

GM Building New Battery Facility at Tech Center

by Phil Foley

GM expects to be producing prototype batteries at the Wallace Battery Cell Innovation Center, under construction on the north side of the GM Tech Center in Warren, by the fourth quarter of 2022.

Executives announced the all-new facility Oct. 5, but were light on details. A company spokesman said the building will cover "several hundred thousand square feet." He added announcements on staffing won't come until the spring when the center opens.

"The Wallace Center will significantly ramp up development and production of our next-generation Ultium batteries and our

ability to bring next-generation EV batteries to market," said Doug Parks, GM executive vice president, Global Product Development, Purchasing and Supply Chain. "The addition of the Wallace Center is a massive expansion of our battery development operations and will be a key part of our plan to build cells that will be the basis of more affordable EVs with longer range in the future."

Batteries coming out of the Wallace Center are expected to increase the range of GM EVs while cutting production costs significantly, said Parks.

The Wallace Center will join the GM Research and Development Chemical and Materials' Subsystems Lab and Estes Battery Sys-

tems Lab on the Tech Center campus. Estes, a spokesman said, is the largest battery validation lab in North America at more than 100,000 square feet.

The center, Parks said, will allow GM to accelerate new technologies like lithium-metal, silicon and solid-state batteries, along with production methods that can quickly be deployed at battery cell manufacturing plants, including GM's joint ventures with LG Energy Solution in Lordstown, Ohio, and Spring Hill, Tenn., and other undisclosed locations in the U.S.

According to the announcement, the Wallace Center will include cell test chambers, cell



The Wallace Center, under construction at the GM Tech Center in Warren, is expected to accelerate new technologies like lithium-metal, silicon and solid-state batteries along with production methods that can quickly be deployed at battery cell manufacturing plants like GM's joint ventures with LG Energy Solution in Lordstown, Ohio, and Spring Hill, Tenn. photo: by GM

CONTINUED ON PAGE 2



General Motors President Mark Reuss outlines GM plans for the future to investors at the GM Tech Center in Warren Oct. 6. photo: by Steve Fecht for GM

GM Outlines Its Plans for Growth

by Phil Foley

While several of GM's competitors are easing into the electric future of transportation with hybrids, GM is going all in with 30 new electric vehicles set to roll out in the next four years.

GM executives Oct. 6 presented that strategy, along with new initiatives and technologies they say will double revenue and increase margins by more than 25 percent by 2030.

"GM has changed the world before and we're doing it again,"

said GM Chair and CEO Mary Barra Oct. 6. "We have multiple drivers of long-term growth and I've never been more confident or excited about the opportunities ahead."

At the end of the first of two days of investor presentations in Warren, the Associated Press reported GM shares closed down 1% at \$53.93.

Some analysts say GM's commitment to an all-electric future threatens to take a bite of its 17% market share - at least in the short term.

But Paul Jacobson, executive vice president and chief financial officer, said GM is unlocking a secular growth story that is changing the trajectory of the automotive business.

Simply stated, he said, GM is at an inflection point in which "we expect revenue to double by 2030 while also expanding our margins. We will achieve this by growing our core business of designing, building, and selling world-class ICE, electric

CONTINUED ON PAGE 2

Auto Sales Slip as Chip Shortage Continues

by TOM KRISHER
AP Auto Writer

DETROIT (AP) - In a normal month before the pandemic, Con Paulos' Chevy dealership in Jerome, Idaho, sold around 40 new vehicles. In September, it was only six. Now he's got nothing new in stock, and every car, truck or SUV on order has been sold.

Last month, what happened at his dealership about 115 miles southeast of Boise was repeated across the country as factory closures due to a worsening global shortage of computer chips crimped U.S. new

vehicle shipments.

U.S. new vehicle sales tumbled about 26% in September as chip shortages and other parts-supply disruptions cut into the selection on dealer lots and raised prices once again to record levels. That sent many frustrated consumers to the sidelines to wait out a shortage that has hobbled the industry since late last year.

Automakers sold just over 1 million vehicles during the month, according to Edmunds.com, a figure that included estimates for Ford and others that didn't report numbers Oct. 1. September was the lowest sales month of the year, Edmunds said.

