Sparton Resources Inc. Provides An Update On VRB Energy Inc. Activities

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Sparton Resources Inc. ("Sparton" or the "Company") (TSXV:SRI) is pleased to report on news provided by VRB China through Beijing Puneng, a leader in battery energy storage manufacturing. Beijing Puneng is 49% owned by VRB Energy Inc. ("VRB Energy") and 51% by Shaanxi Red Sun. VRB Energy, in turn, is owned 90.025% by Ivanhoe Electric Inc. and Sparton's 90% owned subsidiary, VanSpar Mining Inc., owns 9.975% of VRB Energy Inc.

Sparton President, A. Lee Barker, commented that the introduction of a Chinese partner into VRB Energy's Chinese operations late last year, appears to have opened the door to the larger Chinese domestic market, where most utilities are either state owned or controlled. The repatriation to the United States of a portion of the funds received on the sale of 51% of Beijing Puneng to Shaanxi Red Sun and the formation of VRB China, are being applied to the establishment of VRB USA Inc. which will focus on markets outside of Asia. Leveraging 18 years of research and development experience, VRB Energy is now applying its technology to a variety of commercial applications. The following achievements by VRB China have recently been reported recently on the VRB China website:

Mining Application:

Integrated Photovoltaic-Storage-Charging Project at Santa Cruz, Ivanhoe Electric's Arizona Copper Mine

Labelled "the photovoltaic-storage-charging integrated" energy storage project in Arizona, USA, the project focuses on long-term energy storage and aims to create a global benchmark for lowering carbon emissions from mining. The project directly addresses the harsh challenges of remote mining areas, weak power grid support, and extremely high ambient temperatures. Leveraging many of the advantages of vanadium redox flow batteries- safety, stability, reliability, high ambient temperature resistance, and long-term storage- it achieves efficient and stable output of photovoltaic green electricity across different time periods. In a fully off-grid mode, the system can provide continuous and clean power to critical mining equipment. With its ultra-long-life energy storage capability, it effectively hedges against the risks of grid cost and fossil fuel electricity price fluctuations, providing a reliable energy storage solution for the low-carbon transformation of mine-power needs worldwide.

Independent Energy Storage:

Hubei Province New Energy Storage Pilot Demonstration Project 50MW/200MWh

This project is equipped with 100 units of the Beijing Puneng VRB Pod 500 all-vanadium redox flow battery energy storage system. It supports 4 hours of long-term stable charging and discharging, can accurately smooth the peak-valley differences in electricity consumption and adjust the fluctuation of energy output. It perfectly adapts to the needs of large-scale energy storage scenarios on the main grid. Commissioned in January of 2026, it was built in less than 4 months.

Industrial Energy Storage:

Smart Energy Project at Xuzhou Cement Plant in Jiangsu Province

Significant breakthroughs have been achieved in application and solution design. The project innovatively adopts a hybrid energy storage architecture of "lithium battery + vanadium redox flow battery", configuring 9.225MW/18.44MWh lithium iron phosphate batteries and 0.5MW/2MWh vanadium redox flow batteries,

considering both system economy and long-term stable operation capability, and achieving the optimal balance between performance and cost. The test work covers integrated photovoltaic, energy storage, and charging systems; system uncertainty modeling; design of multi-stage robust optimization and scheduling solutions for green and low-carbon transformation in various industrial settings.

Factory Application:

Integrated Photovoltaic-Storage-Charging Project at a Glass Factory in Zhejiang

As the first commercial application of Beijing Puneng's new-generation modular energy storage system using the VRB Pod250, this demonstration project marks a significant breakthrough for vanadium redox flow technology in the field of distributed photovoltaic energy storage integration at the factory level. The project integrates photovoltaic power generation with long-duration energy storage systems. It relies on precise and efficient energy management to successfully achieve a large-scale commercial application of the high-proportion self-consumption of renewable energy and flexible grid interaction, officially opening a new chapter in the market application of vanadium redox flow long-duration energy storage.

Campus Microgrid:

A Campus Microgrid Project in Hami, Xinjiang

This project establishes a multi-energy joint application of "photovoltaics + wind power generation + energy storage + charging". It sets a pioneering example for the integrated development of campus microgrids and long-term energy storage. Beijing Puneng's vanadium redox flow battery, with its core advantages of inherent safety, ultra-long cycle life, and stable operation across a wide temperature range, enables efficient absorption of distributed photovoltaic and wind power on campus and a stable all-weather energy supply. This is not merely a simple energy storage solution, but a successful use or an integrated model of "energy storage + education + user-application." It provides replicable and scalable long-term energy storage standards for the reliable operation of microgrids in high-altitude and remote areas and further helps to develop new energy storage business models.

Integrated Development:

An Independent Energy Storage Project in Shandong Province

Sharing technology for a "Win-Win" outcome: This is an independent energy storage project in Shandong Province that innovatively adopted an integration model of "vanadium battery + lithium battery + supercapacitor" to achieve complementary advantages and coordinated development of energy-type and power-type energy storage. It has significantly improved the power station's flexible support and rapid response capabilities to the power grid and exploring a composite energy storage solution that balances high reliability operation and excellent economic efficiency.

