PROTEAN ENERGY

A VERTICALLY INTEGRATED VANADIUM COMPANY

VANADIUM RESOURCES & BATTERY TECHNOLOGY DEVELOPER

RIU CONFERENCE PRESENTATION
SEPTEMBER 2018

DISCLAIMER

Disclaimer

Certain statements contained in this presentation may constitute forward looking statements. Such forward-looking statements involve a number of known and unknown risks, uncertainties and other factors which may cause the actual results, performance of achievements of Protean Energy Limited (the Company) to be materially different from actual future results and achievements expressed or implied by such forward-looking statements. Investors are cautioned not to place undue reliance on these forward-looking statements. The information contained herein has been prepared solely for informational purposes and is not an offer to buy or sell or a solicitation of any offer to buy or sell any security or to participate in any trading strategy or to enter into any transaction.

Minerals Exploration in South Korea

This presentation may describe Measured, Indicated and/or Inferred Resources. Inferred Resources have a greater amount of uncertainty as to their existence and greater uncertainty as to their economic feasibility. It cannot be assumed that all or any part of any Inferred Resource will ever be upgraded to a higher category. The potential quantity and grade of the Daejon Uranium Project Conceptual Exploration Targets is conceptual in nature and there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource.

Exploration is an inherently risky proposition and investors are advised that most exploration projects fail to identify economic resources. The Company has at present not confirmed the economic viability of any resources at the project. The Company plans further drilling programmes and studies with the objective of confirmation of any deposits and ultimately completing a feasibility study to demonstrate the economics of the resources.

Competent Person Statement

The information contained in this ASX release relating to exploration results and Mineral Resources has been compiled by Mr Kahan Cervoj of Optiro Ltd. Mr Cervoj is a Fellow of The Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 and 2012 editions of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr Cervoj consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Research and Development

There are many risks inherent in the development of technology of products like the V-KOR range of batteries, particularly as these products are in the pre-commercial stage of development. The development of the V-KOR ESS can be delayed or fail to demonstrate any benefit, or research may cease to be viable for a range of scientific or commercial reasons

TABLE OF CONTENTS

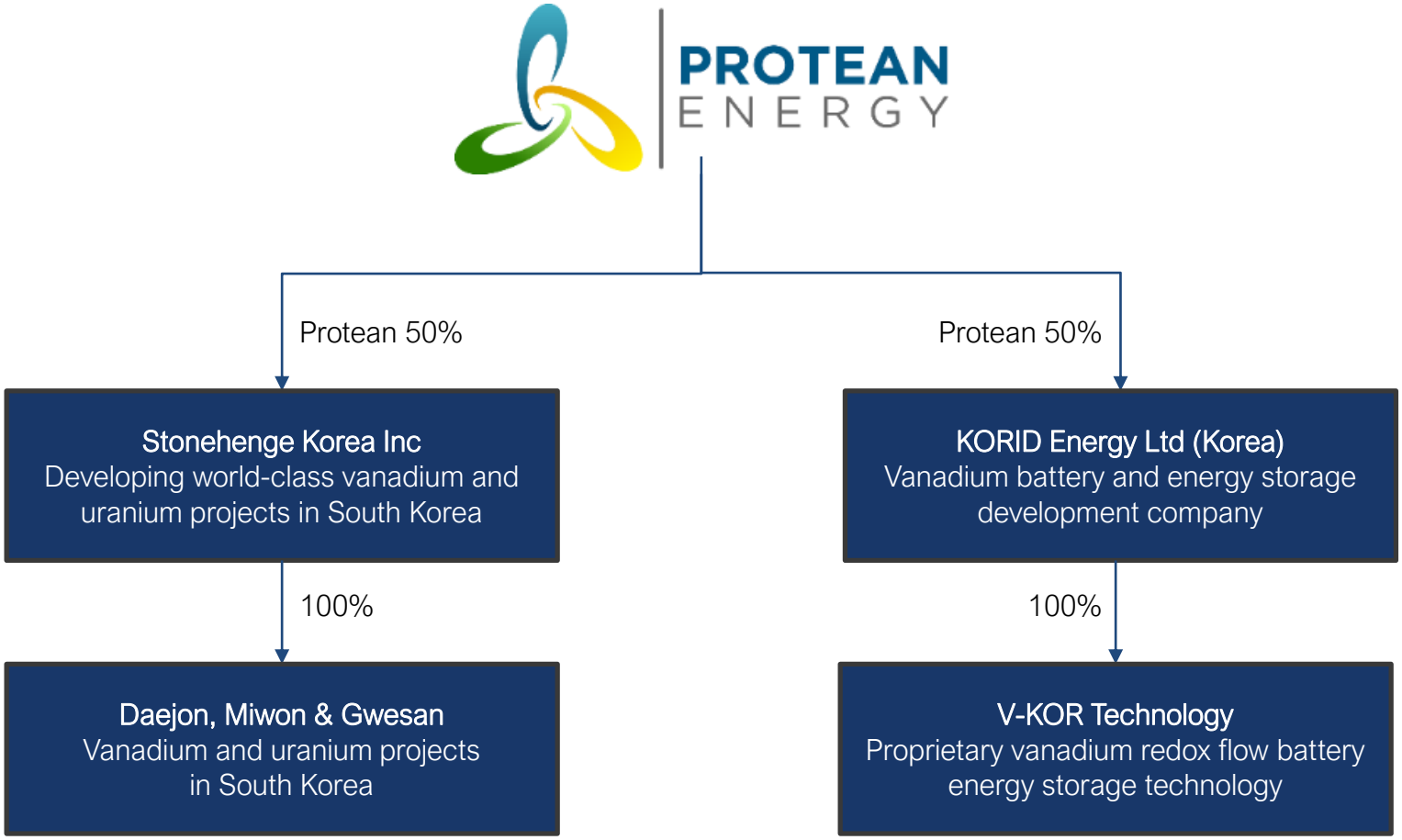
1	Company Overview	4
2	Vanadium Industry Fundamentals	8
3	Korean Vanadium Projects	13
4	V-KOR Vanadium Battery Technology	19
4a	V-KOR Perth Trial	19
4b	VRFB and Energy Storage Market	23
4c	V-KOR 1mW/4mWh KETEP Trial	26
4d	Vanadium Battery Market	29

1. Company Overview

PROTEAN ENERGY

VANADIUM RESOURCES & BATTERY TECHNOLOGY

Protean Energy Limited (ASX: POW) is a vertically integrated, vanadium resource and battery development company. The Company is focused on advancing its South Korean vanadium mineral projects and the commercialisation of its vanadium battery and energy storage technology.



