Bandar seri begawan solid-state batteries

Electric vehicle makers around the world are speeding up work on solid-state batteries, which are believed to be a game-changing technology that offer shorter charging times and better performance than traditional lithium-ion packs.

A spokesperson for Blue Solutions, a unit of French conglomerate Bollore, confirmed that it was working on a battery for passenger cars with a charging time of 20 minutes. The company aims to build a plant for it by 2029.

In 2023, Toyota and oil refiner Idemitsu Kosan said they would work together to develop and mass produce all-solid-state batteries. They aim to commercialize operations in 2027 and 2028, followed by full-scale mass production.

"We will be rolling out our electric vehicles with solid-state batteries in a couple of years from now," said Vikram Gulati, the India head of Toyota Kirloskar Motor, at a summit in early January.

For an electric car with a Worldwide Harmonized Light Vehicles Test Procedure range of 500-600 km, this corresponds to a total mileage of more than 500,000 km. At the same time, the cell barely aged and still had 95 percent of its capacity at the end of the test, said the carmaker.

However, that does not mean they are ready for commercial use. "We still have a lot of work to do," said QuantumScape"s CEO Jagdeep Singh. "The prototype is meant to show the core functionality is there, not that the cell is fully ironed out in terms of all the different defects that can be introduced during the production process."

"A lot of promises haven"t been delivered and several automakers and investors have been burnt," said Rory McNulty at consultancy Benchmark Mineral Intelligence in an interview with Reuters. "There"s loads of really good verified data and technology but can they do it reliably, at scale?"

The sector"s lack of commercial success has dampened market enthusiasm. Statistics from Pitch-Book show that the amount of global venture capital deal activity in solid-state battery companies fell 72 percent in 2023 to $146 million.

Yet more companies in the automotive and battery sector are joining ranks to crack the conundrum. China"s Ganfeng Lithium told investors in November that there are difficulties in solid-state battery development. But the company is upbeat about the technology"s business prospects and is seeking cooperation with carmakers.

Some companies have rolled out partial versions of solid-state batteries. China"s EV firms Nio and Seres have

both launched EV models with "semi-solid-state" batteries, which have both solid and gel-like electrolyte components but do not use lithium metal anodes.

In late December, a Nio ET7, sporting a 150 kilowatt-hour battery pack of semi-solid-state cells codeveloped by Nio and Welion, finished a 1,044 km trip on one charge with 36 km left on the range display. The trip was from Shanghai to East China"s Fujian province, with the outdoor temperatures ranging from -- 2 to 12 degrees Celsius.

Battery sector information provider Gaogong Industry Institute said new production capacity for solid-state batteries surpassed 142 gigawatt-hours from January to July, with total investment exceeding 64.4 billion yuan ($9 billion).