21 November 2017

Bushveld Minerals Limited

("**Bushveld**" or the "**Company**")

Bushveld Energy and Partners Deploy Eskom's First Vanadium Redox Flow Battery

Bushveld Minerals Limited (AIM: BMN), a mineral project development company with a portfolio of vanadium and coal assets in Southern Africa and an investment in tin, is pleased to announce that its 84%-owned energy subsidiary, Bushveld Energy Limited ("Bushveld Energy") has confirmed its first vanadium redox flow battery (VRFB) deployment in South Africa. The system will be deployed with Eskom, the South African national power utility, at its Research, Testing and Development (RT&D) Centre in Rosherville, South Africa. This follows Eskom's identification of the need for potentially up to 2,000MW of additional, daily balanced energy storage within the existing grid earlier this year.

The project is co-developed by Bushveld Energy and the Industrial Development Corporation of South Africa (IDC) and will allow Eskom to test the VRFB, its performance and applications under numerous simulations. This will include minimum load shifting, wind generation smoothing, solar generation smoothing, power quality improvement and self-black-start capability. The VRFB commissioning is expected in the first half of 2018.

Highlights:

- This is the first utility-scale VRFB to be deployed in South Africa. Eskom, the IDC and Bushveld Energy will jointly facilitate access to the battery at ERIC for independent power producers, energy storage developers, policy decision-makers as well as various capital providers for wider familiarisation in order to realize large scale adoption of VRFBs;
- Single 20 foot container, advanced VRFB to be produced by UniEnergy Technologies (UET) planned to have peak power of 120 kilowatts (kW) and be able to store peak energy of 450 kilowatt hours (kWh);
- UET's advanced VRFB utilizes 3rd generation technology originally developed at a U.S. National Lab with funding from the U.S. Department of Energy;
- Eskom will conduct testing, based on its existing measurement and verification approach, to validate the operational performance of energy storage systems in local conditions to demonstrate the abilities and maturity of the VRFB for broad commercial use in South Africa and across the African continent;
- Key evaluation criteria expected to especially favour the flexibility of VRFB compared to other technologies include its non-degradation in performance, good round-trip energy efficiency and ability to perform multiple 100% discharge cycles;
- The testing process is planned to last for 18 months, after which the system will be redeployed to a commercial site within South Africa to provide maximum benefit taking into consideration the outcomes of the test work results.

Fortune Mojapelo, CEO of Bushveld Minerals Limited, commented:

"*This deployment is a critical stepping stone for both Bushveld Energy and the energy storage market in South Africa. This project brings new technology to South Africa to make the local power system more efficient and more importantly create a new industry to not only supply South Africa, but offer*

significant export potential as well. We are pleased to bring all the key stakeholders together in this effort. As Eskom has identified significant energy storage requirements within the South African grid, this project will ensure VRFBs can showcase their superior technical and financial value. In addition, it will offer an opportunity for all South Africans to see the technology operating at utility-scale for the first time in the local environment. Bushveld Minerals continues to grow its vanadium production and create capability to beneficiate that vanadium into higher-value electrolyte and in parallel develop the local and regional market demand for VRFBs."

According to the International Renewable Energy Association (IRENA), VRFBs already offer some of the lowest system costs among battery technologies and are expected to decrease in cost by 66% through to 2030, which is faster than any other technology in energy storage. With the stationary energy storage market rapidly growing and, according to Navigant Research, expected to exceed US$25 billion in annual revenues by 2025, South Africa is extremely well-positioned to participate in this market by virtue of holding the second largest reserves of vanadium in the world in the Bushveld Complex.

A recent study of energy storage in South Africa commissioned by the IDC and the United States Trade and Development Agency (USTDA) confirmed "the relative ease of vanadium electrolyte production and the availability of vanadium in South Africa further enhancing the attractiveness of this specific flow technology." Based on a Cooperation Agreement signed in 2016, Bushveld Energy and the IDC are working jointly to bring significant portions of the VRFB value chain to South Africa.

Commenting on this milestone, Christo Fourie, Head of the IDC's New Industries Strategic Business Unit, said:

"*This deployment moves us one step closer to realising our end-goal for the South African Energy Storage industry, namely the localisation and domestication of energy storage solutions, the local adoption thereof and ultimately the export thereof. During the next year we will support the deployment of multiple "pilot" energy storage installations in collaboration with local or international project partners and technology providers to demonstrate the stacked advantages of energy storage solutions at a distribution level (capital deferral, security of supply, densification solutions, mini grids for new electrification, ancillary services, etc.). We believe that this first pilot installation in partnership with Bushveld Energy and Eskom will demonstrate that energy storage solutions do offer a financially attractive proposition and create the opportunity for a new local industry to be developed through which local mineral resources can be beneficiated and jobs can be created."*

Commenting on the project, Thava Govender, Eskom Group Executive for Transmission and Acting Group Executive for Risk & Sustainability, said:

"Through research and extensive experience in this field, Eskom has recognised that there is a need to incorporate energy storage in significant quantities in the future grid as this could be the solution to our needs for increased flexibility. It is important for Eskom to determine the real performance of these batteries prior to widespread installation, especially in view of the current costs and the associated risks of a non-performing technology. As a result, a Large-Scale Battery Testing Facility at Rosherville has been established, which is world class and the first-of-its kind in the African continent. Eskom is also committed to the National Development Plan and Sustainable Development Goal and through initiatives like this with potential of utilising South African resources, these national goals could be achieved in a sustainable manner."