CORPORATE OVERVIEW

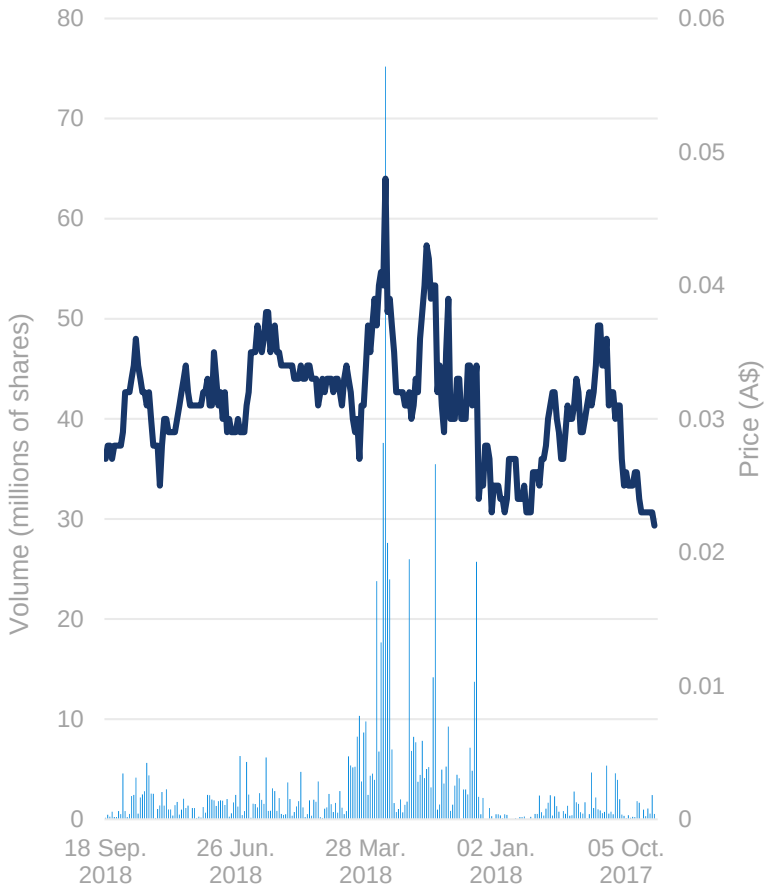
Market Capitalisation and Enterprise Value[1,2]

Ordinary shares on issue	Number	304,312,341
Share price (17 September 18)	A$/share	0.028
Market Capitalisation	**A$m**	**$8.63m**
Cash (as at 31 Jul 18)[3]	A$m	$2.42m
Listed Securities (DST: Korean listed)[4]	A$m	~$1.55m
Enterprise Value	**A$m**	**$4.66m**

Board of Directors

Name	Position
Bevan Tarratt	Executive Chairman
Wayne Loxton	Technical Director
Young Yu	Non-Executive Director
Dave Wheeler	Non-Executive Director

Share Price / Volume History (A$ millions)



Notes:
1. Excludes 6,816,666 Performance Rights subject to vesting and 3,379,159 Unlisted Options.
2. Excludes 47,000,000 adviser options and 38,000,000 options issued to the Directors and Advisors of the Company. As per the Notice of General Meeting dated 5 April 2018.
3. Based on the closing share price of DST Company Limited (KOSDAQ: 033430) on 17 September 2018 and KRW:AUD exchange rate of 806.45.

Source: Bloomberg as at 17 September 2018, Company Announcements.

VERTICALLY INTEGRATED VANADIUM COMPANY

1 Vertically integrated vanadium company	▪ Downstream Vanadium Resources ▪ Advanced Vanadium Redox Flow Battery	✓
2 Sediment hosted vanadium deposits	▪ Sediment hosted vanadium deposit ▪ Potential to produce high-purity V_2O_5	✓
3 Significantly increased mineral resource estimation	▪ Mineral Resource estimate calculated 8.3 km Daejon strike length ▪ Combined Inferred and Indicated Vanadium Mineral Resource Estimate (JORC 2012) of **76 Mt @ 3,000ppm V_2O_5 and 110ppm U_3O_8** defined for a total of **490 Mlbs V_2O_5 and 18 Mlbs U_3O_8.** ▪ Additional primary uranium resource of **15 Mt @ 250ppm U_3O_8** defined	✓
4 Vanadium redox flow battery technology	▪ First Australian commercial V-KOR vanadium battery deployment – microgrid testing completed – Western Australia grid connection achieved	✓
5 Surging vanadium price	▪ Price up >250% in the last 10 months ▪ Best performing battery metal 2013-2018	✓
6 Well funded	▪ Cash on hand of ~A$2.42m and ~A$1.55m in listed securities	✓

