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Autonomous car's driver display with inset of car's interior.

# GM Will Invest \$14M, Add 1,100 Jobs for Driverless R&D

The truly autonomous car has gotten one step closer to reality.

General Motors on April 13 said it will add more than 1.100 new jobs and invest \$14 million in a new research and development facility for Cruise Automation in San Francisco.

These investments will allow Cruise Automation to expand development of self-driving technologies that will transform personal mobility, said GM spokesman Kevin Kelly.

"Expanding our team at Cruise Automation and linking them with our global engineering talent is another important step in our work to redefine the future of personal mobility," said GM Chairman and CEO Mary Barra. "Self-driving technology holds enormous benefits to society in the form of increased safety and access to transportation. Running our autonomous vehicle

**CONTINUED ON PAGE 2** 

# **GM Inventor Zhang Works on Rear Mirror** To Help Stay in Front of the Competition

by Jim Stickford

All great ideas have to get their start somewhere.

In the case of GM's Rear Camera Mirror, if one looks at it from a certain point of view, the idea can actually be traced back to 2007 when GM won the military's Urban Challenge contest, in which several different companies competed to create the best autonomous driving system for an urban environment.

One of the people who worked on GM's system is Wende Zhang. He currently works as a lead inventor in GM's Automated Driving & Active Safety Vehicle Engineering Center in the Warren Tech Center.

Back in 2007, Zhang was a senior researcher in GM's R&D Research Center in Warren. It was one of their jobs to create an autonomous driving system for the military's contest. He came to GM from Carnegie Mellon University in Pittsburgh where he earned his doctorate in electrical and computer engineering.

In 2007, winning such a prestigious award was a real boost in the confidence of GM staff. But Zhang said that as he progressed through GM, moving from R&D to advanced engineering and finally

to autonomous driving, he also Kettering Award for their Dynamwanted to work on something that could be brought to market in a more timely fashion. In 2007, autonomous driving was still a project on the horizon.

Zhang's moving from R&D to engineering also represents a larger trend at GM – moving away from esoteric research for the sake of research to coming up with practical ideas that will yield definite economic benefits.

It was this philosophy that enabled to Zhang and his colleagues to win a 2016 GM Boss ic Guideline Overlay project and another one for their Front Curb View Feature proposal.

A Boss Kettering award does more than look good on a mantlepiece. It enables GM personnel to go forward and make their proposals a reality, Zhang said. Winners have successfully pitched their ideas to management and a win means that management believes in the concept and will transfer resources -

**CONTINUED ON PAGE 3** 



Zhang with rear camera mirror (video display unit) and mini-camera.

# **Autonomous Vehicles Take Back Seat with Some Groups**

by Jim Stickford

Driving a car now and driving one a century ago is not all that different, but that's going to

Representatives from J.D. Power talked about the advent of new automotive technology, how it's changing the driving experience and how different generations accept this. The discussions were held at a special Automotive Press Association lunch at the Detroit Athletic Club April 18.

Dave Sargent, vice president, Global Automotive at J.D. Power, started the discussion by saying that while the cars of today are superior in every measurable way to the cars of 100 years ago, the actual act of driving hasn't really changed.

and drive them to where they want to go in both 2017 and 1917, Sargent said. The cars are guided own them and have to find

places to park them at their homes, where they shop and where they work.

But, Sargent said, if we were to go forward only 30 years from now, the cars of that era would be totally different from the cars of today.

"We might see vehicles that are 'journey-based' in ownership," Sargent said. "There would be driverless taxis and fully autonomous vehicles on the road. There will be new powertrains and vehicle-to-vehicle communications as well as vehicle-to-infrastructure communication. There will be new players in the industry; new OEMs and new suppliers."

Sargent said that we don't know what technologies will win in this future 30 years from now, which is why OEMs are spending People get in their vehicles money on so many competing

"Some of them are going to stick," Sargent said. "And no by the driver in both eras. People manufacturer wants to be left behind."

This change caused by new technologies has required J.D. Power to look at the market in a new way, Sargent said. Instead of asking people what they want, J.D. Power decided to ask people if they would pay for technologies that are new, but exist in the marketplace right now.

"One thing we learned is that people are willing to ask for help in learning about technology that makes driving safer," Sargent said, "but are currently resistant in accepting self-driving cars."

Sargent then handed the podium off to Kristen Kolodge, executive director of Driver Interaction and Human Machine Interface at J.D. Power.

She said the 2017 J.D. Power U.S. Technology Choice Study revealed some interesting things.

"With the exception of Gen Y (born between 1977 and 1994), all other generational groups are becoming more skeptical of selfdriving technology, which poses a new challenge to car manufacturers and technology developers," Kolodge said. "In most cases, as technology concepts get closer to becoming a reality, consumer curiosity and acceptance increase. With autonomous vehicles, we see a pattern where trust drives interest in the technology

and right now, that level of trust is declining.'

Kolodge said that compared with 2016, 11 percent more Gen Z (born between 1995 and 2004) consumers and 9 percent more

**CONTINUED ON PAGE 8** 



Trust in autonomous vehicles is declining, said J.D. Power's Kolodge.



Yin examines car materials made out of bamboo.

# Ford Testing Bamboo for Interior Surfaces

Finding new lightweight materials to build cars out of is a growing business.

For Ford, that's a literal truth.

You've probably sat on it, built with it, and maybe even eaten it, but did you know that your car could be next to benefit from bamboo - one of the world's strongest natural materials?" asked Ford spokesman Matt Moran.

While investment in research has led to breakthroughs in new materials like super-strong carbon fiber and lightweight aluminum, nature's wonder material may have been growing all along and as much as three feet in a day, Moran said. Soon, some surfaces inside our vehicles could be made from a combination of bamboo and plastic to create super-hard material.

"Bamboo is amazing," said Janet Yin, a materials engineering supervisor at Ford's Nanjing Research & Engineering Centre in China. "It's strong, flexible, totally renewable, and plentiful in China and many other parts of

The benefits of bamboo have been recognized for more than a

century - Thomas Edison even experimented with it when making the first light bulb, Moran

In building, its tensile strength (or how much it can resist being pulled apart) is well-known, as it can rival or even better some types of metal. And, because it grows to full maturity in just two to five years - compared to up to decades for other trees - bamboo also regenerates easily.

