Tesla Electric Vehicle Connection Buries Ford's Solid-State Battery News

Ford's Tesla connection got people talking this week, but solid state electric vehicle battery technology is also part of the company's big EV plans

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The Intertubes lit up earlier this week when news broke that Ford Motor Company had laid plans to spend up to $20 billion, on top of $30 billion pledged earlier, for a massive gasmobile-to-EV overhaul of its global operations. This is reportedly going to be spearheaded by former Tesla Senior VP of Engineering Doug Field. Somehow Ford's foray into new solid state battery technology also got lost in all the excitement, so let's take a closer look at that $20 billion makeover.

Ford Has An Electric Vehicle Secret Weapon Up Its Sleeve

Bloomberg was among the first to report the news about Ford's electrification push earlier this week, observing that "the effort, led by a former Apple Inc. and Tesla executive, calls for Ford to spend an

additional $10 billion to $20 billion over the next five to 10 years.”

Any mention of Tesla is chum to the media spotlight and that certainly attracted a lot of attention, so let’s fill in a bit more detail.

Doug Field would be the one who fits the description of a former Apple and Tesla executive, along with a stint at Segway, which makes him an A-lister in the field of vehicular electrification.

As Senior VP of Engineering at Tesla from 2013 to 2018, Field is credited with leading the development of the Model 3. Though, his departure from the company in 2018 was marred when the car initially failed to meet production goals.

Field then arrived at Apple, reportedly to work on the company’s secretive Titan electric vehicle project, before moving on to join Ford last fall. According to rumors at the time, the souring of Apple’s EV program may have precipitated Field’s departure from Apple, but last month rumors surfaced that the project is still on track and is moving into the supply chain development phase.

Wait, Who Is Leading The Ford Electric Vehicle Program?

In an interesting twist, Field began his career as a development engineer at Ford and held that position from 1987 to 1993, when gasmobiles were still the undisputed kings of the road. That brings us to someone else who should be featured front and center in any mention of Ford's electric vehicle transition, and that is Hau Thai-Tang, Ford's chief product platform and operations officer.

Like Field, Thai-Tang has deep roots in the gasmobile field. Also like Field, he reports directly to Ford CEO Jim Farley. Last fall, Ford made it clear that Field and Thai-Tang would be working in tandem.

"Field will partner closely with Hau Thai-Tang, Ford's chief product platform and operations officer, to create the next generation of Ford's connected products and experiences," the company explained. "Thai-Tang will continue to oversee Product Development, Purchasing, Design, Research & Advanced Engineering, EPLM / D-Ford, Advanced Manufacturing and Ford Ion Park."

Wait, What Is Ion Park?

That finally brings us to the solid-state battery angle. A lot is riding on Ford Ion Park, which popped up briefly on the *CleanTechnica* radar a few months ago, only to vanish just as quickly.

Ford announced plans for Ion Park last April, pitching it as "a new global battery center of excellence … to accelerate research and development of battery and battery cell technology — including future battery manufacturing."

"We're already scaling production of all-electric vehicles around the world as more customers experience and crave the fun-to-drive benefits of electric vehicles with zero emissions," said Thai-Tang at the time. "Investing in more battery R&D ultimately will help us speed the process to deliver more, even better, lower cost EVs for customers over time."

If you're thinking solid-state batteries are in the mix, join the club. Thai-Tang is a big fan of the technology, as manifested by Ford's $130 million investment in the solid-state battery company Solid Power last spring, along with BMW.

The Electric Vehicle Trickle

Becomes A Flood

Against this backdrop, on February 3, Ford issued its fourth-quarter results and talked up its electric vehicle plans, positioning itself as “a leader in must-have connected, electric vehicles.”

By that they probably mean the electric versions of legacy gasmobile brands with high name recognition, the Mustang Mach-E, the F-150 Lightening pickup truck, and the E-Transit van, which are big hits among EV buyers.

In a press release detailing the Q4 results, Ford stated that it anticipates churning out 600,000 EVs by 2023, with an eye on producing at least 40% EVs in its total product mix by 2030.

Ford also mentioned its work with the EV battery company LG Energy Solution, which is of particular interest considering that LG researchers have teamed up with scientists at the University of California–San Diego on a new solid-state battery project.

To be clear, Ford also waxed enthusiastically on its gasmobile business. However, it did point out that sales of the Mustang Mach-E pushed the company into the lead position in U.S. auto sales, and the company expects high volume sales of the F-150 Lightning and E-Transit van.

More Good News For Solid-State Battery Fans

For all the excitement over solid-state batteries, the technology is still relatively new and commercialization is years away. However, the allure of longer range, faster charging, lighter weight, lower cost, improved safety, nontoxic materials, and a more eco-friendly lifecycle is hard to resist, and things appear to be moving along quickly in the R&D area.

Last December, Solid Power recapped a busy year and had this to say about plans for 2022:

> "In 2022, we plan to commission our fully operational 'EV Cell Line,' which we expect to be capable of producing up to 100Ah cells. At this time, we are still on track to begin producing 'A Sample' cells in the middle of 2022. Until then, we plan to continue building 20Ah Silicon EV Cells and collecting and analyzing performance data."

“Next year will be a pivotal chapter in Solid Power’s story as we expect to formally enter the automotive qualification process,” they added.

They have their work cut out for them. Solid Power isn’t making just any old solid state battery. It is focusing on silicon anodes, which in theory could be 10 times more energy efficient than conventional graphite anodes.

Conventional liquid-electrolyte batteries are no friend to silicon anodes, but Solid Power figures a solid electrolyte will resolve the degradation issues without sacrificing performance.

“When combined with solid-state chemistry, silicon anodes have the potential to change EV battery landscape,” Solid Power enthused in a blog post last fall.

If all goes according to plan, Solid Power will bring its new solid-state batteries to market — and presumeably, to Ford and BMW — in 2026.

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