3. Vanadium Industry Fundamentals

PROTEAN ENERGY

WHAT IS VANADIUM

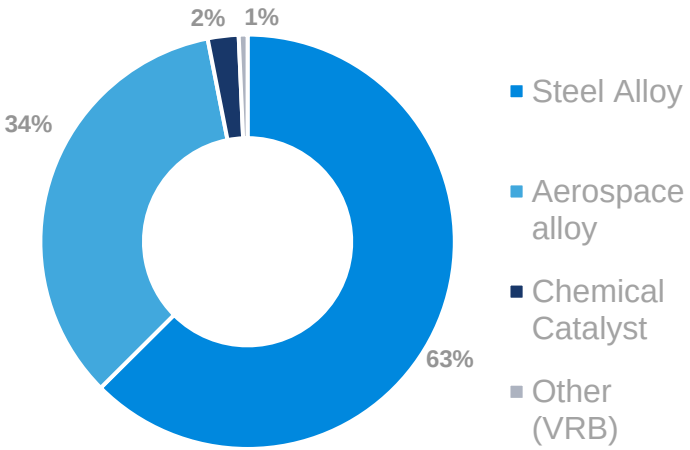
Vanadium Characteristics

Vanadium (V) is a soft, ductile, silver-grey metal that is used primarily with iron to make metal alloys for high-strength steel production. Vanadium exists in four different oxidation states (V^{2+}, V^{3+}, V^{4+}, and V^{5+})

Vanadium uses

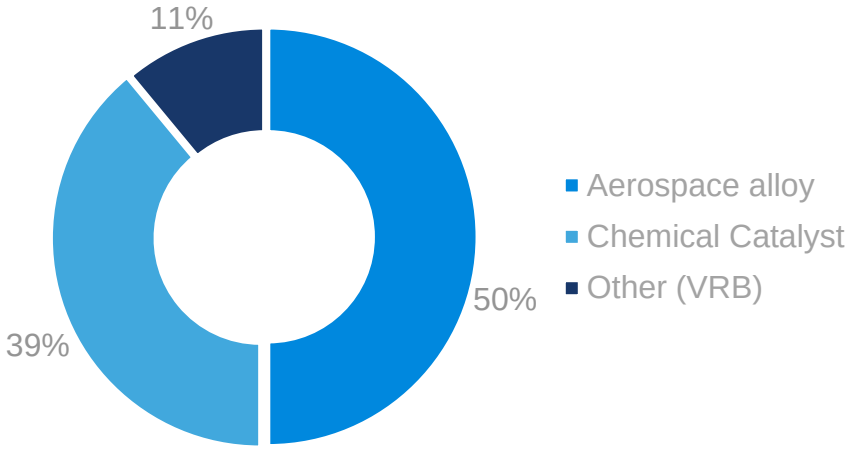
Standard purity:	Most widely used in alloying of steel and titanium
High Purity:	Aerospace alloys, chemical industry and vanadium redox flow batteries (VRFB)

Global Consumption by sector (%)



85,800 metric tonnes vanadium

High Purity Consumption (%)

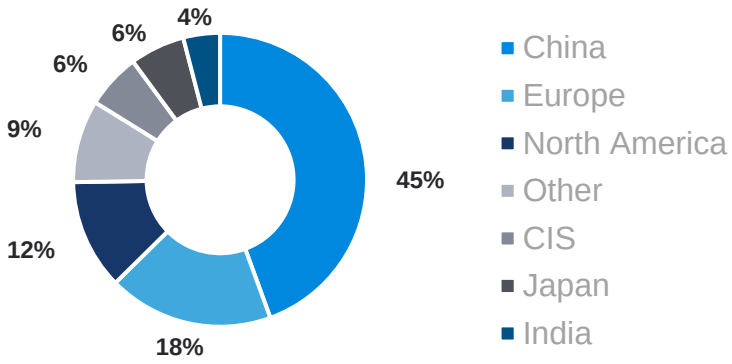


9,000 metric tonnes vanadium

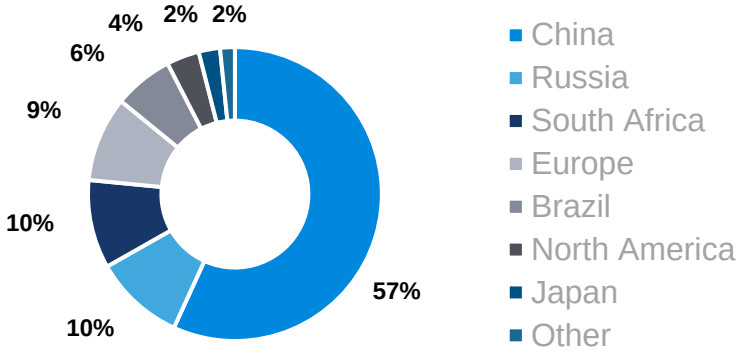
Source: TTP Squared

CONSUMPTION AND PRODUCTION BY REGION

Regional vanadium consumption (%)



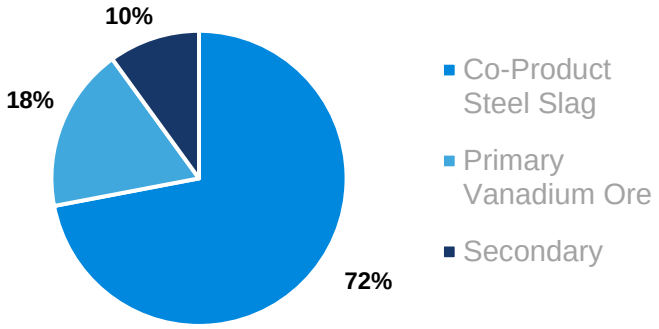
Regional vanadium production (%)