Over the past several years, Ford has worked with suppliers

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#### **Nexteer Signs Deal with Dongfeng**

Nexteer Automotive, a maker of intuitive motion control, has signed an agreement to form a joint venture with Dongfeng Motor Parts and Components Group Co., Ltd. The joint venture, equally owned by both parties, will design and manufacture electric power steering (EPS) systems for Dongfeng Motor Group Company Limited and its affiliated companies, said Nexteer spokesman Richard Kuhn.

"The formation of a joint venture between Nexteer and Dongfeng Components signifies an expanded relationship in which both companies will greatly benefit," said Tao Liu, Nexteer's senior vice president and global chief operating officer.

By providing our advanced steering technologies specifically tailored to the needs of our customers like Dongfeng, we continue to increase our presence in the growing Chinese market, which is a core component of Nexteer's strategy for profitable growth."

Nexteer's business in the Asia-Pacific region now accounts for 24 percent of the company's total revenue, nearly doubling in the past three years, Kuhn said.

In 2016, Nexteer launched 21 new major customer programs in the region and has been expanding manufacturing capabilities to meet demand. Nexteer currently provides EPS for several Dongfeng-affiliated vehicles.

# GM to Invest \$14M, Add 1,100 Jobs for Autonomous R&D

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program as a start-up is giving us the speed we need to continue to stay at the forefront of development of these technologies and the market applications.'

Cruise Automation and GM engineers are currently testing more than 50 Chevrolet Bolt EVs with self-driving technology on public roads in San Francisco; Scottsdale, Arizona; and metro Detroit, Kelly said.

The new investment will include repurposing an existing facility in San Francisco that will more than double Cruise Automation's research and development space.

The Cruise Automation team plans to move into the new space by the end of the year and hire more than 1,100 new employees over the course of the next five years, Kelly said.

'We are excited to significantly expand our footprint in California and continue on our rapid growth trajectory," said Kyle Vogt, CEO of Cruise Automation.

"As autonomous car technology matures, our company's talent needs will continue to increase.

"Accessing the world-class tal-

ent pool that the San Francisco Bay Area offers is one of the many reasons we plan to grow our presence in the state.'

Jerry California Governor Brown's Office of Business and Economic Development (GO-Biz) allocated an \$8 million tax credit to General Motors Cruise for this expansion, Kelly said.

The incentive was approved by the California Competes Tax Credit Committee at a meeting in Sacramento.

'GM's investment is further proof that California is leading the nation in the design, engineering and deployment of autonomous vehicles,"

Panorea Avdis, director of the California Governor's Office of Business and Economic Development.

"Today, GM joins hundreds of other companies that have received a California Compete Tax Credit award in return for adding good-paying jobs in the state, and we look forward to working with them on their continued expansion in California."

Kelly said General Motors acquired Cruise Automation in March 2016 to strengthen the company's software development capabilities and accelerate development of self-driving vehicle technology.

# Macomb Community College Sets Tuition for 2017-2018

At its regular monthly meeting on April 19, the Macomb Community College (MCC) Board of Trustees authorized tuition rates for fall 2017 through spring/summer 2018 semesters.

Tuition for residents will increase to \$100 a credit hour from \$97, a 3.1 percent increase. For a student attending Macomb fulltime - taking 12 credits - this will result in an increase of \$36 for the semester, said MCC spokeswoman Jeanne Nicol.

"Affordable tuition, high-quality programs and fiscal responsibility are critical factors in ensuring that Macomb Community College remains not only viable, but an active, driving force in positioning our students and community for long-term economic vitality," said James Jacobs, Ph.D., president, Macomb Community College.

"Achieving this delicate balancing act is only accomplished through the commitment and hard work of the college's board of trustees, faculty and staff."

The college has reduced budgeted expenditures by \$20 million since 2004, including a \$1.1 million budget reduction for the upcoming fiscal year, 2017-18.

Macomb's tuition rates remain well below average among the state's 28 community colleges, and the college has the fourth lowest cost of attendance when both tuition and fees are factored

Attending Macomb to com-

plete the first two years toward a munity college enrollment, Mabachelor's degree costs approximately 73 percent less than starting at one of Michigan's public universities, Nicol said.

Macomb's revenue comprise three primary sources: tuition (43 percent), local property taxes (26 percent) and state appropriations (25 percent).

While property tax revenue for the upcoming year is not yet known, at its current level, it is still \$9.6 million less than 2007-

The level of state appropriations for next fiscal year is also unknown at this time, with the governor and the Michigan House of Representatives proposing no increase while the Senate is recommending a one percent increase.

The college's current level of appropriations from the state is \$1.1 million less than that of 2002. Nicol said.

"Even with the long-term economic challenges of compromised funding sources and the countercyclical nature of com-

comb has been able to maintain affordability, continue relevant programs and invest in meaningful new offerings that connect students with sustainable career and economic opportunity," said Jennifer Haase, chair, Macomb Community College Board of Trustees.

"Macomb Community College continues to effectively manage operations while preserving the integrity of our students' experiences and the programs offered.'

Macomb Community College tuition categories, their current rates and the rates for fall 2017 through spring/summer 2018 are:

- Resident Current \$97. 2017-2018 \$100;
- Non Resident -Current, \$180, 2017-2018 \$186;
- Out of State/Foreign Current \$230, 2017-2018 \$237; Variable (Contract) - Current

\$97, 2017-2018 \$100. The school will also have a special tuition rate for students

known as affiliates, Nicol said.

areas of Michigan that are not served by a community college district. The current tuition fee for an affiliate student is \$123 per credit. Under the new tuition schedule set for the 2018-2018 school year, that rate goes up to \$127, Nicol said.

Macomb Community College is one of the nation's leading community colleges, providing learning experiences to nearly 40,000 students annually, Nicol said.

Macomb nationally ranks in the top two percent in the number of associate degrees awarded by community colleges and is the largest grantor of associate degrees in Michigan.

The community college's comprehensive educational programming includes pre-collegiate experiences, university transfer and career preparation programs, bachelor degree completion and graduate degree programs, workforce training, professional education and certification, and continuing education and enrichment opportunities.





