$ are shown in figure.

DEVELOPMENT STRATEGY



FAST TRACK



Fast track of the resource ready for development or the utilization of nearby underutilized plant that could be modified for early production

NEXT TO MINE



Create the World's next Vanadium mine able to compete on a global scale. The granting of a mining license (mining right) a major advantage

VALUE ADD



Pursue all possibilities for value adding from concentrate through to high purity V₂O₅

PARTNERS



Begin early
development and
partnerships for
reciprocal
partnerships in steel,
alloys and battery
technology

Located in the Bushveld Complex

Steelpoortdrift is part of a geologically unique igneous complex endowed with deposits of PGEs, chromium, vanadium and magnetite. This world-renowned mining location is host to several mining operations and multiple major mining companies are active in the area.

Other Mines in the Bushveld Complex

Bushveld Minerals Vametco Vanadium Mine Mokopane Vanadium Project.

Xstrata

Rhovan Vanadium Mine.

Anglo American

Twickenham PGE Mine, Modikwa PGE Mine, Kroondal PGE Mine, Bokoni PGE Mine, Mogalakwena PGE Mine, Polokwane Smelter, Waterval Smelter.

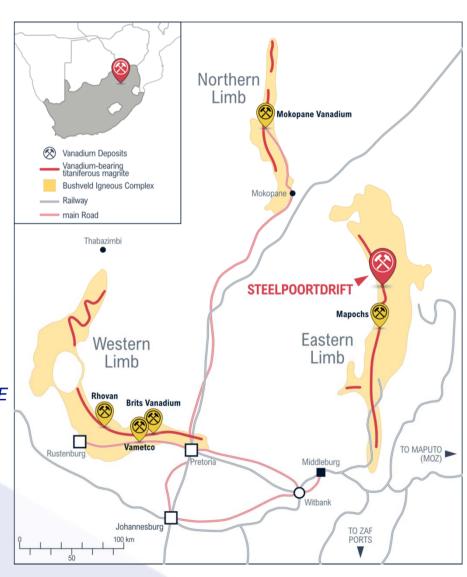
African Rainbow

Modikwa PGE Mine, Two Rivers PGE Mine.

Sibanye Stillwater Marikana PGE Mine.

Impala Platinum Rustenburg PGE Mine.

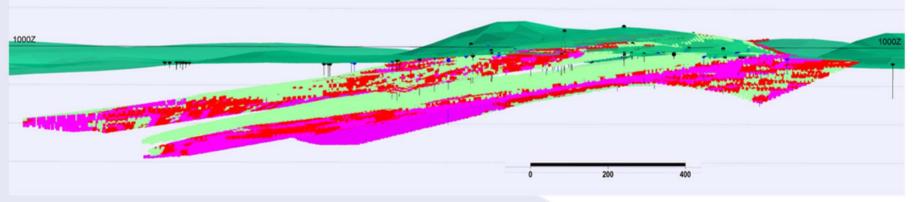
Samancor Tubatse Chrome Operations, Mooinooi.



GEOLOGY | ORE BODY



- Steelpoortdrift Project located in the Bushveld Complex, one of the most studied geological provinces in the world.
- Vanadiferous titanomagnetite layers occur at the same stratigraphic level across the entire complex and can be traced for almost 400 km.
- Vanadium mineralisation in the Bushveld Complex is higher grade than global peers (with the exception of Largo).
- ◆ The global resource at Steelpoortdrift is one of the largest and highest grade (in-situ) mineral resources within the Bushveld Complex (indicated and Inferred) and at 169 Mt the high-grade resource is the largest globally above 1% V2O5. (1)
- Mineralisation outcrops at surface meaning amenable to open pit mining.
- ♦ Mineralisation dips shallowly (~10°) meaning less waste to mine, low strip ratios and cheaper mining cost. (2)
- Scoping Study has defined initial production target of 53.4Mt which corresponds to 25 year mine life at 2.2Mtpa. (3)