Key Market drivers

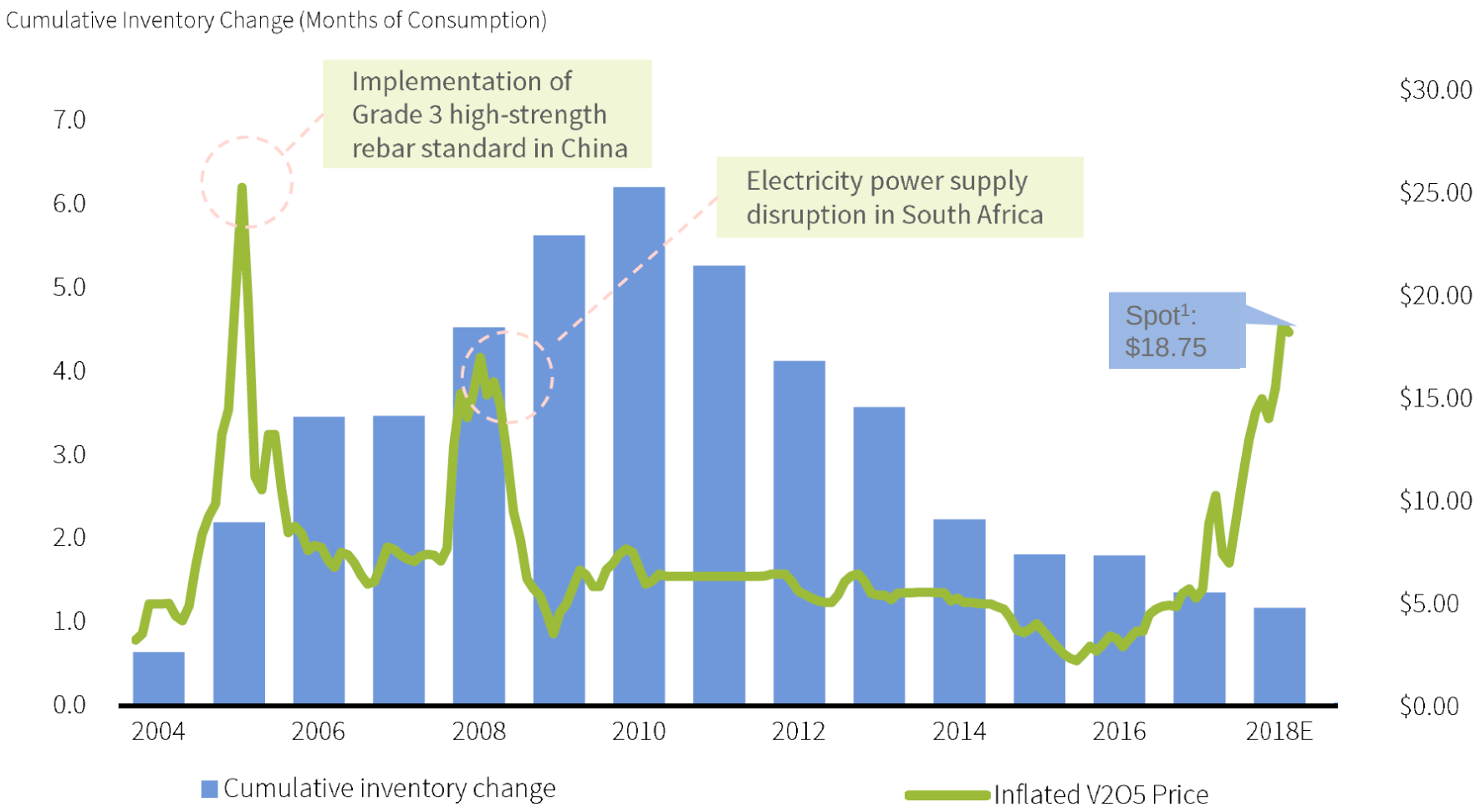
- **Project closures** including liquidation of Evraz Highveld removing 10.9 KMTV from the market
- **Regulatory impacts** on supply including the banning of vanadium bearing slag imports to China
- **Chinese steel mill rationalization** having a significant impact on numerous high-cost, low-quality domestic iron ore mines

