Level 1, 89 St Georges Terrace
Perth, WA 6000
T: +61 (8) 9481 2277
F: +61 (8) 9481 2355
ABN: 81 119 267 391
www.proteanenergy.com

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V-KOR Vanadium Battery Successfully Achieves First Australian Electricity Grid Integration

- 25kW/100kWh V-KOR vanadium battery successfully integrated with the Western Power electricity grid at OzLinc Industries trial site in Perth, for its first Australian grid connection deployment.
- Valuable data from the OzLinc trial will help optimise the V-KOR battery within hybrid grid systems incorporating solar PV, wind turbines, gas or diesel power generators.
- Opportunity for network providers to save millions of dollars by utilising V-KOR battery as an electricity network solution.
- Protean is continuing to receive enquiries regarding its V-KOR battery and progresses towards commercial orders.

Protean Energy Ltd (**Protean** or the **Company**) is pleased to announce an update to the 25kW/100kWh V-KOR vanadium battery deployment at the OzLinc Industries site in O'Connor (Perth, Western Australia).

The local network operator (Western Power) has provided approval for the battery to be connected to the network. The deployment will be used to demonstrate the V-KOR vanadium battery capability to future customers, and to collect data to help refine product configurations for grid connected batteries.

To date, the OzLinc Industries deployment has been used in a micro grid situation (isolated from the main electrical grid), in combination with a 21kW solar PV system and a 21kW diesel generator.

Protean plans to further demonstrate the capability of the complete Battery Energy Storage Solution (BESS) via developing a number of Australian projects as part of our roadmap to large scale grid installations.

The V-KOR vanadium battery is a key enabler for peak shaving and renewable energy utilisation, designed to be used in conjunction with solar systems, wind turbines and natural gas generators. The V-KOR vanadium battery allows customers to utilise more of their own renewable energy by storing excess solar or wind energy for use at selected times of the day.

The battery can also be used to store off peak energy from the grid, for use in peak periods. Protean sees future commercial opportunities for the V-KOR vanadium battery particularly for:-

- Network Operators – Potential efficiency gains in network augmentation by utilising V-KOR battery as an electricity network solution.
- Commercial & Industrial Market - Reduced peak demand charges, and increased self-supply using low cost renewables for C&I customers.
- Renewable Energy Farms - Firming of large scale renewable energy intermittency.

Mr Na, Chief Technical Officer for KORID Energy said: *"The Perth trial allows refinement of ancillary battery functionality as part of our development roadmap. It also serves to build familiarity with future customers. The V-KOR battery is progressing towards full commercialisation for the Australian market and our technology will assist network providers to offer lower electricity costs to their customers. We are encouraged by the size of the market opportunity for vanadium batteries in Australia and the enquiries we have had from land developers, major commercial customers and recent discussions with the electricity network provider. The time is right for our battery technology and we are strategically positioned to capitalize on a rapidly expanding battery storage market in Australia and globally."*