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# Tech Center Earns Praise in GM's Green Effort

If being green were easy, everyone would do it. And that's why GM is proud of its environmental record

General Motors earned the 2017 EPA ENERGY STAR Partner of the Year – Sustained Excellence award for continued leadership in protecting the environment through superior energy efficiency. GM's commitment to reducing energy intensity saved \$73 million in energy costs last year and avoided 388,000 metric tons of carbon emissions, equivalent to the electricity use of 57,000 U.S. homes, said GM spokeswoman Colleen Oberc.

This is GM's sixth consecutive Partner of the Year award. The company is one of 17 ENERGY STAR industrial partners who earned the distinction this year, Oberc said.

"The ENERGY STAR program's benchmarking and modeling helps reduce our carbon footprint, while also saving GM millions of dollars," said Alicia Boler-Davis, executive vice president of Global Manufacturing. "We continue to introduce the program to our suppliers so they, too, can further increase operational efficiency and realize finan-

cial and environmental benefits from energy conservation."

GM uses ENERGY STAR's energy "treasure hunt" guide to help its facilities and major suppliers uncover opportunities for energy improvements, from optimizing start-up and shut-down procedures to identifying locations to installing motion-activated lighting, Oberc said.

In the U.S., GM reduced energy use at its manufacturing facilities by 10 percent on a per-vehicle basis in 2016 compared with the previous year. Additional achievements include:

- Established a new renewable energy commitment to meet the electricity needs of GM's global operations with 100 percent renewable energy by 2050. Optimizing energy efficiency is the first step toward reaching this goal.
- Completed \$20 million worth of energy-savings projects that are expected to produce a twoyear return on investment.
- Implemented a new energy management system in GM's non-manufacturing facilities, which saves \$2 million annually.

Fifteen GM buildings earned EN-ERGY STAR certification in 2016, including the Enterprise Data Center in Warren, Oberc said. The da-



The \$130 million Enterprise Data Center at the GM Tech Center.

ta center's aisles of technology equipment use in-row cooling to contain heat generated by the equipment in a smaller area.

GM is able to leverage Michigan's cooler climate for nearly three-quarters of the year by pumping water outside to chill it naturally before using it to cool the data servers, bypassing the HVAC system. The Warren Enterprise Data Center is one of only 104 ENERGY STAR-certified data

centers across the U.S., and GM is the first automaker to earn such certification.

GM is committed to reducing its energy and carbon intensity by 20 percent by 2020, Oberc said. Since 2010, GM has reduced both by 15 percent.

The company also ranked on the CDP's global Climate A List last year in recognition of actions and strategies to address climate change.

### Macomb County Waste Drop-Off Day Set for May 6

Macomb County is holding a special "Household Hazardous Waste Drop-Off Day" on Saturday, May 6. County residents can bring their hazardous household chemicals to the Marvin Blank Senior Center at 51210 Alma Drive behind the fire station in Macomb from 9 a.m. to 1 p.m.

Acceptable waste products include oil-based paints and solvents, aerosols, corrosives (acids/bases), pesticides and herbicides, reactives and oxidizers, non-regulated waste such as automotive fluids, mercury, non-DEA pharmaceuticals, biomedical sharps (must be in rigid containers) propane cylinders (up to 30 pounds), batteries – both household and auto, fluorescent lamps, fire extinguishers and smoke detectors.

Unacceptable waste include latex paint, electronics of all kinds, paper for shredding, explosives (includes flares and fireworks), weapons and ammunition, radioactive waste, DEA-controlled drugs, industrial waste, trash such as yard waste and tires, non-propane compressed gas cylinders and "white goods" appliances and air conditoners.

## **Inventor's Rear Mirror Moves GM to Front**

CONTINUED FROM PAGE 1

money, staff, labs and such – to make that concept a reality.

If for some reason, people working on a project can't make the project work, they move on to something else. It's a quick process that is designed to produce results.

Zhang said that developing projects like the Rear Camera Mirror meant working with a variety of people in different departments – engineers, designers, programmers, people who work on vehicle-human interface. They all had to come together.

Zhang said it wasn't easy placing a small camera by the rear license plate that shows in real time a 300-degree view of what's behind a vehicle. This image then has to be transmitted to a view screen the size of a standard rear view mirror that is located where the rear view mirror is traditionally placed.

This display has to be easy to see and it can't weigh too much. Zhang said the team was able to do all that and – as an industry first – have the images transmitted at a rate of 60 frames per second. A traditional movie is played at 24 frames per second and other cameras used in cars these days broadcast at a rate of 30 frames per second.

Zhang said the team was able to rework the problem to achieve the 60-frame rate display. They didn't have to do that, but they weren't satisfied with the 30-frame rate speed.

But the result of all the hard work by a variety of different people in different departments has been that GM is first OEM to have such technology available. The Rear Camera Mirror has already been placed in the Cadillac CT6, the Cadillac XT5 and the Chevy Bolt EV.

The technology is just tech for tech's sake. It offers drivers a superior view of what's behind them. A standard rear view mirror might give a view of 40 degrees behind a car. Its view can be blocked if there are people or packages in the back seat.

But the camera cuts that out and drivers no longer have a view that can be obstructed by people or items in the back seat.

"I recently moved," Zhang said.
"Having this tech really came in handy when transporting stuff."

And should the tech fail, the view screen reverts into a regular rear view mirror. "How's that for backup?" Zhang asked.

Soon this tech will be used in other GM vehicles, said GM spokesman Alan Adler. By the year 2020, the Rear Camera Mirror feature should be sold in more than a million vehicles a

"I got the idea for this back in my R&D days," Zhang said. "I thought about its practical applications. I really enjoy writing papers, but I got excited about coming up with an idea that helps people in a practical way in real life. This all started around

One thing about today's auto industry, Zhang said, is that people can't sit on their technology because the competition is so strong that cutting-edge tech can become yesterday's news in the blink of an eye. They are already working on the third generation of the Rear Mirror Camera.

"I've heard that several luxury automakers are going to put similar systems in their vehicles shortly," Zhang said. "We want to stay ahead."

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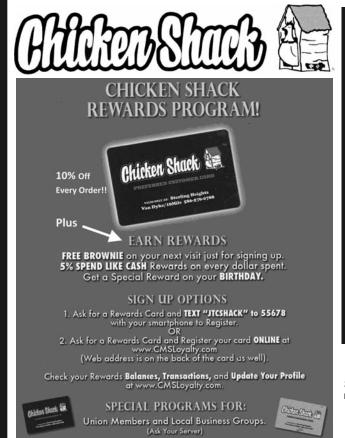
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# China Buyers Want Big SUVs; Regulators Want Electrics

face a dilemma in China's huge but crowded market: Regulators are pushing them to sell electric cars, but buyers want gas-guzzling SUVs.

