

Nissan confirms launch of EVs with all-solid-state batteries by FY 2028

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Nissan plans to use its in-house developed all-solid-state batteries in a wide range of EVs, including electric pickup trucks

Japanese automaker Nissan Motor Corp. has confirmed its plan of rolling out electric vehicles powered with all-solid-state batteries by fiscal year 2028, which will start from April 2028 and end with March 2029. The confirmation came on the sidelines of a media tour that the company organized on April 16, 2024, to demonstrate the updates at its under-construction, all-solid-state battery pilot assembly line at its Yokohama Plant in Kanagawa Prefecture in Japan.



Source: Getty image/gunnarAssmy

“The pilot line is aimed to further promote development and innovative manufacturing technologies for the batteries,” the company said in a statement.

Nissan’s confirmation of launching EVs with solid-state batteries comes almost three weeks after it announced its mid-term business roadmap named The Arc. The carmaker, which aims to implement new approaches in engineering and manufacturing to reduce product development costs and time, said in March that it was planning a broad pipeline of EVs with new battery technologies, including lithium iron phosphate (LFP), all-solid-state batteries and the nickel cobalt manganese (NCM) batteries with enhanced nickel content to significantly improve energy density and performance deliverables.

Nissan’s battery strategy underlines the carmaker’s intent of catering to the affordable as well as premium EV segments with LFP and solid-state batteries respectively, with both the battery technologies currently under development at Nissan’s battery laboratories in Japan.

The company had first unveiled its prototype production facility for laminated solid-state battery cells at its research center located in Kanagawa Prefecture, Japan, two years ago. The upcoming pilot assembly line for solid-state battery cells at the Yokohama facility is viewed as the next step to the prototype production facility, which was set up to promote the development of these high-energy density battery cells.

The pilot production line for solid-state battery cells will help Nissan to get a deeper understanding of the materials, design and manufacturing processes that can smoothly mass-produce these cells.

The carmaker estimates that the cost of solid-state batteries can be reduced to \$75 per kilowatt-hour by fiscal 2028 and to \$65 per kilowatt-hour thereafter, placing EVs at the same cost-level as gasoline-powered vehicles.

The solid-state batteries are being increasingly viewed as the next-generation battery technology that not only delivers a significantly higher energy density for improved driving range and quicker charging times but also for safety against potential fire risks when compared to the currently available lithium-ion batteries. However, the commercialization of solid-state batteries is marred with several technical challenges, including electrochemical stability of anode active materials (AAM) used with solid electrolytes and growth of lithium dendrites, among other factors, as cited by several battery research institutes globally.

While these challenges have been driving continued research and development in solid-state battery technology, the battery companies have been developing multiple types of solid-state battery cells by exploring innovative materials and electrolytes to achieve a stable chemistry.

Reportedly, the companies have found solutions that address these technical challenges but are yet to scale up the technology, which has sparked an all-out race to commercialize the solid-state battery cells.

Nissan said that its battery development team is conducting research at a "molecular-level" to find suitable solutions. The carmaker plans to deploy its in-house developed all-solid-state batteries in a wide range of EVs, including electric pickup trucks, making its EV lineup more competitive.

In June 2023, Toyota Motor Corp. had given a technical presentation to stakeholders. In that technical briefing session, the carmaker had confirmed that it has solved the long-standing challenges around solid-state battery technology and is looking at an effective methodology for mass production of these cells with a target of introducing them by fiscal year 2027–28.

Meanwhile, Shanghai-based EV maker Nio has already achieved a real-world driving range of more than 1,050 km per charge on its soon-to-be-launched ET7 electric sedan powered by 150-kWh semisolid batteries. GAC Motor, another leading mainland Chinese carmaker, has recently announced plans of launching electric cars with solid-state batteries by 2026.

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