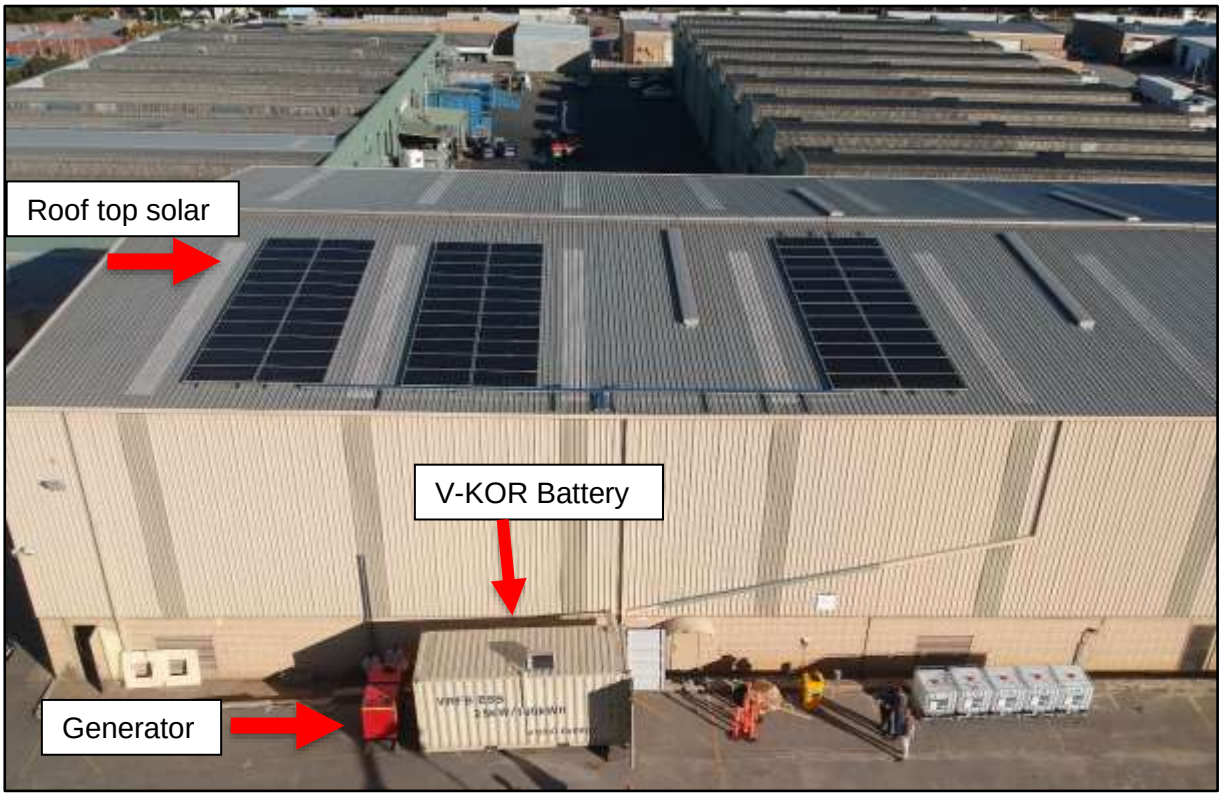

Figure 1: Distributed Energy configuration including solar system, V-KOR vanadium battery and diesel generator or grid connect.

About the OzLinc installation:

OzLinc is a supplier of pipe, fittings, flanges, valves and hosing to the Australian marine, industrial and resources sectors. The demonstration unit will be supplied by a grid connected 21.1KW rooftop solar PV system. The trial will facilitate collection of representative operating data for the battery, demonstrate charging operation using both grid and solar supply and it

will demonstrate automatic system power stabilisation characteristics given a fluctuating solar supply.

The propriety V-KOR technology is 100% owned by KORID Energy (**KORID**), a battery developer, and underpinned by granted patents. KORID is jointly owned by Protean (50%) and KOSDAQ-listed DST Company Limited (50%). KORID has utilised grant funding from the Korean government for the development and testing of the V-KOR range of vanadium batteries in Australia.

The grant has been issued by the Korea Institute of Energy Technology Evaluation and Planning (KETEP) which supports technical innovation in the energy sector.

Figure 2: OzLinc Industries trial site

The V-KOR demonstration battery consists of 2 electrolyte tanks, 2 battery stacks of 12.5kW each, one 25kW inverter and associated electrolyte pumps combined with a power management and conditioning system. The battery is housed in a 20-foot shipping container, oversized to allow for ease of inspection during the trial period. During the first phase of the trial, the battery is been used in a micro grid situation, in combination with a 21kW solar PV system and a 21kW diesel generator. The second phase of the trial involves the battery drawing electricity from both the solar PV system and the Western Power electricity grid so that the power is stored for use by OzLinc Industries at selected times of the day.

V-KOR Vanadium Battery

The V-KOR vanadium battery technology, owned 50:50 by Protean and DST, is a proprietary vanadium redox flow battery energy storage system (VRFB-ESS). V-KOR was developed in response to the growing demand for more efficient renewable energy storage solutions. The Company offers battery solutions built to order for commercial, industrial and grid scale applications.

V-KOR is a commercial stage technology that offers a rechargeable flow battery with the ability to store high levels of energy for longer and with a greater life expectancy than existing battery solutions. The V-KOR technology and batteries are scaleable with built solutions from 2kW to 20MW or larger to suit customer requirements.

About the V-KOR Vanadium Battery Systems

The Vanadium Redox Flow Battery (VRFB) was invented over 20 years ago, and there have been several implementations of this technology in various countries. The V-KOR systems use vanadium ions in different oxidation states to store energy in the form of 2 liquid electrolytes. VRFBs are proven to have excellent durability & life spans up to 20 years.

An important attribute of VRFB systems is that their energy storage capacity is independent of the power rating, allowing them to be designed for highly specific energy and power requirements and making them well suited to applications with large energy storage capacity specifications. These batteries are currently used for grid scale energy storage applications where large-scale and long duration electrical energy storage is required. They are an ideal solution for rapidly growing intermittent renewable energy generation sources such as solar and wind.

V-KOR was developed in response to the growing demand for more efficient energy storage solutions to support intermittent renewable energy production. The Company offers battery solutions built to order for commercial, industrial and grid scale applications.

V-KOR is a commercial stage technology that offers a rechargeable flow battery with the ability to store high levels of energy for longer and with a greater life expectancy than existing battery solutions. The V-KOR technology and batteries are scalable with built solutions from 2kW to 5MW or larger to suit customer requirements.

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ABOUT PROTEAN ENERGY LIMITED (ASX: POW)

Protean Energy Limited is an energy company focused on the commercialisation of vanadium battery energy storage systems. The Company is also developing a multi-mineral project in South Korea through its 50% holding in Stonehenge Korea Limited (SHK). SHK is a JV company with KOSDAQ-listed industry partner DST Company Ltd (DST). SHK owns 100% of the rights to 3 projects in South Korea, including the Company's flagship Daejon Vanadium Project.

For further information, see www.proteanenergy.com or phone: T: + 61 8 9481 2277