Vanadium Sources



Source: TTP Squared

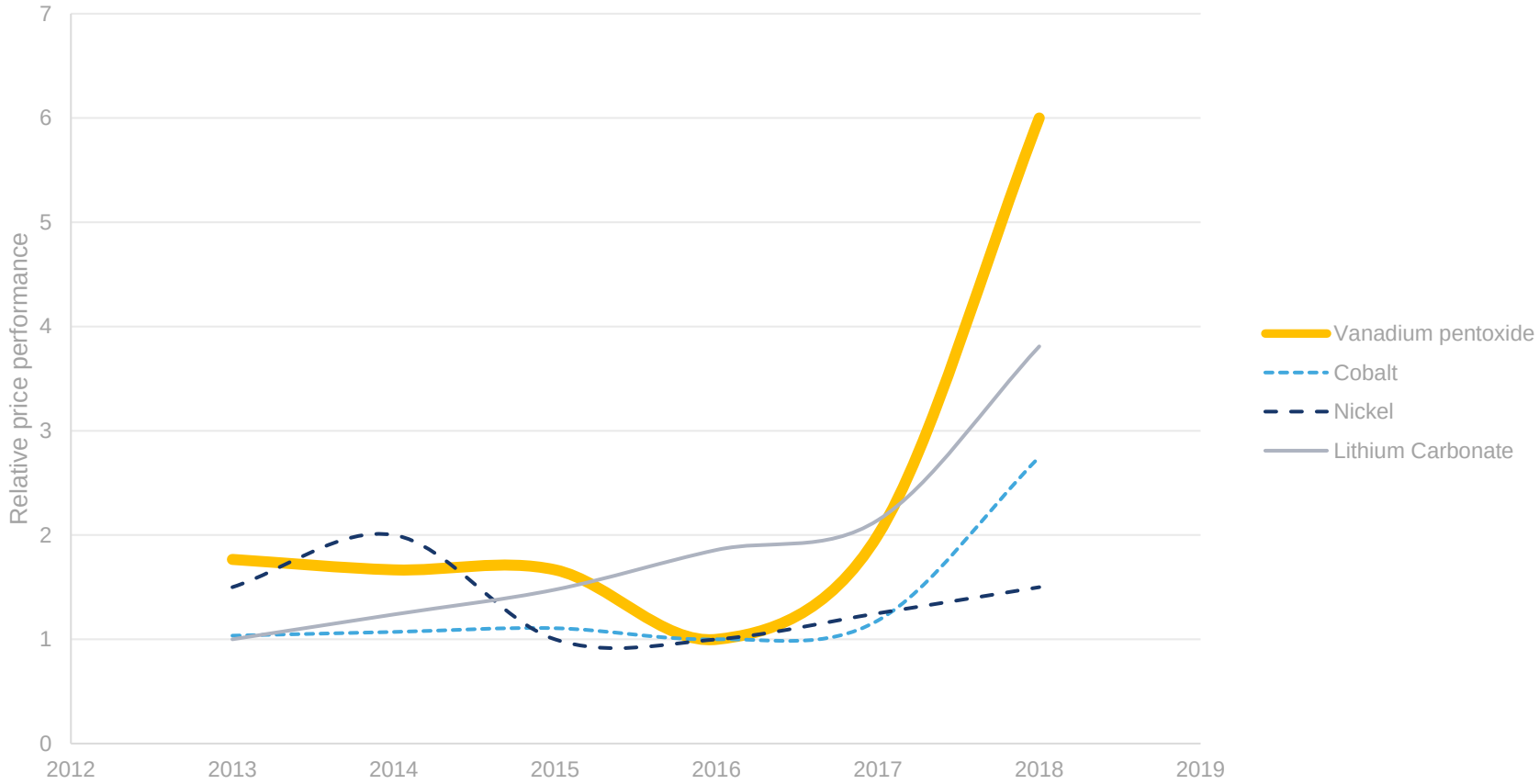
VANADIUM PRICE VS SUPPLY



[1] Spot price 10/09/2018.

BATTERY METAL PERFORMANCE

Vanadium: the best performing battery metal 2013-2018



Source:
www.vanadiumprice.com
www.asianmetal.com
www.infomine.com

3. Korean Vanadium Projects

PROTEAN ENERGY

SOUTH KOREAN VANADIUM PROJECTS

Potential world-class sediment hosted vanadium and uranium projects.

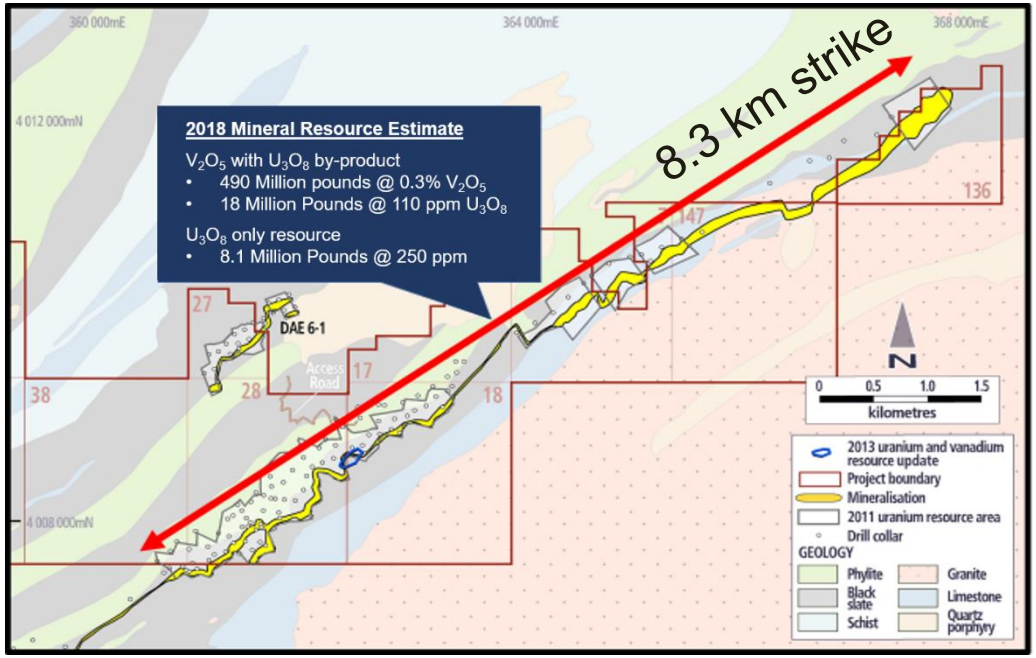
- 50% interest in Stonehenge Korea Ltd (SHK); advancing a suite of vanadium projects in Korea
- Daejon (22.8km^2) is our flagship asset with further exploration ground held at Miwon (16.6km^2) and Gwesan (24.8km^2)
- Sediment hosted vanadium deposit – Potential for high purity V_2O_5 production
- Sedimentary deposits represent only 5% of known resources
- 95% of world production from magnetite sources: South Africa, Russia, South America

Protean Energy's South Korean Vanadium Projects

DAEJON PROJECT (50% INTEREST)

The Daejon vanadium/uranium project contains a mineralised strike length of 8.3km with an updated mineral resource estimate released over the entire deposit in September 2018

Daejon Project Area



- Global mineral resource estimate completed Sep 2018
- Significant uranium credit
- Project of significance for the Korean government
- Potential to supply 100% of South Korean Demand

✓ Global JORC 2012 Mineral Resource upgrade received September 2018

VANADIUM RESOURCE ESTIMATE

GLOBAL MINERAL RESOURCE ESTIMATE CALCULATED OVER 8.3 KM OF THE KNOWN DAEJON VANADIUM/URANIUM STRIKE LENGTH

Vanadium Mineral Resource Estimate @ 0.20% V_2O_5 cutoff (with no **U_3O_8 cutoff applied)** and additional uranium resource at 200ppm **U_3O_8** cut-off[1,2]