For the third quarter, sales were 3.4 million, down 13% from the same period a year ago.

Automakers on Oct. 1 reported some pretty poor numbers. General Motors, which only reports sales by quarter, said its deliveries were off nearly 33% from July through September of last year. Stellantis, formerly Fiat Chrysler, saw quarterly sales dip 19%, while Nissan sales were down 10% for the quarter.

Honda's U.S. sales fell almost 25% last month, and were down 11% for the quarter. At Toyota, sales were off 22% for September

CONTINUED ON PAGE 2

GM, GE Join to Create New Supply Chain for EV Market

by MICHELLE CHAPMAN
AP Business Writer

General Motors and General Electric are looking at developing a supply chain of rare earth materials that help make electric vehicles and renewable energy equipment.

The companies said Wednesday that the memorandum of understanding between the automaker and GE Renewable Energy will evaluate options to improve supplies of heavy and light rare earth materials as well as magnets, copper and electrical steel.

They initially plan to concentrate on making a North America- and Europe-based supply chain of magnet manufacturing, as metal alloys and finished magnets made from rare earth materials are critical components used in creating electric motors for automotive and renewable power generation.

GM and GE Renewable Energy will also look to create new sup-

ply chains for materials like copper and eSteel - a new alloy that incorporates recycled materials - that are used in automotive traction motors and renewable power generation.

The U.S. is trying to increase its production of rare earth materials, so as not to be so reliant on China. In 2018 China produced some 120,000 metric tons of rare earths, while the U.S. produced 15,000 metric tons, according to the U.S. Geological Survey.

On Tuesday GM announced that it's building a huge new electric vehicle battery lab in Michigan where scientists will work on chemistry to cut costs 60% over current vehicles and allow people to travel 500 to 600 miles (800 to 965 kilometers) per charge.

The Detroit automaker plans to spend \$35 billion on electric and autonomous vehicles from 2020 to 2025. It anticipates rolling out 30 new electric vehicles worldwide by 2025 and has a goal of selling only electric passenger vehicles by 2035.

Ford to Invest \$11B in New EV Plants, Create 11K Jobs

by TOM KRISHER and BRUCE SCHREINER
Associated Press

GLENDALE, Ky. (AP) - Ford and a partner company say they plan to build three major electric-vehicle battery factories and an auto assembly plant by 2025 a dramatic investment in the future of EV technology that will create an estimated 10,800 jobs and shift the automaker's future manufacturing footprint toward the South.

The factories, to be built on sites in Kentucky and Tennessee, will make batteries for the next generation of Ford and Lincoln electric vehicles that will be produced in North America. Combined, they mark the single largest manufacturing investment the 118-year-old company has ever made and are among the largest factory outlays in the world.

Notably, the new factories will

provide a vast new supply of jobs that will likely pay solid wages. Most of the new jobs will be full time, with a relatively small percentage having temporary status to fill in for vacations and absent workers.

Together with its battery partner, SK Innovation of South Korea, Ford says it will spend \$5.6 billion in rural Stanton, Tennessee, where it will build a factory to produce electric F-Series pickups. A joint venture called BlueOvalSK will construct a battery factory on the same site near Memphis, plus twin battery plants in Glendale, Kentucky, near Louisville. Ford estimated the Kentucky investment at \$5.8 billion and that the company's share of the total would be \$7 billion.

With the new spending, Ford is making a significant bet on a future that envisions most drivers

CONTINUED ON PAGE 2

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CONTINUED FROM PAGE 1

eventually making the shift to battery power from internal combustion engines, which have powered vehicles in the United States for more than a century. Should that transition run into disruptions or delays, the gamble could hit the company's bottom line. Ford predicts 40% to 50% of its U.S. sales will be electric by 2030. For now, only about 1% of vehicles on America's roads are powered by electricity.

In an interview Monday, CEO Jim Farley said it would be up to the workers at the new plants to decide whether to be represented by the United Auto Workers union. That question could set up an epic battle with union leaders, who want employees of the future to join the union and earn top UAW production wages of around \$32 per hour. It represents a high-stakes test for the UAW, which will need jobs for thousands of members who will lose work in the transition away from engines and transmissions for petroleum-powered vehicles.

