

Cleaning the Hard to Clean

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Having declared they intend to release multiple electric vehicle models retailing for under \$30,000, GM has bold plans to accelerate the growth of the electric vehicle industry. Hubbard-Hall, with a decade of experience in the battery cell market, has teamed up with Lithium Ion battery makers to provide cleaning chemistry that not only helps with supply chain, but also drives down the cost of batteries themselves.

AutoBeat Editor-In-Chief Gary Vasilash says General Motors Chair and CEO Mary Barra didn't just drive a stake in the ground regarding the company's electric vehicle plans; she drove in a tent pole: 30 new EV launches on a global basis by 2025, more than two-thirds of which will be available in North America.

"This means that 40% of GM's US vehicles will be battery-electric by the end of 2025," says Vasilash, who has been covering the automotive industry for over 30 years and is one of the most respected writers in the industry.

"At the risk of stating the obvious: this is nearly the end of 2020. This means that the acceleration into the EV space is going to be happening at warp speed," Vasilash says.

Barra's reasoning for the announcement was crystal clear.

"Climate change is real," she says. "And we want to be part of the solution by putting everyone in an electric vehicle."

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GM followed Barra's pronouncement with news that a pending breakthrough in battery chemistry will cut the price of its electric vehicles, so they equal those powered by gasoline within five years. The technology also will increase the range per charge to as much as 450 miles.

[Continued Next Page](#)

An Associated Press article says GM's product development chief promised a small electric SUV that will cost less than \$30,000 and pledged to roll out 30 battery-powered models worldwide by 2025.

are made up of thousands of little batteries grouped together."

Those bundled batteries are about the size of an AA battery and are preferred because — in the case of a crash — only the damaged cans are affected, which mitigates the risk of a lot of energy being released that might cause a fire or explosion.

The smaller battery cans are made of steel and nickel. Valenti says there are two separate processes used to manufacture and finish the cartridges, based on the need: the one process forms the small steel cylinder first, then adds a plated nickel finish; the other process places a nickel clad on top of the steel cylinder, after which the battery is formed from the material.

Nearly all current electric vehicles cost more than \$30,000.

The AP says the announcement shows how fast electric vehicle technology is evolving and how it may become the primary fuel for transportation sooner than almost anyone believed.

Of course, this is nothing new to the team at Hubbard-Hall, which has been working in the battery cell market for more than a decade. They partnered with a battery cell manufacturer for several large automakers to help design a cleaning process that is flexible and consistent.

Mike Valenti, Hubbard-Hall's Director of Cleaning Technologies, says lithium ion batteries are the preferred technology being used in EV, although other types of batteries have begun emerging on the market, too.

"The lithium ion batteries for EV come in various configurations," Valenti says. "There are large cell packs that act as one battery and the entire pack can be charged, but most of the cells used in EV

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"GM president Mark Reuss pointed out that, when it comes to vehicles powered by internal combustion engines, there are some 550 combinations in production, and they've identified 19 propulsion modules," Vasilash says. "So, by reducing complexity, they are able to create volume; with volume comes the ability to reduce costs."

Aside from Tesla and other EV car manufacturers who are developing new technology to help reduce costs, Vasilash says GM developed what they're calling "Ultium" batteries, which are predicated on pouch-style cells that use low-cobalt chemistry, nickel-manganese-cobalt-aluminum (NMCA).

"Not only does this chemistry help GM regarding the supply chain," he says, "But it will help drive down the cost of batteries to below \$100 kW/h."

GM and its battery supplier LG Chem are building a \$2.3-billion plant in Ohio to mass-produce batteries.

was sold to an investment group called Lordstown Motors, which is backed by electric truck maker Workhorse Group.

SK Innovation announced this fall that it plans to hire more than 1,000 skilled workers by the end of