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Toyota Details Next-Gen EV Batteries, Promises 497-Mile Range In 2026

Toyota claims it also made a breakthrough in solid-state batteries, which will launch in 2027-2028 with 621 miles of range.

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After announcing a new battery electric vehicle factory that will begin churning out new models in 2026, Toyota has revealed new details about the new, advanced batteries that will power its next-generation EVs.

The Japanese automaker will rely on four next-generation battery types, three with new liquid electrolyte battery technologies and one with solid-state battery technology.

Toyota says these batteries will power 1.7 million of the [3.5 million BEVs Toyota expects to sell worldwide by 2030](#). The new generation of battery technologies will be key to appealing to a wider customer base.

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Starting with the liquid electrolytes, which are the current mainstream battery technology for BEVs, Toyota said it is working on all-round improvements, including higher energy density, cost competitiveness, and charging speeds.

The three main battery types under development are called Performance, Popularization, and High-Performance.

TOYOTA'S BATTERY TECHNOLOGY ROADMAP

	TODAY 2023	NEXT-GENERATION 2026		FURTHER EVOLUTION 2027-2028		
	Battery for bZ4X	Performance	Popularisation	High-Performance	Solid-State 1	Solid-State 2
		Monopolar		Bipolar		N/A
Electrolyte type		Liquid			Solid	
Chemistry		Li-Ion	LiFePO ^{*1}	Li-Ion		
Driving range (WLTP)	500km	> 800km	> 600km	> 1,000km	> 1,000km	> 1,200km
Cost	-	-20% vs bZ4X	-40% vs Bz4x	-10% vs NG performance version	TBD	TBD
Fast charge time ^{*2}	~30 min.	~20 min.	~30 min.	~20 min.	~10 min.	TBD

^{*1} Lithium iron phosphate ^{*2} SoC = 10-80%

NOTE: Established driving range includes aerodynamic and vehicle weight improvements

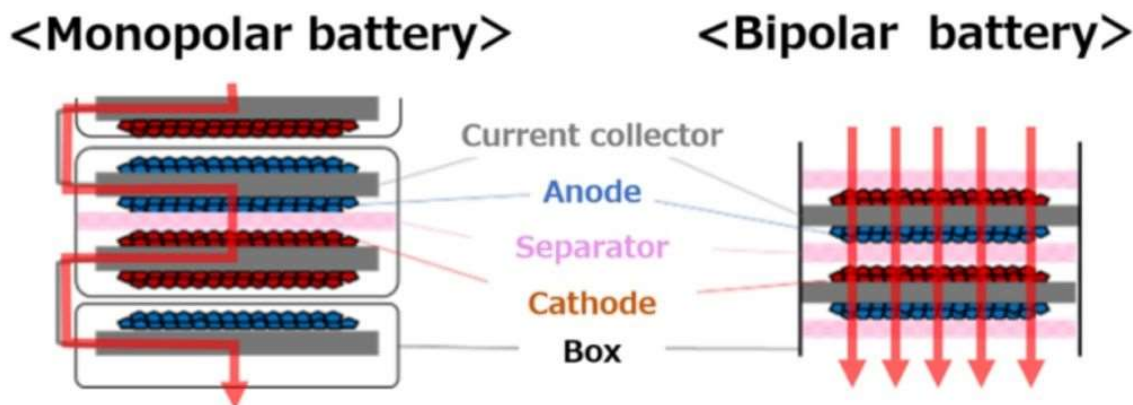
Performance Li-Ion Battery Coming In 2026 With 497 Miles Of Range

The Performance battery with lithium-ion chemistry is planned to debut in [Toyota's next-gen BEVs from 2026](#), increasing driving range to more than 497 miles with the help of improved vehicle aerodynamics and reduced vehicle weight.

The Performance battery is also expected to offer a 20 percent cost reduction compared to the current Toyota bZ4X electric SUV and a fast charging time of 20 minutes or less from 10 to 80 percent state of charge (SOC).

Popularization LFP Battery To Offer 20% More Range Than bZ4X

The Popularization battery will have **lithium iron phosphate (LFP) chemistry** and will be a lower-cost, albeit high-quality, option. Constructed using the bipolar technology Toyota pioneered for its nickel metal-hydrate (NiMH) batteries, the battery is expected to reach the market in 2026-2027.



The automaker expects the new battery tech to offer a 20 percent increase in driving range compared to the Toyota bZ4X and a 40 percent reduction in cost compared to the current electric SUV. As of charging, the Popularization battery should have a fast recharging time of 30 minutes or less from 10 to 80 percent SOC.

High-Performance Li-Ion Battery With 621-Mile Range In 2027-2028

The third type of liquid electrolyte battery, called High-Performance, uses a lithium-ion chemistry in combination with a high nickel cathode to achieve a driving range capability of more than 621 miles, when combined with improved aerodynamics and reduced vehicle weight.

Toyota expects a further 10 percent reduction in cost compared to the Performance battery and a DC fast charging time of 20 minutes or less for 10-80 percent SOC. This battery is planned to debut in 2027-2028.

Solid-State Battery With 621 Miles Of Range In 2027-2028

Moving on to solid-state batteries, **Toyota** claims it has made a breakthrough regarding the durability of this technology. The company's solid-state lithium-ion batteries have a solid electrolyte that's said to allow for faster movement of ions and a greater tolerance of high voltages and temperatures.

As a result, these batteries are suitable for rapid charging and discharging and delivering power in a smaller form. The trade-off for that has been an expected shorter battery life, but Toyota claims to have overcome this challenge, with recent advances accelerating the production timeline.

Gallery: Toyota bZ Sport Crossover and bZ FlexSpace Concepts

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According to Toyota, the goal is for the solid-state batteries to be ready for commercial use by 2027-2028 in next-generation BEVs – Toyota initially planned to introduce its solid-state batteries in hybrid vehicles.

Toyota expects its first solid-state battery to offer a 20 percent increase in driving range compared to the Performance battery – approximately 621 miles – and a fast charging time of 10 minutes or less from 10 to 80 percent SOC.

The carmaker says it already has a higher specification li-ion solid-state battery under development, targeting a 50 percent improvement in cruising range compared to the Performance battery – that would work out at **745 miles of range**.

Slimmer Battery Packs As Low As 3.9 Inches In Height

Besides improving the performance of its next-generation batteries, Toyota is also interested in optimizing battery height to improve aerodynamics and therefore range. Since the battery is located beneath the vehicle floor, it has a direct impact on the vehicle's overall height, which in turns affects aerodynamics and range.

A reduction in battery height results in a lower vehicle overall height, which is why the carmaker plans to reduce battery height to 4.72 inches (120 millimeters), compared to the **Toyota bZ4X's** battery height of around 5.9 in

(150 mm). In the case of high-performance sports BEVs, battery height will be reduced further to 3.93 in (100 mm).

More stories on Toyota's battery tech for future BEVs

[Toyota Claims Breakthrough That Will Lead To 745-Mile EV Battery](#)

[Toyota's Newly Revealed EV Plans Include 900-Mile Batteries](#)

Source: *Toyota*