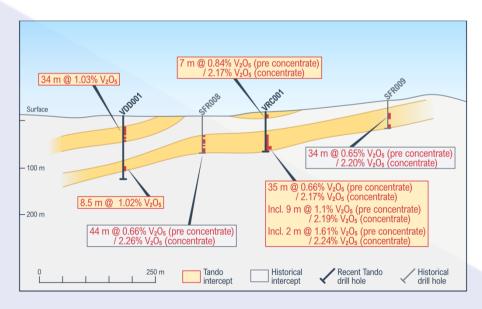
¹Refer ASX Announcement 16 April 2019

²Refer ASX Announcement 2 May 2019

³ Refer ASX Announcement 2 May 2019

High Grade Drill Results

- Mineral Resource includes 169Mt at 1.07% V₂O₅ from surface.
- Consistent high-grade drill results from surface.
- Amenable to open pit mining.
- Thick zones of mineralisation.



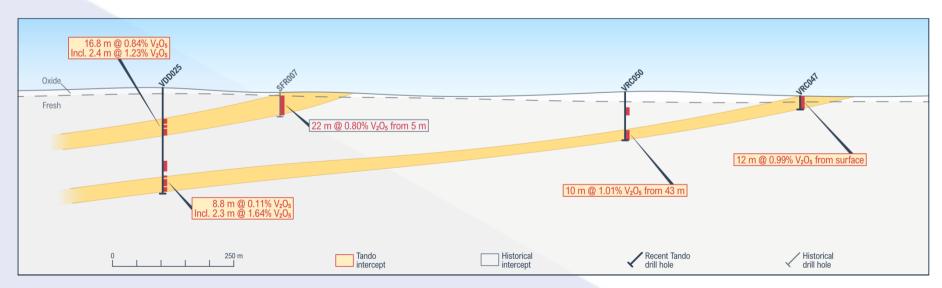
- ◆ 18m at 0.80% V₂O₅ from 0m (VRC017) incl. 4m at 1.16% V₂O₅
- \bullet 14m at 0.98% V_2O_5 from 0m / surface (VRC043)
- ◆ 34m at 1.03% V₂O₅ from 22m (VDD001)
- 12m at 1.00% V₂O₅ from 12m (VRC002) incl. 2m at 1.72% V₂O₅
- ◆ 10m at 1.17% V₂O₅ from 35m (VRC045)
- 9m at 1.06% V₂O₅ from 22m (VRC015) incl. 3m at 1.45% V₂O₅
- 11m at 0.99% V₂O₅ from 17m (VRC040) incl. 2m at 1.67% V₂O₅
- ◆ 11m at 0.98% V₂O₅ from 24m (VRC019) incl. 8m at 1.15% V₂O₅ from 27m incl. 2m at 1.65% V₂O₅ from 33m
- 10m at 0.99% V₂O₅ from 9m (VRC036)
- 10m at 0.95% V₂O₅ from 17m (VRC037) incl. 2m at 1.59% V₂O₅ from 6m

^{*} Refer ASX Announcements 12 Oct 2018, 25 Oct 2018, 28 Nov 2018 & 16 Jan 2019



Excellent Oxide Zone Results

- Mineralisation outcrops or subcrops across project, with weathering < 10m.</p>
- Amenable to open pit mining with an initial 25-year mine life defined.
- Unlike many deposits, weathered mineralisation behaves no differently to fresh mineralisation in processing tests to date.
- Concentrate results from both mineralisation sources contain identical V₂O₅ contents. ⁽¹⁾



¹Refer ASX Announcement 5 August 2019.



- High grade Mineral Resources drilled to a high level of confidence (Indicated and Inferred categories).
- Global Mineral Resource of 612 million tonnes above a 0.45% V₂O₅ cut-off.
- High grade Mineral Resource of 169 million tonnes above a 0.9% V₂O₅ cut-off.

Refer to ASX Announcement 16 April 2019 for full details including information prescribed by the JORC Code.

