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South African delegates learn about the Primus Power EnergyPod(R), a zinc-flow battery technology designed for megawatt-scale energy storage, at the Primus Power facilities in Hayward, California. (Photo: Lauren Krauth/Business Council for International Understanding)

Power Africa"s work - from bringing new renewable and gas-fired energy online, to improving electricity transmission and distribution - helps identify emerging energy needs on the continent, as well as the emerging technologies that can meet those needs.

Increasingly, Power Africa"s partners are seeking technologies that can integrate and store the renewable energy they are adding to their electricity grids. In South Africa, for example, current installed electricity generation capacity is around 45 gigawatts (GW). But as the country shifts away from coal-fired power, it is expected to add 13 GW of renewable electricity generation capacity by 2025. The majority of this capacity will be from intermittent sources - such as solar and wind power - that present challenges in balancing energy supply and demand.

Energy storage technologies have the potential to substantially strengthen South Africa"s grid by offsetting the need to use fossil fuels for peaking power, providing grid balancing and resiliency, improving power quality, and increasing the ability to successfully integrate renewable energy resources. Energy storage will improve flexibility of the electrical grid and an increased diversification of energy sources as storage can provide power when it is needed, rather than when it is best generated.

To help its South African partners begin to address this need, the U.S. Trade and Development Agency (USTDA) has commissioned an assessment of the feasibility and market potential of energy storage technologies in the country. California-based Parsons Corporation is working with the Industrial Development Corporation (IDC), a South African development finance institution, on a roadmap for the adoption of energy storage technologies through 2030.

In April 2016, representatives from IDC and other South African entities participated in a USTDA-hosted reverse trade mission (RTM) to the United States. The RTM introduced the delegates to state-of-the-art U.S. technologies, equipment and services - as well as policies, regulations and financing mechanisms - that can support the implementation of energy storage projects in South Africa.

The 15 high-level delegates met with U.S. companies - including Tesla, Primus Power and Adara Power - in

San Francisco and Los Angeles, California. In Charlotte, North Carolina, they attended the Energy Storage Association"s 26th Annual Conference and Expo, and visited an energy storage facility and a battery manufacturing plant. They concluded their trip in Washington, D.C. with a policy and financing roundtable that included the U.S. Department of Energy, International Finance Corporation and Standard Bank.

The delegates believe that the knowledge they gained and the connections they made during the RTM will help them facilitate the development of South Africa"s energy storage sector. This will help utilities, as well as commercial and industrial customers, implement storage projects that can meet South Africa"s growing energy needs.

It has become urgent for South Africa to unlock the potential of sectors that can enable new industries. In order to meaningfully participate in the post Covid-19 economic recovery efforts that all economies are focusing on, a ripe opportunity lies in accelerating investment in the energy storage value chain.

Electricity"s share of how the world consumes energy has doubled from 10% to 20% between 1980 and today and is set to grow to 45% by 2050. A large share of this growing electricity demand will be met by renewable energy sources.

This growing energy storage market presents a unique opportunity for Bushveld Energy, a subsidiary of Bushveld Minerals. Bushveld Energy is a leading energy storage solutions provider and is focused on developing and promoting the role of vanadium in the growing global energy storage market through application in vanadium redox flow batteries ("VRFBs").

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