	V_2O_5 Resource with U_3O_8 by-product					U_3O_8 Resource only		
Category	Tonnes (Mt)	V_2O_5 Grade (%)	Contained V_2O_5 (Mlbs)	U_3O_8 Grade (ppm)	Contained U_3O_8 (Mlbs)	Tonnes (Mt)	U_3O_8 Grade (ppm)	Contained U_3O_8 (Mlbs)
Indicated Resources	3.6	0.30%	24	140	1.1	0		
Inferred Resources	72.0	0.30%	470	110	17	15	250	8.1
Total	**76**	**0.30%**	**490**	**110**	**18**	**15**	**250**	**8.1**

Notes:

1. These estimates were prepared and first disclosed under the JORC Code (2012).
2. The vanadium resource is calculated with a 0.2% V_2O_5 cut-off with no cut-off grade applied to the uranium by-product. In addition to the vanadium resource a uranium resource has been defined where the two are not coincident, this uranium resource has a 200ppm **U_3O_8** cut-off applied to it
3. Totals may not sum due to rounding

V_2O_5 PILOT PLANT ACCESS

Protean has entered into an agreement with KIGAM to access a 1.2 tonnes per day pilot plant housed within the Korean Institute of Geology and Minerals (KIGAM) Daejon facility

- Purpose built to process Daejon vanadium mineralization due to strategic nature of the commodity
- 20kms from the Daejon Project Area
- Crushing, leaching and solvent extraction circuits to create V2O5 and yellow cake (U3O8) products
- Pilot Plant access enables significant enhancements to development timetable and cost of developing the Daejon Vanadium Project

DAEJON: UPCOMING NEWS FLOW

Significant upcoming news flow following extensive historical core study work program.

Details	Stage	Timing
Approval by KIGAM to conduct pXRF assaying on historical core	✓	January 2018
Positive correlation between new pXRF assays and 2013 wet assays is confirmed	✓	January 2018
Commencement of KIGAM core pXRF testing program	✓	Commenced January 2018
Protean commence metallurgical test work targeting high purity vanadium pentoxide (V_2O_5) precipitate (suitable for VRFB electrolyte)	✓	Commenced April 2018
Completion of Stage 1 of KIGAM pXRF test work	✓	May 2018
Completion of Stage 2 pXRF test work	✓	August 2018
Vanadium Mineral Resource (JORC 2012) interim upgrade	✓	June 2018
Vanadium and uranium Mineral Resource (JORC 2012) over the entire 8,300m of estimated mineralisation strike length (post Stage 2)	✓	Sep 2018
Results from tests targeting high purity V_2O_5 precipitate	✓	Q4 2018
Commence vanadium off-take partner discussions	✓	H2 2018
Commence Scoping Study on Daejon	✓	Q1 2019

(4a) V-KOR Battery Technology

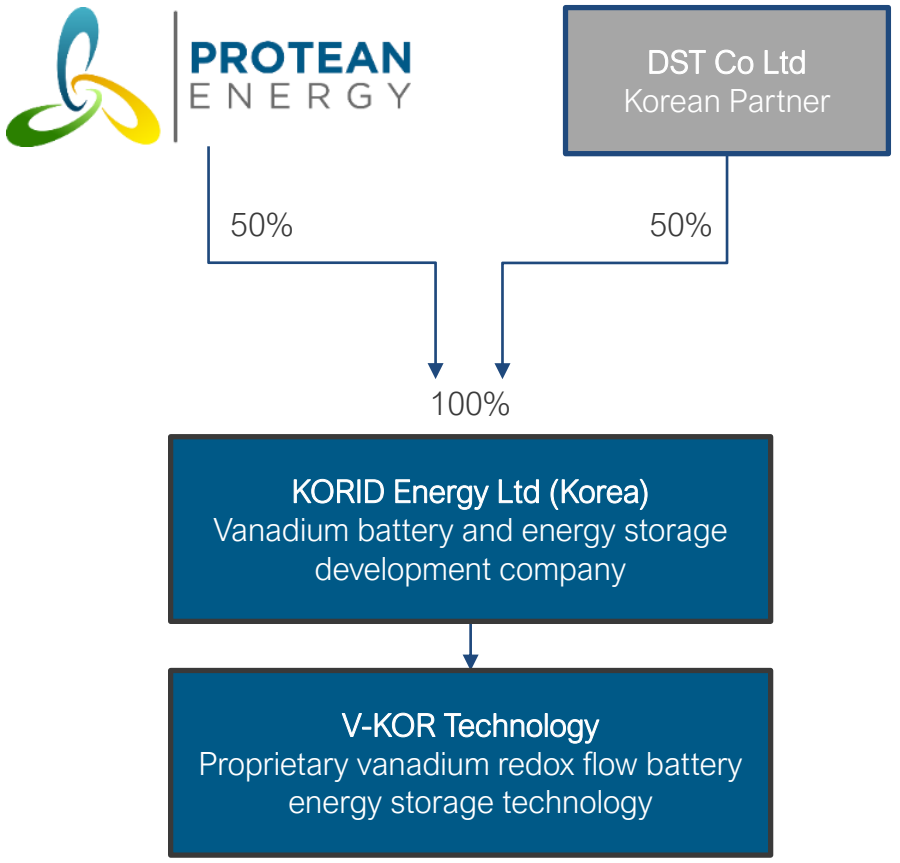
Image: Rongke Power's factory that produces vanadium redox-flow batteries destined for the world's largest battery site: a 200-megawatt, 800-megawatt-hour storage station in China's Liaoning province.

VANADIUM REDOX FLOW BATTERY TECHNOLOGY

Protean (50%) and its Korean partner, DST Co Ltd (50%), own 100% of KORID Energy Ltd. KORID is developing proprietary vanadium redox flow battery (VRFB) energy storage technology.

