

TECH

# Tesla's Battery Day: Why Elon Musk and Other Car Makers Are Fighting Over Batteries

Race is on for power cells that provide greater vehicle range at lower cost



Battery cost and driving range remain issues for drivers thinking of making the switch to an electric vehicle. Jason Mosser charged his Tesla model 3 in Bismarck, N.D.

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The growing appetite for electric cars has created a new technology arms race. Vehicle makers like [Tesla Inc.](#) [TSLA -6.09%](#) ▼ and General Motors Co. and their suppliers are on the hunt for batteries that are better and cheaper. Here is what you need to know:

## What should you expect from Tesla's so-called Battery Day?

The Battery Day event, which Tesla plans to live stream on its website, begins after the company's shareholder meeting that starts at 4:30 p.m. ET.

## **Why is everyone so focused on car batteries?**

Battery technology is the secret sauce behind today's electric vehicle revolution. As more car makers compete in the market and try to persuade customers to abandon their gas guzzlers, companies are pushing to overcome two hurdles to the mass appeal of electric vehicles—price and performance.

Tesla's success is built partly on its bet on using lithium batteries similar to those found in consumer goods. That has allowed it to drive down the cost of cells used in electric cars while delivering driving ranges that are attractive to the average consumer. But electric cars still come with a premium price tag—a disincentive to getting people to make the switch from gas guzzlers.

Tesla has helped lower battery costs from north of \$600 kilowatt-hours to nearer \$150 kWh today, according to Bernstein Research. Batteries costing around \$100 kWh would put the cost of an electric car roughly on par with that of a gas-powered vehicle, according to analysts.

## **What are people doing to improve battery availability and performance?**

Lots. General Motors Co. is investing more than \$2 billion to build a battery factory in Ohio, with South Korea's LG Chem. China's electric car and battery maker BYD Co. 1211 3.91% ▲ in January announced a new battery design that doesn't use cobalt and is cheaper and safer than many EV batteries. Its shares have soared in response.

Tesla in June said its luxury Model S, introduced with a range of 265 miles in 2012, could now, on a single charge, reach 402 miles in a high-end configuration—a 20% boost over the year-ago performance.

JB Straubel, one of the brains behind Tesla, is betting on a totally different approach—recycled batteries. In a new venture, he plans to take cells from disused electric cars, harvest the raw materials that now make up the lion's share of a battery's cost, and reuse them in cells powering new vehicles. That, he has argued, could help deliver a step-change in lowering car battery costs.

## How serious is Tesla's event?

Underpromise and overdeliver isn't a phrase typically associated with Mr. Musk. Almost 18 months ago, at a similar event focused on autonomous driving, Mr. Musk laid out a vision for an on-demand robot taxi fleet that he promised would begin this year and that hasn't yet come to pass.

That said, Mr. Musk also has a track record of proving skeptics wrong. Rival car makers that initially scoffed at what he was trying to do are now rushing out their own electric vehicle models. And his rocket company, known as SpaceX, this year started ferrying astronauts to space, something few would have deemed possible when the company was founded 18 years ago.

## Who are the main players in car batteries?

LG Chem [051910 1.91% ▲](#) is the biggest cell provider, working not just with GM, but also with Tesla and other car makers. Its market share was above 30% around the middle of this year, according to Bernstein Research. Japan's Panasonic Corp. [PCRFY 4.49% ▲](#) also is a major player. It has partnered with Tesla in a relationship that at times has been fraught.

The companies jointly operate out of the so-called gigafactory outside Reno, Nev., where cells for Tesla cars are made. It isn't an exclusive relationship, though. Panasonic also counts Ford Motor Co. as a customer. China's Contemporary Amperex Technology Ltd., known as CATL, is another major player, working with manufacturers including Germany's BMW AG and Tesla.

Mr. Musk, in a tweet Monday, said the company intends to increase, not reduce, battery-cell purchases from Panasonic, LG and CATL. "Even with our cell suppliers going at maximum speed, we still foresee significant shortages in 2022 & beyond unless we also take action ourselves," Mr. Musk tweeted.

Electric-truck maker Nikola Corp. has turned to California-based Romeo Systems Inc. to source its core battery technology for both prototypes of its Nikola Tre semi-truck, as well as the final production version, which is expected go on sale in 2021, according to people familiar with the matter. That is a contrast to the company's earlier statements that it has developed its own battery technology.

## **Corrections & Amplifications**

Nikola was having discussions with Romeo to use its batteries last year, according to the people with knowledge of the matter. An earlier version of this article incorrectly said Nikola turned to Romeo this week. (Corrected on Sept. 22)

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Tesla Chief Executive Elon Musk for months has been promising to host the event, which was delayed by the pandemic and now is set to kick off Sept. 22 in conjunction with Tesla's annual shareholder meeting—both are being live streamed on the company's website. He has dropped several hints in recent months about what is on his mind.

During the company's most recent earnings call, he issued a public plea for people to “please mine more nickel,” a key ingredient in cells. “Tesla will give you a giant contract for a long period of time if you mine nickel efficiently and in an environmentally sensitive way,” Mr. Musk added.



Last month, he tweeted about plans for a cell that could store far more energy than current versions. A 400 watt-hours per kilogram battery that could be produced at high volume, he said, “is not far” and attainable in possibly three to four years. That would roughly double today's energy storage capacity.

Mr. Musk, on the eve of the event, tweeted it would affect long-term production, principally for Tesla's pickup truck, semi-truck, and roadster sports car. What will be presented, he said, wouldn't reach serious production levels until 2022.

Mr. Musk may also detail other battery production plans, including making more of them in-house and potentially producing cells that people could buy to store electric power at home, according to analysts.