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## Toyota solid-state battery tech on schedule for 2025 production, executive says

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Toyota remains on track to being limited production of solid-state batteries for electric cars in 2025, Keiji Kaita, executive Vice President of the automaker's powertrain division, and field general manager of its battery division, said in an interview with *Automotive News*.

Engineers have built working prototype batteries, and have mounted them in a "running concept vehicle," Kaita said.

The prototype cells have a thin, pouch-shaped design, and are arranged in modules within a battery pack, according to *Automotive News*.

Toyota and Panasonic are working on battery tech together, but Panasonic has separately said that solid-state tech isn't coming until the later part of the decade.

Solid-state batteries replace the liquid electrolyte used in current lithium-ion batteries with a solid material, hence the name. Advocates of the technology claim it will offer greater density than current battery technology, allowing for more range without increasing the size of a battery pack.



*Concepts preview battery-electric cars being developed at Toyota*

In the case of Toyota's prototype cells, the electrolyte is sulfur-based. Kaita said working with this material has proven difficult because engineers had to find a way to make it both dense and flexible, without affecting battery performance. Cells made with this electrolyte also need to be manufactured in an ultra-dry environment, which may make scaling up for volume production more challenging.

The payoff may be worth it, though.

In addition to greater energy density, Toyota's prototype cells can fully charge in 15 minutes, and the automaker is targeting capacity loss of just 10% over 30 years, according to *Automotive News*.

The promise of better performance has attracted interest from several other automakers, including Volkswagen, which invests in solid-state battery firm QuantumScape and also hopes to have solid-state batteries ready for production by 2025.

Vacuum maker Dyson has stopped its electric-car project but may look to sell its solid-state battery tech in the future, and Samsung claims that a solid-state tech it has under development will effectively double energy density.