The industry is rattled by Beijing's proposal to require that electric cars make up 8 percent of every brand's production as soon as next year. Consumers are steering the other way: Firstquarter SUV sales soared 21 percent from a year earlier to 2.4 million, while electric vehicle purchases sank 4.4 percent to just 55,929.

"It's tough for someone with an EV to come and take away market share from SUVs," said Ben Cavender of China Market Research Group.

The Shanghai auto show, which opened to the public a week ago, showcased work on electric models meant to appeal to Chinese drivers who are wary of the unfamiliar technology's reliability and cost.

The pressure for electrification in China is an added headache for automakers at a time when sales growth is slowing and competition heating up in a market they are counting on to drive global revenue.

Sales growth fell to 1.7 percent in March from last year's 15 percent. SUVs made up 40 percent of sales, while sedan purchases fell 4.9 percent.

At the Shanghai show, the industry's biggest marketing event this year, almost every global and Chinese brand displayed at least an electric concept car, if not a model ready for sale, alongside its latest SUVs and sedans.

General Motors Co.'s Buick unit announced plans last month for Chinese sales of its Velite 5 gasoline-electric hybrid

BEIJING (AP) - Automakers sedan. Buick also sells a hybrid LaCrosse in China.

> This month, Ford Motor Co. said it will sell an all-electric SUV and a plug-in hybrid Mondeo Energi sedan in China. Ford's joint state-owned venture with Changan Automobile Co. will manufacture the Mondeo.

> Ford said by 2025 it plans to offer electric versions of 70 percent of its models sold in China.

> "We are prioritizing our electrification efforts in China to reflect its importance as a global electrified vehicle market," Ford CEO Mark Fields said in a state-

> NextEV, a Shanghai-based startup, says it will display 11 vehicles in Shanghai from its allelectric NIO brand. They include the two-door EP9, a contender for the title of fastest electric car, with what the manufacturer says is a top speed of 194 mph (310 kph).

> Volkswagen AG unveiled an electric concept car for the Chinese market. Honda Motor Co. will show its new NeuV. a futuristic concept car the company has suggested might get an electric drivetrain.

> Government planners see electric vehicles as a sector where China can lead, and a Cabinet technology development plan issued in 2013 calls for two of the top global brands in 2025 to be Chinese.

> Hence the proposal, released in September, calling for electric or gasoline-electric hybrids to make up 8 percent of every automaker's output next year. That would rise to 10 percent in 2019 and 12 percent in 2020.

> Manufacturers failing to meet those targets could buy credits from companies that produce more electrics, helping to subsidize development.

People in the industry say manufacturers have warned Beijing those targets are too ambitious.

News reports say regulators might have agreed to lower or delay them in an updated plan due out this year, but there has been no official confirmation.

China's stand-out EV success so far is BYD Auto Co. It sells allelectric vehicles to taxi and bus fleets in China and abroad and gasoline-electric hybrid SUVs and sedans to Chinese con-

BYD Auto says last year's sales rose 70 percent over 2015 to 100,183 vehicles. That would make it the biggest electric brand for a second year, with Tesla Inc. in second place at 76,230 vehicles sold.

Other Chinese brands offer plug-in electrics but most sold only a few hundred vehicles last year.

That is partly because their vehicles cost up to 350,000 yuan (\$50,000), or two to three times the price of equivalent gasoline models.

Even Great Wall Motors Ltd., which became China's most profitable auto brand by making almost nothing but SUVs, has unveiled an electric compact sedan, the C30 EV, which looks almost comically small next to its hulking other vehicles. It has yet to say when sales will start.

Some brands promise a range of up to 200 kilometers (120 miles) on one charge.

But industry analysts say that is too much money and too short a distance for most drivers, who have few places to recharge

"The biggest worries for people buying an electric car are lack of convenience for charging and the miserable range most

Xin, an independent auto industry analyst.

To ease such "range anxiety," the Cabinet has ordered the state-owned power industry to step up its installation of new charging stations across the country.

Government plans call for China to have 100,000 public charging stations and 800,000 private stations by next year, up from a total of 50,000 at the start of

Longer term, the government wants a network that can support five million vehicles by

The government also is trying to nudge buyers toward electrics by exempting them

electric cars have," said Zhang from sales taxes and from license plate fees and lotteries imposed by Beijing, Shanghai and some other cities to curb congestion.

Aside from BYD, Chinese manufacturers are waiting to see what price regulators set for credits before deciding whether to buy them or develop their own technology.

"Even by 2020, it's not going to be a profitable business. said John Zeng of LMC Automo-

"The industry has to prepare for the worst case. That means you have to have all the technology ready in case you need it, but on the other hand they don't want to commercialize it now, because it is not profitable."



GM will soon build vehicles like this 2016 Chevrolet Volt in China.

# Gas-Electric Chevy Volt Coming Soon to China

by JOE McDONALD AP Business Writer

SHANGHAI (AP) - General Motors Co. plans to make and sell a gasoline-electric hybrid version of its Chevrolet Volt in China, as Beijing presses global automakers to promote alternatives to gasoline.

GM's announcement April 19 during the Shanghai auto show adds to a wave of global auto giants that are launching electric models in China, the biggest auto market. The government has the world's most aggressive goals for electric vehicles, which it sees as a way to clean up smog-choked cities and take an early lead in an emerging technology industry.

Ford Motor Co., Volkswagen AG and other global brands also have announced plans this year to launch electric or gasolineelectric hybrids in China, where the market is dominated by lower-cost Chinese brands led by BYD Auto, the world's biggest seller of electric models by units

take a leading role globally in terms of the regulatory environment and electrification." said David Schoch, Ford's president for the Asia-Pacific.

Models on display at Auto Shanghai 2017, the global industry's biggest marketing event of the year, reflect the conflict between Beijing's ambitions to promote environmentally friendly propulsion and Chinese love of fuel-hungry SUVs.

Almost every global and Chinese auto brand is displaying at least one electric concept vehicle, if not a market-ready model. They range from family-friendly SUVs to futuristic-looking, premium-priced electric muscle cars from Chinese startups such as NextEV and Qiantu.