The Company is not aware of any new information that materially affects the information in that announcement or the Mineral Resource.

Mineral Resource by Category

| Category | Tonnes (Mt) | Whole Rock V ₂ O ₅ % | |
|-----------|----------------|---|--|
| Indicated | 231 | 0.78 | |
| Inferred | 380 | 0.77 | |
| TOTAL | 612 | 0.78 | |

Mineral Resource by Grade

| V₂O₅ Range | Category | Tonnes (Mt) | Whole Rock V ₂ O ₅ % |
|-------------|-------------|----------------|---|
| > 0.90% | Indicated | 68 | 1.05 |
| > 0.90% | Inferred | 102 | 1.09 |
| Sub Total | > 0.90% | 169 | 1.07 |
| 0.45%-0.90% | Indicated | 164 | 0.68 |
| 0.45%-0.90% | Inferred | 279 | 0.65 |
| Sub Total | 0.45%-0.90% | 442 | 0.66 |
| TOTAL | | 612 | 0.78 |

GEOLOGY | CONCENTRATE



- Plant trials show + 2% V₂O₅ concentrate can be produced using simple beneficiation processes.
- Excellent mass recovery across mineralised intervals, increasing to + 40% in higher grade zones (+ 1.0% V₂O₅).
- Concentrate analysis is very consistent in vanadium and titanium content throughout the mineralised intervals, with low levels of silica and alumina.
- High grade concentrate means less waste is present to interfere in processing.

| Sample | V ₂ O ₅ % | TiO ₂ % | SiO ₂ % | Al ₂ O ₃ % | Fe % |
|--------|---------------------------------|--------------------|--------------------|----------------------------------|------|
| 3357 | 2.19 | 12.0 | 3.25 | 4.82 | 54.6 |
| 3358 | 2.18 | 12.1 | 3.51 | 4.91 | 54.2 |







^{*} Refer ASX Announcements 14 Jan, 29 Jan, 18 Mar and 5 Aug.

GEOLOGY | METALLURGICAL TESTING



- ◆ Plant trials show +2% V₂O₅ concentrate can be produced using simple beneficiation processes. (1)
- Further work planned to identify other value adding possibilities such a pelletisation.
- ◆ Test work planned to produce Ammonium Metavanadate (AMV) and V₂O₅.







Chinese test facility visited by Mastermines in December 2018. One of several test facilities and processes under consideration. VR8 plans to test the full suite of value adding options available. In addition to the supply of high grade concentrate, the company will explore all options and their relevance to potential partner needs.

¹Refer ASX Announcement 18 March 2019.

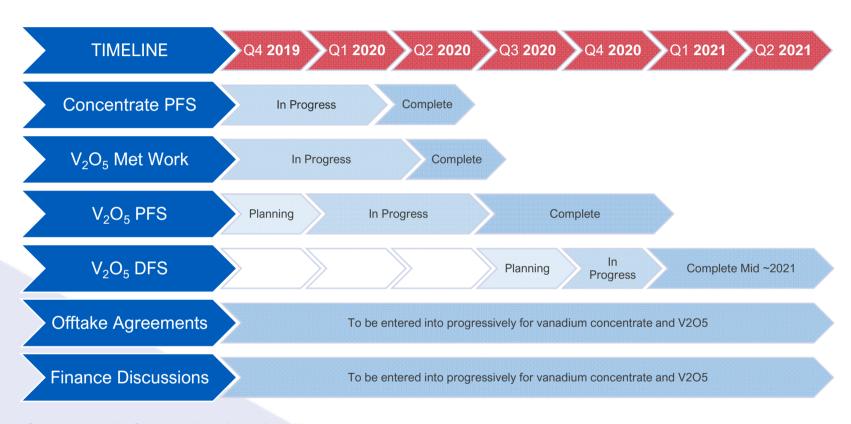
All Options to be Explored

Test-work will investigate established processing techniques (salt roasting) along with **hydrometallurgical techniques** and more conceptual "direct attack" methods.