Ford's move also could put the company at odds with President Joe Biden's quest to create "good-paying union jobs" in a new, greener economy.

Farley said it's too early to talk about pay or unionization at the new factories. He stressed that

Ford will maintain a geographic manufacturing balance when the company's investments in Ohio and Michigan are included. Ford and General Motors have UAW-represented plants in Kentucky and Tennessee, states where it is common for political leaders to actively campaign against unionization.

"We love our UAW partners," Farley said. "They've been incredible on this journey of electrification so far. But it's up to the employees to decide."

Just four months ago, Ford said it would build two new battery plants in North America. But Farley said demand for the electric Mustang Mach E SUV and over 150,000 orders for the F-150 electric pickup convinced the company to increase battery output.

Farley said Ford intends to lead the world in electric vehicles, a title now held by upstart Tesla Inc., which is adding jobs at a third factory now under construction near Austin, Texas.

Ford picked the Kentucky and Tennessee sites in part because of lower electricity costs, Farley said, as well as being less exposed to flooding and hurricanes than other states. Battery factories use five times the electricity of a typical assembly plant to make cells and assemble them into packs, so energy costs were a big factor, Farley said.

GM Information Rack Pamphlets Once Popular Among Employees

"Horseshoes, Old Bones and Pigeon Traps" – that was the name of one of the informative booklets General Motors published and distributed to its 350,000 employees nationwide back in the 1960s.

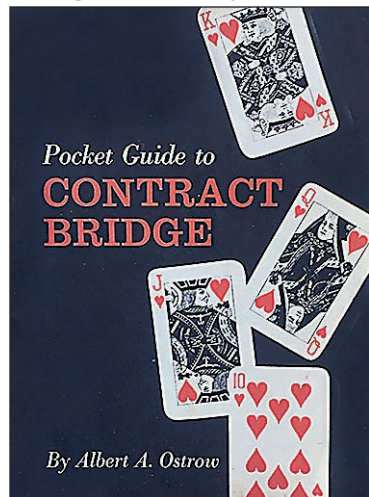
The booklets, distributed through racks in each plant and sales office every week-and-a-half, gave workers the opportunity to take the booklets home and read them at their leisure.

Some were helpful aids, such as "Gardening Made Easier," "First Aid and You" and "A Guide to Contract Bridge." Others were biographical, such as "Abraham Lincoln," "Thomas Jefferson" and "Benjamin Franklin."

While many of the booklets, usually 8-12 pages long, covered these types of subjects, others were intended to show how GM was not the profit-serving automotive "monster" some people made it out to be. These publications, like the earlier-mentioned "Horseshoes," made the point that GM actually helped smaller companies.

The horseshoes in the booklet were identified to indicate that GM buys horseshoes from smaller companies for employees to use in GM's work/recreation areas. Old bones, the booklet said, were used in testing GM's Frigidaire garbage disposals. And, pigeon traps were purchased from smaller firms to humanely contain the pesty pigeons that perched on beams inside a GM auto plant – above newly painted vehicles.

The booklets gave employees



One of many pamphlets that GM distributed in the early 1960's.

the opportunity to take the booklets from the racks hung in entrances and exits in the plants and offices.

And each subject had its niche. At the time, long before the Internet, employees said they often took the biographical material home so their children could use them as references for their homework. '60s housewives maintained that they got help from booklets on gardening and cooking.

Whatever the subject, the booklets were popular, sometimes disappearing on the first day they were placed in the racks. If the subject was how to improve your golf score, the booklet was as popular as a brand new putter. And if it was about cars, well, all those car guys in the plants tore the booklet apart bumper to bumper.

GM Outlines Its Plans for Growth

CONTINUED FROM PAGE 1

and autonomous vehicles, growing software and services with high margins and entering and commercializing new businesses."

Company executives told investors they expect to increase margins to 12-14% by 2030 from the 9.13% the company reported June 30.

Part of GM's strategy is to knock Tesla from its position as king of electric hill.