- Over the past 9 years Protean and DST, via KORID Energy, have been developing its VRFB technology, known as **V-KOR**
- **Commercial ready** technology that stores energy for longer and with a greater life expectancy than existing battery solutions
- **Fully scalable** with built solutions from 2kW to 25kW and larger to suit customer specific requirements
- Patent Protected – developed over the past 10 years
- ~AUD$120,000 grant from a Korean government agency, KETEP, utilised to fund the V-KOR trial (25kW/100kWh) in Western Australia

Ownership Structure of V-KOR Battery Technology



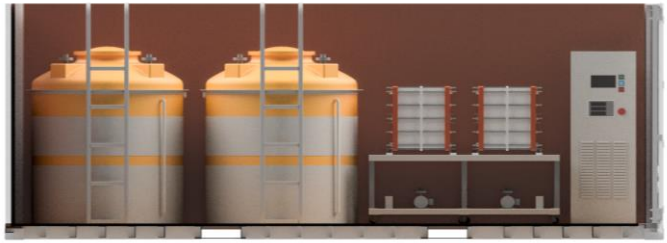
KORID'S V-KOR VRFB

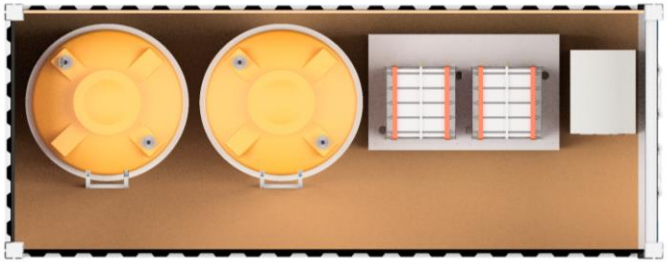
KORID's VRFB technology is a modular "plug and play" containerised utility scale storage solution.

Composition of Korid Energy's V-KOR VRFB

V-KOR components fit within a standard 20ft shipping container

5





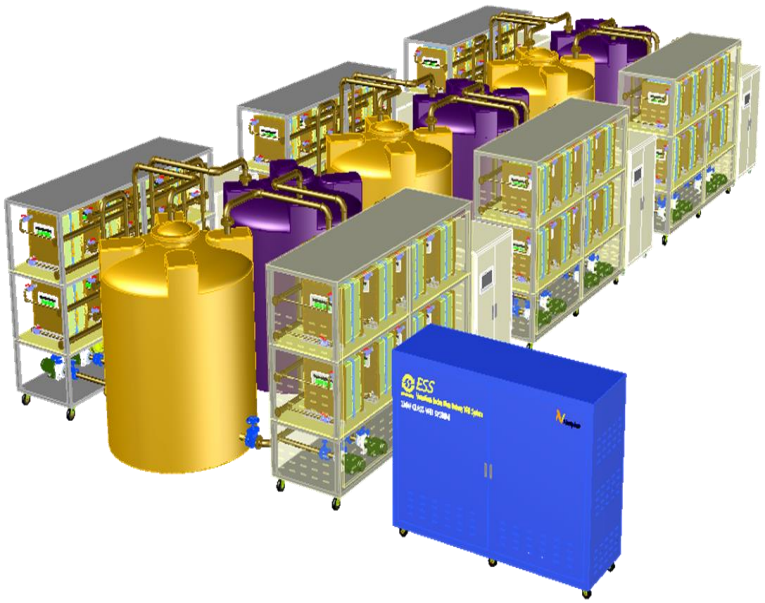
1. Electrolyte tanks
2. Cell stacks / membrane
3. Pumps and other balance of plant equipment
4. Power conversion system (including control system, communications, inverter, electrical wiring, etc.)
5. Standard size shipping container

ADVANCED COMMERCIAL READY TECHNOLOGY

The V-KOR battery solutions are built to order for commercial, industrial and grid scale applications.

- V-KOR has been developed over the past ten years and patents are granted to protect the design
- Four stack sizes of batteries have been developed to date including a 2.5kW, 5kW, 10kW and 25kW
- Technology is expected to drive the adoption of clean energy solutions

V-KOR: 3.6MW large scale grid battery concept



V-KOR: off-grid battery concept

(4b) V-KOR Perth Trial

Image: Rongke Power's factory that produces vanadium redox-flow batteries destined for the world's largest battery site: a 200-megawatt, 800-megawatt-hour storage station in China's Liaoning province.

MAJOR DEVELOPMENT MILESTONE ACHIEVED

A significant development milestone has been achieved on the V-KOR battery with 9 years of full daily cycles being completed

- No significant degradation in V-KOR battery performance during testing
- V-KOR battery units tested by Korea Conformity Laboratories
- Considered to be representative of “in use” battery performance supporting V-KOR’s progression towards initial commercialisation via customer orders
- The V-KOR battery has been developed with over US$3 million dollars invested to date in research, development, testing and IP protection.

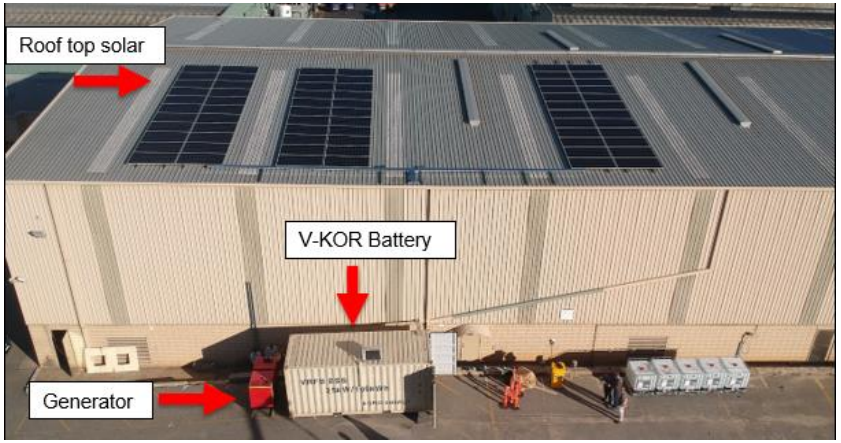
20kW solar PV integrated with 50kW V-KOR battery and the electricity grid in a field test site at Seosan-si in Korea.