Commenting on this project, John DeBoever, VP of Eastern Sales of UET, noted:

"Raised in the Congo in the 1960's by Belgian parents, I and therefore UET understand the importance of providing reliable, sustainable, and cost-effective grid-tied and off-grid energy systems to the African continent. UET as a global company with eight deployments so far in North America and

Europe will now deliver its field-proven energy storage systems to South Africa. Eskom is by far the largest provider of electricity in Africa, and this first project with Bushveld Energy's critical support will showcase locally the performance advantages of UET's US technology, using our advanced vanadium electrolyte, especially in operational flexibility, long-life, safety and economic value. Across Africa, advanced VRFB technology presents an opportunity to create a more efficient power system, optimising both renewable and base-load generation, reducing the costs of transmission and distribution system upgrades and enabling off-grid users to reduce reliance on costly and polluting thermal generators. South Africa in particular stands to gain from advanced VRFB technology as a base for new and existing local industries such as vanadium mining, electrolyte production and advanced VRFB installation and maintenance. We look forward in continuing our partnership with Bushveld Energy in deploying energy storage systems across the African continent."

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Notes to editors:

ABOUT BUSHVELD MINERALS LIMITED

Bushveld Minerals is an AIM listed mineral project development company with a portfolio of vanadium and coal assets in Southern Africa and an investment in tin.

The Company's flagship vanadium platform includes the Mokopane Vanadium Project, the Brits Vanadium Project, and an interest in Bushveld Vametco Alloys (Pty) Ltd primary vanadium mining and

processing company. The coal platform comprises the wholly-owned Imaloto Coal Project, which is being developed as one of Madagascar's leading independent power producers. The Company's tin interests are held through its shareholding in AIM listed AfriTin Mining Limited.

Bushveld's vision is to become one of the largest, low cost, integrated primary vanadium producers through owned high grade assets. This incorporates development and promotion of the role of vanadium in the growing global energy storage market through Bushveld Energy, the Company's energy storage solutions provider. Whilst the demand for vanadium remains largely anchored in the steel industry, Bushveld Minerals believes there is strong potential for an imminent and significant global vanadium demand surge from the fast-growing energy storage market, particularly through the use and adoption of Vanadium Redox Flow Batteries.

The Company's approach to project development recognises that, whilst attractive project economics are imperative, they are insufficient to secure capital to bring them to account. A clear path to production within a visible timeframe, low capital expenditure requirements and scalability are important factors in ensuring a positive return on investment. This philosophy is core to the Company's strategy in developing projects.

Detailed information on the Company and progress to date can be accessed on the website: www.bushveldminerals.com

About Bushveld Energy Limited

Bushveld Energy Limited is an energy storage solutions provider focusing on the African market, with registered offices in Mauritius and a wholly owned subsidiary in South Africa. Bushveld Energy recognises that electricity in Africa intersects paramount potential for social transformation with an immense commercial opportunity.

Launched in 2016, Bushveld Energy is focused on developing and promoting the role of vanadium in the growing global energy storage market through application in vanadium redox flow batteries. Its near term strategy is to deploy several VRFB systems as part of its longer term vision to become a significant electricity storage provider in Africa by 2020, meeting the demand for utility scale energy storage in Africa by leveraging South Africa-mined and beneficiated vanadium.

http://www.bushveldenergy.com/

About Industrial Development Corporation

The IDC provides finance for industrial development projects, playing a catalytic role in promoting partnerships across industries within South Africa and the rest of the African continent to promote regional economic growth. The IDC achieves this by:

- Proactively identifying and funding high-impact and labour-intensive projects;
- Leading the creation of viable new industries;
- Using its diverse industry expertise to drive growth in priority sectors; and
- Taking up higher-risk funding projects.

www.idc.co.za

About Eskom Holdings

As one of the largest power utilities in the world, Eskom generates approximately 95% of the electricity used in South Africa and approximately 45% of the electricity used in Africa. It operates 23 power stations with a total nominal capacity of 42,090MW and manages 26,000 kilometres of transmission

lines. Eskom sells power directly to some 6,000 industrial, 18,000 commercial, 70,000 agricultural and three million residential customers. It owns and operates a number of coal-fired, gas-fired, hydro and pumped storage power stations, as well as one nuclear power and one wind powered station.

http://www.eskom.co.za

About UniEnergy Technologies, LLC (UET)

Founded in 2012 as part of a larger company group dating to 2006, UET manufactures and installs megawatt-scale energy storage solutions for grid, microgrid, and commercial & industrial applications. It is the leading flow battery producer in North America and Europe, with 88MW/350MWh of systems deployed, contracted or ordered. The core patented technology is an advanced vanadium flow battery, with a new generation electrolyte first developed at Pacific Northwest National Laboratory with the support of the US DOE Office of Electricity, and then improved, patented and commercialized by UET. UET's solution is differentiated by (i) an electrolyte with double the energy density, much broader temperature range than conventional vanadium, and 100% recyclability, (ii) a plug & play containerized design with a compact footprint equal to or better than solid batteries, (iii) proven, high-performance large-scale stacks with 10 years of field deployment, six years of R&D before then, and hundreds deployed, and (iv) state of the art controls with DNP3 protocols and power electronics supporting IEEE1547. UET's water-based technology is inherently safe, operationally flexible, reliable, 20 year lifetime, and economically compelling. UET operates a 60,000 square foot engineering & manufacturing facility near Seattle, Wash. scaling up to produce 100 megawatts annually. The company group represents a combined investment of over $350 million into the vanadium industry.

http://www.uetechnologies.com/

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