- Current studies into processing of concentrate to produce >98%
 V₂O₅ product (standard specifications) or higher purity
 V₂O₅ products.
- Studies into downstream processing options to be accelerated during 2019.
- Goal is to pursue "low CAPEX" options.



Aggressive Development Plan



Note: See page 15 for production detail

Discussions for offtake agreements are currently targeting multiple partners for both vanadium concentrate and V205 over the full period.

Discussions for finance will form part of discussions with partners and may also include traditional debt funding or both options.

Realistic timelines for construction and production will be added when multiple suitable partners and finance agreements are closer to completion.

The targeted periods will rely upon adequate investor or partner interest to fast-track the proposed timelines.

The mining right, environmental management plan and social and labour plans are all in place avoiding potentially long permitting delays

MOVING FORWARD | **PRODUCTION**



- Beneficiation plant to produce a V205 concentrate would provide the front-end for V205 production and could be operated independently
- Contract beneficiation facilities could be utilized while the process plant is under construction.
- Production of concentrate intended to precede production of V205 dependent on offtake agreements and financing
- Detailed production timelines will be provided in future updates.

Permitting Completed:

Mining Right **Approved**

Environmental Management Plan Approved

Social and Labour Plan **Approved**

- The Steelpoortdrift Vanadium Project is covered by a granted Mining Right.
- The Mining Right remains in force until September 2048.
- The Mining Right includes approval of the Environmental Management Plan and Social & Labour Plan for the Project.



LOCATION | INVESTMENT ADVANTAGE





China Committed to S.A.

Prominent Chinese mining companies have strong presence in South Africa through both direct investments or acquisitions of mines in South Africa.



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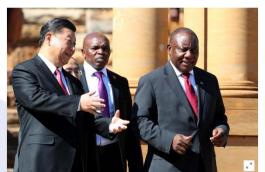
- Xi also pledges to invest \$14.7b in South Africa in 2019.
- Recently, more than 40 major companies signed 93 cooperation agreements with their South African counterparts worth R27 billion.



















China Committed to S.A.

EMSEZ is a large scale bilateral industrial agreement between China and South Africa. The project has already attracted RMB10 billion potential investment from prominent Chinese companies.



- EMSEZ is a fully integrated metallurgical industrial park which has planned capacities of:
 - 5 Mtpa Metallurgical Grade Lime.
 - 3 Mtpa High Carbon Ferrochrome.
 - 3 Mtpa Stainless Steel.
 - ◆ 1.2 Mtpa Titanium Dioxide.
 - ◆ 1 Mtpa Ferromanganese Plant.









陕西中兴恒泰投资控股有限公司















LOCATION | INFRASTRUCTURE

Huge Local Infrastructure Advantage



ESKOM sub station, 12km from project









LOCATION | PEOPLE

Community Relations Matter





- Vanadium Resources has maintained a positive relationship with local communities since project inception.
- ◆ A dedicated local community relations officer has been involved in the project since March 2018.
- Recent community meetings reaffirmed the communities' support for the project.
- Social and Labour Plan has been Approved as part of the granting of the mining lease.
- Vanadium Resources is committed to facilitating and supporting a SIP (Social Investment Plan) for the local communities.

LOCATION | MINE TO MARKET

Proven Existing Port Access



- Existing and proven transport from the Steelpoortdrift resource.
- ◆Road or rail options.
- Possibility for initial shipment of +2.0%
 V₂O₅ ore concentrate.
- Possibility to further process in-country and value add to 99.5% V₂O₅ and reduce shipping costs.







Experienced Management



Bill Oliver — Managing Director

Geologist with over 20 years wide ranging experience in a range of commodities and jurisdictions including bringing African projects into production. Enviable track record in project identification and evaluation.