PERTH MICRO GRID INTEGRATION JUNE 2018

In June 2018 the Company deployed the 1st Australian V-KOR trial battery.

- 4 Month trial schedule: Phase 1 focusing on a micro grid setting, Phase 2 Western Australia grid connection.
- Phase 1 testing of the 25kW (100kWh) V-KOR vanadium redox flow battery has been successfully completed.
- Phase 2 testing currently underway, integration with the Western Power grid achieved.
- The V-KOR trial battery consists of 2 electrolyte tanks, 2 battery stacks of 12.5kW, one 25kW inverter, associated electrolyte pumps and a power management system. The battery is housed in a 20-foot container, oversized to allow for ease of inspection during the trial period.

KORID technicians overseeing installation of the V-KOR battery at the Perth test site



- The V-KOR demonstration battery will be charged by a 21kW rooftop solar PV grid connected system.

(4c) V-KOR 1MW/4MWh KETEP Project

Image: Rongke Power's factory that produces vanadium redox-flow batteries destined for the world's largest battery site: a 200-megawatt, 800-megawatt-hour storage station in China's Liaoning province.

KETEP 1MW/4MWH INSTALLATION

- Protean's V-KOR technology has been selected to participate in a ~AU$10million VRFB installation.
  - The V-KOR project has received a funding commitment from the project of AU$3.0 million over 3 years
  - Trial project will be conducted over 3 years and will develop a 1MW / 4MWh vanadium redox flow battery
  - KORID Energy has been selected to participate as a result of its leading stack technology, which has a 250% higher power output when compared to the leading Korean competitor technology
  - The KETEP project will allow further enhancements in the assembly process of KORID Energy's 25kW stack, leading to substantial cost reductions

The KORID Energy 25kW Stack

V-KOR: UPCOMING NEWS FLOW

Significant upcoming news flow as a result of 1st V-KOR installation project in Western Australia.

Details	Stage	Timing
Completion of acquisition of 50% interest in KORID Energy Ltd	✓	March 2017
V-KOR secures ~AUD$120,000 in grant funding from the Korean government	✓	June 2017
Announced 1st V-KOR battery (25kW/100kWh) deployment in Western Australia	✓	April 2018
Installation of V-KOR battery in Western Australia	✓	May 2018
Phase 1 Trial commenced (battery trial terms) at OzLinc Industries in O'Connor, Perth, Western Australia	✓	June 2018
Phase 2 trial commenced – grid connection	✓	Q3 2018
V-KOR battery trial interim progress report	✓	H2 2018
Results of Western Australia V-KOR battery trial	✓	H2 2018

(4d) VRFB and Energy Storage Market

Image: Rongke Power's factory that produces vanadium redox-flow batteries destined for the world's largest battery site: a 200-megawatt, 800-megawatt-hour storage station in China's Liaoning province.

VANADIUM REDOX FLOW BATTERIES

Vanadium redox flow batteries are fast becoming a preferred choice for suppliers and there are a number of companies worldwide which are commercialising this technology.

- Redox flow batteries are rechargeable batteries that are charged and discharged by means of the oxidation-reduction reaction of ions of vanadium or the like

Advantage over other systems include:

- ✓ Scalability
- ✓ Lifespan of 20 years
- ✓ Immediate energy release
- ✓ Excellent charge retention (up to 1 year)
- ✓ Suitability for grid connection
- ✓ Ability to discharge 100% with no damage
- ✓ Low combustibility risk
- ✓ Key feature of using only one element in electrolyte; V_2O_5

- This makes them useful for grid scale applications, including grid balancing, and storing energy from variable output sources, including wind turbines and solar cells

Vanadium redox flow battery technology

Sumitomo 60MWh power generation and storage facility, installed in Hokkaido, Japan

Bloomberg

"The dominant form of energy storage is lithium-ion technology, but there are advantages to vanadium-flow batteries. They last longer and can be charged and discharged repeatedly without any significant drop in performance"
Bloomberg (10 April 2018)

THE BATTERY MARKET

Vanadium redox flow batteries have a number of advantages compared to existing and competing battery technologies. VRFBs last longer and can be charged and discharged repeatedly without any significant drop in performance.

Select battery technology comparisons

Details (USD)	Vanadium Redox Flow	Zinc Bromine Flow	Lithium-ion	Lead Acid
Image				
Upfront cost (USD/kwh)	$580-820[2]	$800 –875	$600 –1,100[2]	$100 – $200[2]
Lifetime cost (USD/kWh LCOE)	$0.25 - $0.45[3]	$0.20 – $0.30	$0.15 – $0.75	$0.25 – $0.50
Storage capacity	Unlimited[4]	Medium 3 – 10hrs	Short 1 – 4hrs	Medium-high 4 – 100hrs
Battery life span	>20 years[2]	>10 years[1]	5-10 years	5-10 years
Cycle	>10,000	1,000 – 10,000[1]	500 – 5,000	1,000 – 5,000
Depth of discharge	100%	100%	75%	50%
Safety	Low risk	Low risk	Fire risk	Low risk

Notes:

1. ZBM2 expected stack life of 10 years / 40,000 kWh regardless of cycle depth.

Source: Redflow Limited (ASX: RFX) investor presentation.

2 Energy Exchange conference presentation, Pacific Northwest National Laboratory, August 1 2017

3 SA Energy Storage conference 2017, Mott MacDonald Africa (Pty) Ltd

4 Storage capacity is limited only by the volume of electrolyte

WWW.PROTEANENERGY.COM

LEVEL 1, 89 ST GEORGE'S TERRACE
PERTH, WA, 6000

ADMIN@PROTEANENERGY.COM
+61 8 9481 2277