In most displays, they were flanked by up to a dozen SUVs able to carry as many as seven passengers. South Korea's Kia Motors Co. debuted an SUV-inspired crossover, the K2 Cross, designed for the Chinese market.

GM said its Velite 5 hybrid will be sold not as a Chevrolet but by its Buick unit, which has modest sales elsewhere but is GM's main brand in China. The vehicle will be made by GM's joint venture with a state-owned automaker, Shanghai Automotive Industries Corp. Prices start at 265,800 yuan (\$38,600).

The Velite 5 will be able to travel 116 kilometers (72 miles) on one charge, with an added gasoline engine extending that to 768 kilometers (480 miles), GM said. It said the Velite 5 will be the Chinese market's most energy-efficient hybrid to date and the first able to travel 100 kilometers (60 miles) on the equivalent of less than 1 liter of gasoline.

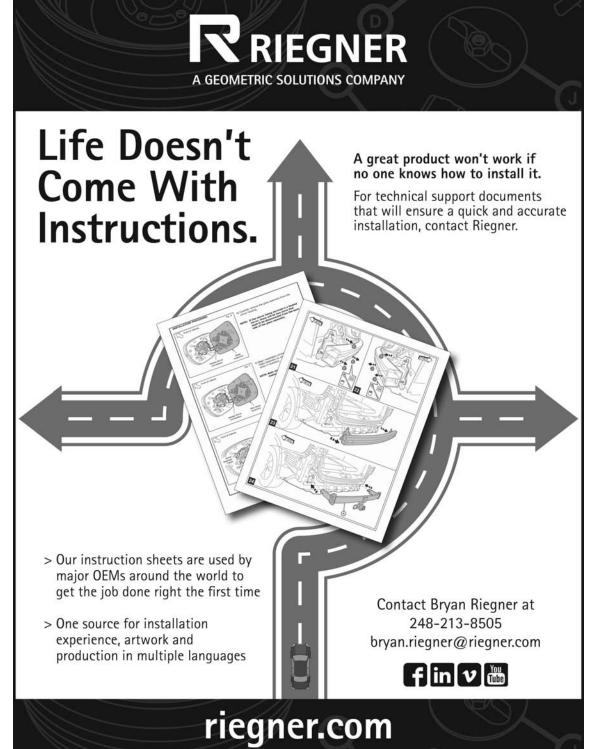
"Buick is committed to expanding its portfolio of new energy vehicles," a GM statement said. "It will introduce additional new energy vehicles in China in the next two years, including hybrid electric vehicles, plug-in hybrid electric vehicles and pure electric vehicles.'

Buick also sells a hybrid ver-"It's clear that China wants to sion of its LaCrosse in China.

> On April 18, Volkwagen AG announced plans to launch a pureelectric car in China next year with a state-owned partner. The head of VW's China unit, Jochem Heizmann, said it would be the first in a range of pure-electric vehicles for China.

Ford announced plans earlier to manufacture a hybrid sedan, the Mondeo Energi, with a stateowned Chinese partner, Chang'an Automobile Co. It is due to go on sale next year.

Regulators have jolted the industry with a proposal to require electrics to account for at least 8 percent of each brand's production by next year, rising to 10 percent in 2019 and 12 percent in 2020. Automakers say they may be unable to meet those targets and regulators have suggested they might be reduced or postponed. The government also is spending heavily to increase the appeal of electrics by expanding China's network of charging stations to reduce "range anxiety."



# Hydrogen Fuel Technology Hurt by 'Gas' Station Shortage

AP Auto Writer

DETROIT (AP) – Hydrogen fuel cell cars could one day challenge electric cars in the race for pollution-free roads – but only if more stations are built to fuel them.

Honda, Toyota and Hyundai have leased a few hundred fuel cell vehicles over the past three years, and expect to lease well over 1,000 this year. But for now, those leases are limited to California, which is home to most of the 34 public hydrogen fueling stations in the U.S.

Undaunted, automakers are investing heavily in the technology. General Motors recently supplied the U.S. Army with a fuel cell pickup, and GM and Honda are collaborating on a fuel cell system due out by 2020. Hyundai will introduce a longer-range fuel cell SUV next year.

We've clearly left the science project stage and the technology is viable," said Charles Freese, who heads GM's fuel cell busi-

Like pure electric cars, fuel cell cars run quietly and emissionfree. But they have some big advantages. Fuel cell cars can be refueled as quickly as gasolinepowered cars. By contrast, it takes nine hours to fully recharge an all-electric Chevrolet Bolt using a 240-volt home charger. Fuel cells cars can also travel further between fill-ups.

But getting those fill-ups pres-

stations cost up to \$2 million to mental business development build, so companies have been reluctant to build them unless more fuel cell cars are on the road. But automakers don't want to build cars that consumers can't fuel

The U.S. Department of Energy lists just 34 public hydrogen fueling stations in the country; all but three are in California. By comparison, the U.S. has 15,703 public electric charging stations, which can be installed for a fraction of the cost of hydrogen stations. There are also millions of garages where owners can plug their cars in overnight.

As a result, U.S. consumers bought nearly 80,000 electric cars last year, but just 1,082 fuel cell vehicles, according to WardsAuto.

That's why automakers will keep hedging their bets and offer electric vehicles alongside hydrogen ones.

Honda began leasing the 2017 Clarity fuel cell sedan earlier this year; about 100 are already on the road. At the recent New York Auto Show, the company also introduced electric and plug-in hybrid versions of the Clarity.

The plug-in hybrid can go 42 miles in electric mode before a small gas engine kicks in. Honda says. The all-electric Clarity can go 111 miles on a charge. Both will go on sale later this year.

"We think going forward the powertrain market is going to be very diverse," said Steve Center, ents the biggest obstacle. Fueling vice president of the environoffice at American Honda.

Hyundai's Genesis brand also blended technology with its GV80 SUV prototype, which was revealed in New York. The GV80 is a plug-in fuel cell vehicle, which means it would get power from stored electricity as well as hydrogen. It's not clear when – or if – the GV80 will go on

Fuel cell cars create electricity to power the battery and motor by mixing hydrogen and oxygen in the specially treated plates that combine to form the fuel cell stack.

The technology isn't new. GM introduced the first fuel cell vehicle, the Electrovan, in 1966. It only seated two; the back of the van housed large steel tanks of hydrogen and oxygen. It went about 150 miles between refuelings, and its hydrogen tank exploded on at least one occasion.