While Tesla remains a tiny fraction of total U.S. auto sales, as of April 2019 it has sold 163,971 Model 3s and 147,517 Model Ss, compared to 154,664 Chevrolet Volts and 46,211 Chevrolet Bolts.

The Bolt ended the first quarter with a 53.7% sales increase over the previous year, but then got hit with a double whammy of a global microchip shortage and a recall due to battery fires. While the battery issue has been sorted out, the chip shortage has not.

Cadillac is expected to roll out its all-electric Lyriq with GMC rolling out their Hummer pickup in the spring, followed by crossovers from Chevrolet and Buick and trucks from Chevrolet and GMC – all based on GM's Ul-

tium platform.

The Ultium platform is also the basis of the Brightdrop line of commercial vehicles. Between its full-sized EV600 van and smaller EV410, GM expects to bring in \$5

billion by mid-decade and possibly double that by the end of the decade.

GM also expects to increase revenues by expanding digital services to its customer base.



General Motors Chair and CEO Mary Barra outlines GM plans for the future to investors at the GM Tech Center in Warren Oct. 6.

Photo: by Steve Fecht for GM

Auto Sales Slip as Chip Shortage Continues

CONTINUED FROM PAGE 1

but up just over 1% in the third quarter. Hyundai reported sales off 2% last month but up 4% for the third quarter. Volkswagen third-quarter sales were down 8%.

"September results show that there are simply not enough vehicles available to meet consumer demand," said Thomas King, president of data and analytics at J.D. Power.

The average sales price of a new vehicle hit a record \$42,802

last month, breaking the old record of \$41,528 set in August, J.D. Power said. The average U.S. price is up nearly 19% from a year ago, when it broke \$36,000 for the first time, J.D. Power said. The auto price increases have helped to drive up U.S. inflation.

General Motors, hit hard by temporary plant closures last quarter, expressed some optimism, though. Steve Carlisle, president of GM North America, said the computer chip shortage is improving.

"As we look to the fourth quar-

ter, a steady flow of vehicles held at plants will continue to be released to dealers, we are restarting production at key crossover and car plants, and we look forward to a more stable operating environment through the fall," he said in a statement.

The shortage and crazy high prices for both new and used vehicles began with the eruption of the pandemic last year, when many states issued stay-at-home orders. Prices plummeted, and automakers shuttered factories for eight weeks.

GM Building Battery Facility at Tech Center

CONTINUED FROM PAGE 1

formation chambers, a material synthesis lab where GM can design its own cathode active materials, a slurry mixing and processing lab, a coating room, electrolyte production lab, and a forensics lab with material analysis equipment and advanced software.

A GM spokesman said the Wallace Center will be a key facility in efforts to reach the company's goals of cutting the cost of the next generation of Ultium batteries and replacing all gas and diesel engines with electric powertrains by 2035.

GM currently holds more than 2,000 granted and pending patents related to EV battery

technology, said Parks, including 60 patents and trade secrets and another 46 pending in critical areas of future battery development, such as lithium-metal electrolytes, anodes, cathodes and binders.

While declining to say how big the first phase of the Wallace Center will be, a spokesman did say it's being built with expansion in mind and is projected to grow up to at least three times its initial footprint, with room for additional investments, as demand for EVs increases.

The center's namesake, Bill Wallace, pioneered GM's relationship with LG Chem R&D (now LG Energy Solution), culminating in the Ultium Cells LLC battery cell manufacturing joint venture

plants now under construction. "In addition to being a good friend," said Parks, "Bill was an innovator who enabled other innovators. He gave his team confidence to take risks and reach far beyond their wildest dreams in pursuit of our all-electric, zero-emissions future."

The battery engineering team based at the Wallace Center will experiment with many types of future battery chemistry in addition to lithium-metal, including pure silicon and solid-state, along with different cell form factors. The center is expected to build batteries ranging in energy density from 600 to 1200 watt-hours per liter, along with crucial battery cell ingredients like cell-active materials.



GM battery Research and Development electrochemists build prototype battery cells using a robotic battery cell stacking machine. Work done on batteries over the past decade at GM R&D will be moved forward at the new Wallace Battery Cell.

Photo: GM