Highway Service Microgrid:

Demonstration Project for Photovoltaic-Storage-Charging Microgrid in Japanese Highway Service Areas

The integrated "photovoltaic +energy storage + charging + cold start " project at a highway service area on a Japanese island that has been successfully put into operation, confirming the reliability of vanadium redox flow technology in emergency power supply under the harsh environment of high salt spray, high humidity and strong corrosion, and intermittent power outages on the island. It has opened a new opportunity for distributed energy storage applications. In response to the risk of power grid outages caused by extreme weather, the system can seamlessly switch to independent power supply mode to ensure uninterrupted operation of critical loads. With multiple operating modes, including off-grid, grid-connected, and cold-start usage, it has validated Beijing Puneng's system delivery capabilities.

Intelligent Manufacturing as the Foundation for Connecting the Wider Industrial Application Chain,

Strengthening the Overall Production Capabilities of Vanadium Redox Flow Units.

The modern production base of Beijing Puneng's Shanxi Changzhi Lubao Industrial Park is the core of that company's manufacturing capacity strategy and a benchmark for large-scale intelligent manufacturing of long-duration energy storage systems. The base now has a planned capacity of 3GWh and fully integrates the entire industrial application chain from high-performance fuel cell stacks, R&D, and high-purity electrolyte preparation for system integration. This has achieved a one-stop production platform. It ensures quality and stable delivery of each energy storage system, provides a solid supply guarantee and technical support for the diversified needs of the global long-duration energy storage market.

Fuel Cell Stack Assembly Plant: Phase I Capacity: 300 MW/year; Phase II Capacity: additional 600 MW/year

The vanadium redox flow battery (VRB) stack assembly line is now producing third-generation VRB stacks. This line integrates a complete process, including raw material pretreatment, stack assembly, and performance testing. The manufacturing process utilizes an advanced automated production line system, enabling full-process monitoring and tracking.

System Assembly Plant: Phase I capacity: 300 MW/year; Phase II Capacity: additional 600 MW/year

The system assembly plant is the core of Beijing Puneng's full-industry chain intelligent manufacturing system. It has been developed in two phases with a tiered production capacity layout: Phase I established a fully automated energy storage system assembly line with an annual capacity of 300MW; Phase II expanded and upgraded capacity, increasing the annual capacityto an additional 600MW, for a total initial planned annual capacity of 900MW. Relying on standardized assembly processes and a comprehensive quality control system, the production line achieves efficient and highly consistent mass production of vanadium redox flow storage systems. This comprehensively ensures the large-scale and timely delivery of the company's projects across all scenarios both domestically and internationally, providing intelligent manufacturing support for the full-domain commercialization of vanadium redox flow technology and the expansion of the global long-duration energy storage market.

Electrolyte Preparation Plant: Phase I Capacity: 10,000 m3/year; Phase II Capacity: 60,000 m3/year

The vanadium redox flow battery electrolyte production line undertakes the important task of Beijing Puneng's self-developed and self-produced high-quality vanadium redox electrolyte. The production line covers the entire chain of core processes, including pure water preparation, vanadium pentoxide reduction, electrolysis, and precise formulation, and builds a closed-loop full-process production system from basic raw materials to finished electrolyte. The production process is rigorous and standardized, with a high degree of automation throughout. Combined with precise quality control throughout the entire process, it ensures the availability of high purity, high stability, and high chemical consistency electrolyte. It can be mass-produced as high-standard and standardized electrolyte products, laying a solid foundation for the availability of core materials necessary for long-term energy storage in vanadium flow battery systems.

Intelligent Partner Collaboration:

Close Collaboration Between Government, Academia, and Research Provides Innovation Momentum Going Forward

In 2025, Beijing Puneng's scientific research strength won dual recognition from the official government and academic communities. The company was recognized as a "Beijing Foreign-Invested R&D Center," marking the integration and synergistic progress of its global R&D system and local innovation ecosystem. During this period, the company's products continued to perform and be enhanced. It won a number of third-party certifications. Furthermore, the successful approval of the collaborative innovation project jointly applied for by Beijing Puneng and Tsinghua University is not only an affirmation of the company's deep commitment to the field of vanadium redox flow battery development, but also signifies that the company has built a highly efficient collaborative innovation mechanism integrating government, academia, and industrial enterprises, and is accelerating the transformation of cutting-edge academic achievements into core industrial forces that empower energy transformation.

Conclusion: In 2026, Beijing Puneng will continue to lead the vanadium redox flow storage industry with a global vision, full-chain production strength, and comprehensive application scenarios. It will continue to push technological boundaries, solidify its manufacturing foundation, and expand its global footprint, writing a new chapter in energy transformation with its core technology and production strength.

The full VRB China News Release and additional photos may be seen in Chinese and English at:

https://www.vrbenergy.com.cn/Home/news/news_detail/id/927.html

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