Advances in hydrogen storage, fuel cell stacks and batteries have allowed engineers to significantly shrink those components to fit neatly inside a sedan. Oxygen is now collected from the air through the grille, and hydrogen is stored in aluminum-lined fuel tanks that automatically seal in an accident to prevent leaks. Reducing the amount of platinum

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cell cars less expensive.

Honda's new Clarity can go 366 miles between fuelings, the longest range in the industry.

The Clarity leases for \$369 per month for 36 months. That's more than the \$354 monthly lease payment for the Chevrolet Bolt electric. But Honda, Toyota and Hyundai are all throwing in free hydrogen refueling. It costs between \$13 and \$16 per kilogram for hydrogen, or up to \$80 to fill the Clarity's 5-kilogram capacity, according to the U.S. Energy Department.

Even with that perk, analysts think sales of fuel cell vehicles will be limited until more fueling stations are built.

But carmakers will still invest in fuel cells. GM's Freese says there are many applications beyond cars, including unmanned, deep-sea vehicles or backup home power systems.

"One of the reasons global car companies do something like this is they want to have a finger in the pie. Should we suddenly

used in the stack has made fuel have to shift over, they want to be able to do it," said Jack Nerad, an executive market analyst with Kelley Blue Book.

> The number of fueling stations could also grow quickly if automakers partner with governments and energy companies, as they have done in California. Earlier this year, 13 companies - including Shell and BMW - formed a council to accelerate the adoption of hydrogen as a transportation fuel.

> Heather McLaughlin of San Ramon, Calif., was one of the first customers to lease a 2017 Clarity. She says she prefers a fuel cell car over an electric because she can refuel it in minutes. And one fill-up a week more than covers her 50-mile daily commute to Benicia, where she serves as the city attorney.

> She recently drove the Clarity to Southern California and found plenty of stations along her route.

> "I like the innovation," said McLaughlin. "It helps if we can have more of these on the road."



# VW Putting EV in China

SHANGHAI (AP) - Volkswagen, Europe's biggest automaker, plans to launch its first pure-electric car in China next year as Beijing steps up pressure on the industry to promote alternatives to gasoline.

The announcement April 18 comes on the eve of the Shanghai auto show, which showcases industry efforts to create electric models with consumer appeal. General Motors Co.'s Buick unit and Ford Motor Co. also have announced new electric vehicles for China this year.

The VW model will be the first in a range of electric vehicles in China, said Jochem Heizmann. head of VW's China unit. It is due to be produced under a new brand name with a local partner, state-owned Jianghuai Automotive Corp.

"This will be a new cooperation on pure battery cars," said Heizmann. "Our challenging target is to come, already next year in 2018, to the market with the first car.'

China has the world's most aggressive electric car goals. Communist leaders are promoting them to clean up smog-choked cities and in hopes of taking the lead in an emerging technology.

Regulators have jolted the industry with a proposal to require electrics to account for at least 8 percent of each brand's production by next year.

Heizmann said VW, which vies with GM for the title of China's top-selling automaker, expects annual sales of at least 400,000 gas-electric hybrids – also called new energy vehicles - by 2020 and 1.5 million by 2025.





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# Venezuela Seizes GM Assets In 'Illegal' Government Move

VALENCIA, Venezuela (AP) -General Motors announced April 20 that it is shuttering operations in Venezuela after authorities seized its only factory, a dramatic escalation of the chaos engulfing the South American nation amid days of deadly protests.

The plant in the central city of Valencia was confiscated on April 19 as anti-government protesters clashed with pro-government groups in a country battered by economic troubles including food shortages and triple-digit inflation. GM called the move an illegal judicial seizure of its assets.

The Detroit automaker said in a statement April 20 that other assets such as vehicles were taken from the plant, causing irreparable damage to the company. GM has about 2,700 workers in the country, where it's been the market leader for over 35 years. It also has 79 dealers that employ 3,900 people and its parts suppliers make up more than half of Venezuela's auto parts market, the company said.

General Motors' announcement comes as Venezuela's opposition looks to keep up pressure on President Nicolas Maduro, taking to the streets again April 20 after three people were killed and hundreds arrested in the biggest anti-government demonstrations in years.

It's not the first time the Venezuelan government has seized a foreign corporation's facilities. In July of last year, the government said it would take a factory belonging to Kimberly-Clark Corp. after the American personal care giant said it was no longer possible to manufacture due to a lack of materials.

But, the move against GM, the

United States' biggest automaker and one of its most recognizable brands, was a much more powerful statement and could lead to a further erosion of relations between the two countries. There was no immediate reaction from Washington.

The seizure came as tens of thousands of protesters demanded elections and denounced what they consider to be an increasingly dictatorial government.

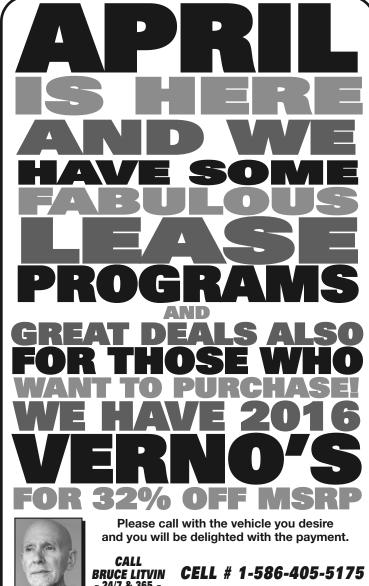
Across the country, the clashes have been intense. Pro-government militias, some of whose members were armed, were blamed for two deaths, including that of a teenager in Caracas who was heading to a soccer game with friends. Overnight, a National Guard sergeant was killed and a colonel injured when their squad was attacked with gunfire while trying to control disturbances in a city near Caracas, the chief prosecutor's office said.

The three killings bring to eight the death toll since protests began three weeks ago over the Supreme Court's decision to strip the opposition-controlled congress of its last remaining powers, a move that was later reversed amid a storm of international criticism.

"If today we were millions, tomorrow even more of us need to come out," said opposition governor and two-time presidential candidate Henrique Capriles, who last week was barred from running for office for 15 years.

The Supreme Court's decision has energized Venezuela's fractious opposition, which had been struggling to channel growing disgust with Maduro over food shortages, triple-digit inflation and rampant crime.



