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The world"s largest EV battery maker is advancing a new type of battery, promising higher energy density. According to a new local report, CATL is investing heavily while ramping up its workforce to bring all-solid-state EV batteries to market.

According to a new local report from LatePost (via CnEVPost), CATL has entered the trial production phase of 20 Ah samples. The news comes after the EV battery giant added over 1,000 workers to its R& D team this year.

In April, CATL"s chief scientist, Wu Kai, announced that the company had developed a verification platform for 10 Ah all-solid-state EV battery cells. Wu also said CATL aimed to produce all-solid-state EV batteries in small volumes in 2027, the first time the news was made public.

Batteries are going to continue getting better on an ongoing basis. The long term tends will be: increased energy density, decreased time to charge, increased lifecycles, reduced cost. It is also likely there will be different types for different purposes eg for flight energy density is critical for floating it is less critical (cars in between).

China"s BYD is second with a 16.4% share of the market. BYD is also planning to launch solid-state batteries. At the September 2024 World New Energy Congress, BYD"s head scientist and engineer, Lian Yubo, said solid-state EV batteries could be widely used in five years.

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A ceramic battery manufacturer has unveiled a solid-state battery concept that can be charged from 5% to 60% capacity in just five minutes — giving future electric vehicles (EVs) a 186-mile (300 km) range in the time it takes to order a coffee.

Revealing the design at the 2024 Paris Motor Show on Oct. 14, ProLogium representatives said in a statement that its silicon composite anode battery offered much higher energy density — by both weight and volume — than commonly-used lithium-ion (Li-ion) or lithium iron phosphate (LFP) batteries.

Capacity has been certified by TUV Rhineland in Germany at 749 Watts per liter (Wh/L) volumetric (power by volume) and 321 Watts per kilogram (Wh/kg) gravimetric (power by weight). Existing technologies offer under 200Wh/kg in the case of LFP or 200 to 300 Wh/kg from Li-ion — meaning the new battery is far

more dense than existing technologies.

ProLogium representatives also expect that ongoing development will see its silicon anode batteries offer up to 77% higher energy densities by the end of 2024. The five-minute charging time to 186 miles (300 km) is also much less than the industry"s 30-minute average to reach the same distance capacity, representatives added.

Higher energy density by both volume and weight means that manufacturers can get more out of smaller packages. Vehicles can be designed with the same power but from smaller batteries, which means that space lost to batteries in hybrid EVs, for example, could be reclaimed. Alternatively, manufacturers could get a great deal more power from battery packs the same size as their current offerings, which could give sub-compact automobiles much longer ranges than are currently available.

The ProLogium battery is also modular in design, which means that service, maintenance and repair are all much easier, representatives said. In particular, damage to a single battery cell, or small group of cells, will not require the replacement of the entire battery pack at significant cost.