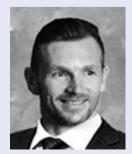
Jurie Wessels — Non Executive Chairman

23 years' experience in the exploration industry exploring for various minerals in Africa, South America and Europe and practising as a minerals lawyer. Co-founded a number of exploration and mining companies including Bauba Resources Ltd (BAU.J), Orange-River Pegmatite (Pty) Ltd, GoldStone Resources Ltd (GRL.L) and Vanadium Resources (Pty) Ltd.



Nico van der Hoven — Director

Businessman and entrepreneur with over 29 years' experience in exploration and mining, , having cofounded and operated 5 mines over this period. Nico is also the founding member of Hernic Chrome, Bauba Resources Ltd (BAU.J), Vanadium Resources (Pty) Ltd and GoldStone Resources Ltd (GRL.L). He currently acts as Chairman of Bauba Resources Ltd, an active chrome mining company and platinum explorer.



Michael Davy — Director

Accountant with over 15 years' experience across a range of industries. Previously held a senior management role in Australia for Songa Offshore (listed Norwegian Oil and Gas drilling company), after working in Australia and London for other large organisations overseeing various finance functions. Mr Davy has held directorships in several ASX listed companies and is currently director and owner of a number of successful private businesses as well as being the Non-Executive Chairman of Raiden Resources Limited (ASX: RDN) and a Non-Executive Director of Riversgold Ltd (ASX: RGL),.

Real Mining Experience

South African based directors Nico van der Hoven and Jurie Wessels were responsible for the establishment and development of Bauba Resources Ltd, an active chrome mining company in the Bushveld Complex.

- ◆ Both have hands-on, local, experience in mining, beneficiation and shipping to export markets that will be invaluable in progressing the project.
- In addition, Nico brings skills with exposure to marketing and trading a wide range of commodities including negotiating offtake agreements.
- ◆Nico has co-founded and operated 5 mines in Southern Africa in the last 25 years.





EXPERTISE | SPECIALIST CONSULTANTS

Access to Specialist Skills





Process design and costing



ENC Minerals (Pty) Ltd (SA)

Design and management of metallurgical test-work



Sound Mining (Pty) Ltd (SA)

Engineering, mine planning and design



Red Kite Consulting (Pty) Ltd (SA)

Environmental management and consulting



Geoactiv (Pty) Ltd (SA)

Geology, exploration and drilling



GEMECS (Pty) Ltd (SA)

Database management, resource modelling



Mining Plus Pty Ltd (AU)

Resource modelling, mine planning and design

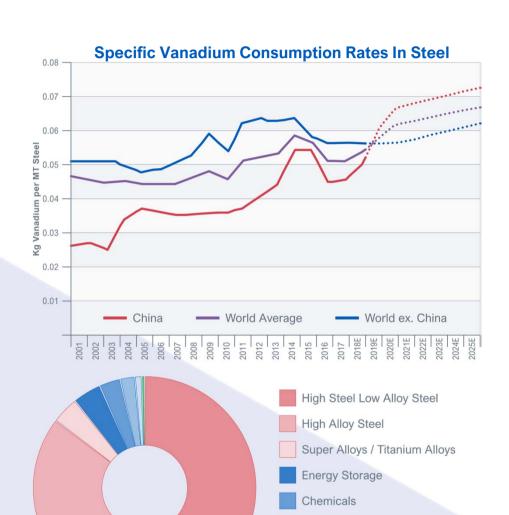


Mastermines (AU, HK)

Marketing & Asia market consultants



MARKETS | VANADIUM



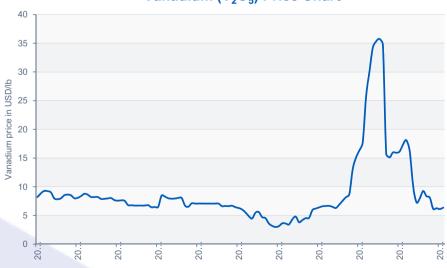
Cast Iron

V metal

Stainless Steel

- Inventories low, additional demand will impact pricing as witnessed during 2018.
- Recent falls from the 2018 high suggest that low pricing will be maintained at higher levels than historical lows and remain commercially strong.

