Blue Solutions on why it’s betting on solid-state batteries

While market experts suggest solid-state battery technology will not play a significant role in the storage industry until 2025, one company may be leading the race. Blue Solutions, electrical energy storage award winner at The smarter E Europe in Munich, Germany, says it has developed the only commercialized solid-state lithium battery. pv magazine caught up with the company around the European trade show to discuss its award-winning technology and unique position in the market.

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Image: Blue Solutions

France’s Blue Solutions, a subsidiary of The Bolloré Group, already has two factories up and running in France and Canada for its Bluestorage Lithium Metal Polymer (LMP) battery. Eliminating cobalt, nickel and solvents, and capable of being recycled, the company’s solid-state battery shows promise for a more environmentally and socially responsible battery solution than lithium ion. Providing hope for a technology breakthrough, the company says its pricing and warranties are comparable with lithium-ion batteries.

"We see a lot of development surrounding solid-state technology, particularly targeted at e-mobility. Pretty much all big auto and battery manufacturers are invested into solid-state startups and companies looking to develop this technology," Julian Jansen, energy storage research and analysis manager at IHS Markit, tells **pv magazine**. "But it is very early to say which specific solid-state technology will win out."

Mobility driving the technology

Automobile makers are driving high demand for increased energy density and safety in battery technology. The race to e-mobility has venture capitalists and car manufacturers alike pushing significant investment towards the industry. According to Wood Mackenzie Power & Renewables and the Energy Storage Association, more than $2.3 billion has been poured into such technologies over the past two years.

Recent car manufacturer investment has veered toward solid-state technologies, which can provide the opportunity for greater energy density, while also eliminating flammable liquid electrolytes in lithium-ion batteries. VW, for instance, invested $100 million in QuantumScape last year, while Toyota and Panasonic started a joint venture to develop solid-state batteries in January. Both Ford and Hyundai have also invested into Colorado-based Solid Power. But Blue Solutions' battery technology has been deployed in mobility for years.

"We have more than 300 million kilometers covered by cars and electric buses," Francisco da Silva Passos, business development manager at Blue Solutions, tells **pv magazine**, adding that the European market has been limited to intense use cases for car sharing.

The Bolloré Group developed a 100% electric Bluebus using the company's Lithium Metal Polymer battery technology and has approximately 300 electric buses operating worldwide. But Passos says the company is now primarily focused on developing partnerships with other major players in the market. Bolloré entered into an agreement with Daimler last year for its E-Citaro buses to be equipped with Blue Solutions' LMP battery, and also established a partnership with Gaussin for port tractor equipment.

Rural electrification in a solid-state

Beyond mobility, where Blue Solutions may stand out most from others is in its offering of solid-state batteries for stationary applications. So, why not lithium-ion? Passos says the main advantage of the Blue Solutions battery technology is that it cannot catch fire, referencing security, safety, and a recent isolated explosion in Arizona in the United States. But market analysts are skeptical of rhetoric regarding the cause of the fire, which is still pending investigation. Regardless, solid-state batteries provide a potential new set of benefits for microgrid systems.

"For microgrids in areas such as sub-Saharan Africa and Southeast Asia, simplified installation, maintenance and design could be highly desirable to reduce installation costs and unlock some of these markets," says Jansen.

Transport of the batteries also becomes easier. Lithium-ion batteries are typically shipped in refrigerated containers and must be stored in cooling warehouses. "In Africa, it would be very difficult to maintain the temperature of the battery for lithium-ion technology," says Passos, explaining that the company's batteries can be shipped in regular

containers and stored in any warehouse. Blue Storage currently has 30 off-grid installations in Africa.

"Solid-state batteries allow higher operating temperatures due to better thermal stability and thus the lesser cooling requirements make it particularly interesting for these locations," says Jansen. "But in other areas, because it is a high temperature technology, you could potentially have to spend a lot of energy on actually heating it for it to operate in optimal conditions."