New batteries for 2023

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Car companies including Stellantis, Hyundai and Volkswagen have also teamed up with firms working on solid state batteries. The technology holds the promise of batteries that are smaller and ...

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New batteries are coming to America. This week, Ford announced plans for a new factory in Michigan that will produce lithium iron phosphate batteries for its electric vehicles. The plant,...

Corporations and universities are rushing to develop new manufacturing processes to cut the cost and reduce the environmental impact of building batteries worldwide.

"This is a big deal," said Michigan governor Gretchen Whitmer in a press conference unveiling plans for the factory. Expanding battery options will allow Ford to "build more EVs faster, and ultimately make them more affordable," said Bill Ford, Ford"s executive chair.

Also known as lithium ferrous phosphate (LFP) batteries, the type to be produced at the new plant are a lower-cost alternative to the nickel- and cobalt-containing batteries used in most electric vehicles in the US and Europe today. While the technology has grown in popularity in China, Ford"s factory, developed in partnership with the Chinese battery giant CATL, marks a milestone in the West. By cutting costs while also boosting charging speed and extending lifetime, LFP batteries could help expand EV options for drivers.

Lithium-ion batteries all contain lithium, which helps store charge in a part of the battery called the cathode. But lithium doesn"t do this job alone: it"s joined in the cathode by a supporting cast of other materials.

The most common kind of cathode used in vehicles today contains nickel, manganese, and cobalt in addition to lithium. Some automakers, like Tesla, use another cathode chemistry made with nickel, cobalt, and aluminum. Both these cathode types have risen to prominence in part because they have high energy density, meaning the batteries will be smaller and lighter than others that can store the same amount of energy.

These iron-containing batteries tend to be about 20% cheaper than other lithium-ion batteries with the same capacity today. This is partly because LFP doesn"t contain cobalt or nickel, expensive metals that have seen huge price swings in recent years. Battery makers are also working to reduce cobalt content because mining the metal has been tied to particularly harmful working conditions.

Making cathodes without cobalt and nickel could help automakers cut costs, and some have already begun to shift battery chemistry used in vehicles sold in the US. Tesla imports LFP cells from China today for some

models, including its Model 3. Ford previously announced that it would start using the technology in its Mach-E in 2023 and in the F-150 Lightning in 2024.

With its newly announced factory, Ford would become the first automaker to produce LFP batteries in the US. The new facility, which will use technology from CATL, could help kick-start LFP production in the US more broadly. "It"s a pivotal point for the North American manufacturing landscape," says Evelina Stoikou, a battery technology analyst at BloombergNEF, an energy-focused research firm.

In October 2022, the US federal government announced a nearly $200 million investment to help a company called ICL-IP America build a factory in Missouri. The plant will make material for LFP cathodes, which will then be used to make batteries. It should begin production in 2025.

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