Vanadium (V₂O₅) Price Chart



Source: TTP Squared, Metal Bulletin

MARKETS | STEEL & ALLOYS



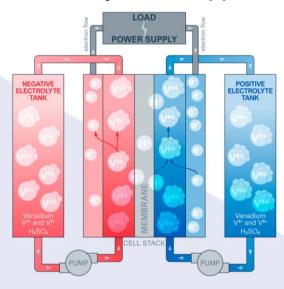
- Over 90% of the current demand for vanadium arises from its use to strengthen steel and alloys.
- ◆ Demand increasing due to more stringent regulations in China for rebar and other steel products used in construction. While implementation has been slower than expected, inspections are set to continue during 2019.
- China recently has perfected the manufacture of high-performance alloys resulting in strong growth in the sector.
- Supply of new lightweight alloys increasing in the aerospace industry. All new Boeing Dreamliner 787 and Airbus A350 now incorporate vanadium in light weight alloys up to 100 tons per aircraft.





MARKETS | **ENERGY STORAGE**

- Forecasters expect over 1,200GW of battery capacity to be added between today and 2050, with approx. 600GW before 2025. 1
- VRFBs forecast to represent between
 15 and 25 % of battery capacity.
- Could add up to 10,000mtV of demand into an already undersupplied market.²



¹ BloombergNEF, New Energy Outlook 2018; International Energy Agency, World Energy Outlook 2018



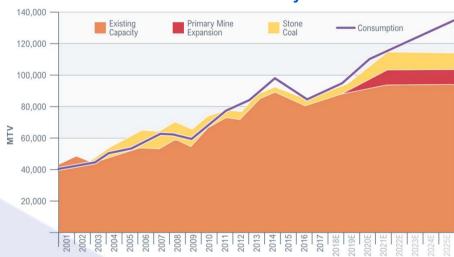
Dalian City, China has signed a syndicated loan agreement to fund the first stage of a 200/800MWh vanadium battery. The first stage of the project is planned to be 100/400MWh and estimated to be complete by mid 2020.

² Noack et. al, 2016. Techno-economic modelling of RFB Systems (Energies 2016, 9, 627) Vanadium Flow Batteries: An In Depth Analysis. EPRI, Palo Alto, CA: 2007.1014836

MARKETS | VANADIUM SUPPLY









- Over 85% of the world's vanadium is produced from China, Russia and South Africa.
- Chinese domestic production is largely from polluting sources (stone coal) or low-grade resources.
- Stringent implementation of Chinese environmental standards place serious doubts on the future of many Chinese stone coal resources.
- South Africa has become a major recipient of mining investment by major Chinese mineral and metal suppliers. A combination of higher grade and lower opex bodes well for quality undeveloped resources.



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All amounts in A\$ unless stated otherwise.

COMPETENT PERSONS STATEMENT



The information in this announcement that relates to Exploration Results and other technical information relating to drilling and sampling at the SPD Vanadium complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and has been compiled and assessed under the supervision of Mr Nico Denner, the principal of GEMECS (Pty) Ltd, consultants to the Company. Mr NJ Denner is a Fellow of the Geological Society of South Africa (GSSA) and a member of good standing of the South African Council for Natural Scientific Professions (SACNASP), both Recognised Professional Organisations under the JORC Code.. Mr NJ Denner is a geologist with 24 years' experience in the South African Mining Industry and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Denner consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Mineral Resources, including the Mineral Resources contained within the Production Target, complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and that has been compiled, assessed and created by Mr Kerry Griffin BSc.(Geology), Dip Eng Geol., a Member of the Australian Institute of Geoscientists and a Principal Consultant at Mining Plus Pty Ltd, consultants to the Company. Mr Griffin has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Griffin is the competent person for the resource estimation and has relied on provided information and data from the Company, including but not limited to the geological model and database. Mr Griffin consents to the inclusion in this announcement of matters based on his information in the form and context in which it appears.

PEER COMPARISON INFORMATION