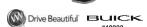




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# Driverless Cars, Says Study, **Takes Back Seat with Some**

CONTINUED FROM PAGE 1

Pre-Boomers (born before 1946) say they "definitely would not" trust automated technology. However, similar to J.D. Power's 2016 study, consumers this year show great interest in collision protection and driving assistance technology.

Kolodge said six of the top 10 features that consumers were interested in before learning price points - smart headlights, camera rear-view mirrors, emergency braking and steering systems, lane change assist, camera sideview mirror and advanced windshield display - come from these categories.

"Along with collision mitigation, there are many benefits to autonomous vehicles, including allowing those who are unable to drive in today's vehicles to experience freedom of mobility," Kolodge said.

"Interestingly, though, 40 percent of Boomers do not see any benefits to self-driving vehicles. Automated driving is a new and complex concept for many consumers. They'll have to experience it firsthand to fully understand it

"As features like adaptive cruise control, automatic braking and blind-spot warning systems become mainstream, car buyers will gain more confidence in taking their hands off the steering wheel and allowing their vehicles to step in to prevent human er-

Additional findings of the 2017 study include:

- Generation gap for vehiclecontrolled functions: Younger consumers are far more comfortable with technologies that assume control of vehicle operating functions. Examples include allowing mobile devices to take control of infotainment systems; an in-vehicle artificial intelligence (AI)-based assistant: and autonomous driving and parking technologies.
- Not a matter of price: Gen Y/Gen Z purchase intent is greater than Boomers, who say they definitely/probably are interested in a feature even before they know the price.
- ullet I'm going mobile: Gen Z has the highest interest in all alter-native mobility types, including 50 percent indicating they are definitely/probably interested in mobility sharing/co-ownership; 52 percent for journey-based ownership; 56 percent for un-

manned mobility; and 56 percent for mobility-on-demand.

 Consumer interest in emergency braking and steering system technology: Upcoming agreements between automakers and the government will require vehicles to have emergency braking a foundation technology for autonomous driving – as a standard feature within five years. The 31 percent of consumers willing to pay \$700 for the advanced version of this system (adds steering) is greater than the percentage of consumers who would pay for less expensive technologies like digital key at \$250; dash camera at \$300; and mobile system control at \$400.

> "It is critical for **OEMs** to communicate in a way that builds trust with consumers."

- Kristin Kolodge, J.D. Power

- Lukewarm on convenience: Consumers aren't as enthusiastic about niche convenience technologies. Collision protection and driving assistance-related technologies comprise most of the technologies with the highest pre-price interest, while features in the entertainment and connectivity, and comfort and convenience categories show the lowest pre-price interest.
- Notable convenience exception: Gen Z consumers have a fairly high interest in digital key technology, which eliminates the need for a physical key or key fob and is replaced by a smartphone or smartwatch. A total of 40 percent said they would like digital key tech on their next vehicle, and 58 percent are willing to pay \$250 for it, compared with 28 percent among all consumers.

"It is critical for OEMs to communicate in a way that builds trust with consumers," Kolodge said, "until people experience this technology firsthand. They have to get the heads and the hearts of consumers together. The way to do that is by starting with lower levels of automation and building from there."

# Ford Tests Bamboo for Future

**CONTINUED FROM PAGE 1** 

to evaluate the viability of using bamboo in vehicle interiors and to make extra-strong parts by combining it with plastic.

The team has found that bamboo performs comprehensively better than other tested synthetic and natural fibers in a range of materials tests, from tensile strength tests to impact strength tests. It's also been heated to more than 212 degrees Fahrenheit to ensure it can maintain its integrity.

While tests on bamboo continue, Ford is already making use of sustainable and recycled materials. The company has said it is working with Jose Cuervo to explore using the tequila producer's agave plant byproduct to develop more sustainable bioplastics to employ in Ford vehicles.

Ford uses several sustainable

materials, including:

- Kenaf, a tropical plant in the cotton family – used in the door bolsters of Ford Escape.
- REPREVE fabric, made from recycled plastic bottles, diverts more than 5 million plastic bot-

tles from landfill annually. Ford recently introduced REPREVE in the F-150.

- Post-consumer cotton from denim and T-shirts, used as interior padding and sound insulation in most Ford vehicles.
- EcoLon post-consumer nylon carpeting is used as cylinder head covers in Ford Escape, Fusion, Mustang and F-150.
- Recycled plastic bottles are becoming floor carpeting, wheel liners and shields in several vehicles, including Ford Transit and C-MAX.
- Recycled tires are used in seals and gaskets.
- · Rice hulls are used to reinforce plastic in Ford F-150 electrical harness.

• Soy-based foams are used as

- seat cushions, seatbacks and head restraints in Ford's North American vehicle lineup.
- Wheat straw is used in Ford Flex to reinforce storage bins.
- Cellulose tree fibers are used in the armrest of Lincoln MKX. Used to replace glass-filled plastic, this material weighs 10 percent less and reduces carbon emissions.

# Autopalooza Sets Its 2017 Summer Activity Schedule

The Detroit Metro Convention & Visitors Bureau (DMCVB) and the MotorCities National Heritage Area (MCNHA) announced the Autopalooza lineup April 12, during a press conference at Cobo Center.

Autopalooza is a series of world-class automotive cruises, races and shows throughout metro Detroit that celebrate southeast Michigan's automotive heritage.

Autopalooza Executive Director Shawn Pomaville said the 2017 season will kick off with a four-day festival of ideas and innovation – Make the Future Detroit – April 27-30 at Cobo Center.

The Shell-Eco Marathon will return to Cobo Center as a featured element of the celebration, Pomaville said. Students from North and South America will drive their low-slung, futuristic vehicles on the city streets of Detroit near Cobo Center to achieve one goal: to drive the farthest distance, using the least amount of energy.

"Shell is proud to, once again, join Autopalooza's storied lineup to showcase automotive ingenuity and heritage along with initiatives like Shell-Eco Marathon that challenge students to test their own inventions," said Pam Rosen, general manager for Shell-Eco marathon Americas. "It is this type of innovation that got its own start here, in Detroit, and these young inventors will lead us all into a brighter energy future in collaboration with global and local partners, communities, governments and academia."

"Shell-Eco Marathon has equipped me with the skills to succeed," said Ishi Keenum, senior at University of Michigan Ann Arbor. "I have learned the importance of teamwork, project management, discipline and budget-

ing, which has set me on the path of future success in the work-place."

The Autopalooza season continues with the return of the Chevrolet Detroit Grand Prix presented by Lear, at the 2.3-mile Raceway at Belle Isle Park, June 2-4. The weekend event will feature the cars of the Verizon Indy-Car Series, the IMSA WeatherTech SportsCar Championship, the Trans Am Series presented by Pirelli and the trucks of the SPEED Energy Stadium SUPER Trucks.

"Autopalooza is such a unique collection of events that helps celebrate who we are in the Motor City," said Bud Denker, chairman of the Chevrolet Detroit Grand Prix presented by Lear. We are once again proud to be part of Autopalooza in 2017 as the attention of the automotive and racing world focuses on Belle Isle Park the first weekend of June at the Chevrolet Detroit Grand Prix presented by Lear. This event builds on our racing heritage and also provides a great opportunity to showcase the automotive technology and innovation here in Detroit.'

Autopalooza also has a significant economic impact on the metro Detroit region, Pomaville said. The DMCVB calculated that the annual revenue generated from the Grand Prix, Concours d'Elegance and the Woodward Dream Cruise alone may exceed \$110 million.

The Autopalooza events also represent the rich cultural influence of southeast Michigan's automotive heritage, Pomaville said.

"Through our affiliation with the National Park Service, we inspire residents and visitors with an appreciation of how the automobile changed Michigan, the nation and the world, making our



GM Design head Mike Simcoe with his 2017 ZO6 Corvette.

unique heritage a source of pride as well as a positive influence on the future," said Pomaville. "These cars and events create a significant amount of tourism commerce with the associated economic impact while paying tribute to the automotive culture."

Other Autopalooza events include:

- Eastpointe Gratiot Cruise, June 17 in Macomb County;
- Motor Muster, June 17-18 in Dearborn;
- EyesOn Design, June 18 in Grosse Pointe Shores;Cruisin' Downriver, June 24
- in southern Wayne County;

   Sloan Museum Auto Fair
- Sloan Museum Auto Fair, June 24-25 in Flint;

- All American Cruise, July 15 in Westland;
- Car Capitol Auto Show, July 29 in Lansing;
- Concours d'Elegance of America, July 28-30 in Plymouth;
- Clinton Township Gratiot
  Cruise, Aug. 6 in Macomb County;
  Back to the Bricks Weekend,
- Aug. 15-19 in Flint;
   Woodward Dream Cruise,
- Aug. 19 in Oakland County;

   Cruisin' Hines Aug 27 in
- Cruisin' Hines, Aug. 27 in Westland;Old Car Festival, Sept. 9-10 in
- Dearborn;
   Orphan Car Show, Sept. 17 in
- Orphan Car Show, Sept. 17 in Ypsilanti

For information on all of the 2017 Autopalooza events, visit autopalooza.org.

## Subaru Orders Recall of 33,000 Cars

DETROIT (AP) – Subaru is recalling more than 33,000 compact cars in the U.S. because a fuel problem can make the engines stall without warning.

The recall covers Impreza cars from the 2017 model year.

Subaru says in documents filed with the government that a winter blend of fuel can turn to

vapor in the fuel line, causing the engine to run rough and stall. Drivers may not be able to immediately restart the cars, increasing the risk of a crash.

The company began investigating in January after getting several reports of stalling. No crashes or injuries have been reported.

#### Testing Hybrid Batteries Can Be A Really Hot Job

IDAHO FALLS, Idaho (AP) – A nuclear research facility in eastern Idaho has added equipment that will allow it to test next-generation batteries for electric and hybrid vehicles.

The Idaho National Laboratory now has a pair of fireproof chemical storage units, which enable researchers to test fast-charging lithium-ion batteries in extreme temperature conditions, *The Idaho Falls Post Register* reported on April 17.

Today's fastest 480-volt electric car battery chargers take about 30 minutes to charge, said Kev Adjemian, director of the lab's Clean Energy and Transportation Division. OEMs have been working to design batteries that can complete a charge in less than 10 minutes.

Batteries capable of the faster charge speeds are more fire-prone, which is why the laboratory's new equipment is necessary for testing. The fireproof units are usually used in industries such as waste management and food manufacturing and can withstand fire for four hours.

"They give (the U.S. Department of Energy) a location to do these types of tests without burning a lab or a whole building down," Adjemian said. "We're trying to test these extreme conditions in a safe environment."

The lab tests experimental batteries from other Department of Energy facilities and the United States Council for Automotive Research, which includes Ford, General Motors and Fiat Chrysler Automobiles.

Once the batteries are tested, the researchers will work with industry or lab partners on any issues that come up during testing.

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# **Ford Converting Open Mall Space into New Offices**

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For more than 40 years, Fairlane Town Center Mall has served as a major retail hub in Dearborn. It is one of the state's largest malls - at one time housing more than 220 retailers including five major department stores, restaurants, even an ice rink. Only three major department stores now remain, and Fairlane's biggest tenant is a global automaker, said Ford spokeswoman Monique Brentley.

Ford Motor Company has converted 240,000 square feet of unused mall space, formerly occupied by as many as 26 retailers, into its new Town Center Office. Brentley said. The redesign creates a modern office space focused on wellness, collaboration and sustainability for 1,800 Ford engineering and purchasing employees.

As technology redefines how consumers shop, malls are reinventing themselves to offer not just retail and dining experiences, but community gathering areas, entertainment venues and office centers.

Rita Nelson, Fairlane Town Center general manager, said that in addition to retail, dining, entertainment and mixed-use opportunities, malls offer campus and office space solutions for nontraditional tenants.

"Retail has shifted so much

over the years and Fairlane is no different," said Nelson. "We have more than 125 stores and restaurants, but like much of the industry, we have expanded to include other opportunities.'

Ford's Town Center Office is helping to house larger operations to support the company's 10-year Dearborn campus transformation, which will co-locate 30,000 employees from 70 buildings into primarily two campus locations, Brentley said.

"As we began the 10-year process of constructing new technology labs and offices, we needed an innovative solution to situate larger teams close to our operations," said Dave Dubensky, chairman and CEO, Ford Land.

"The proximity and design of Fairlane Mall, along with its onsite amenities support our transformation in offering multiple conveniences for our employees. It is a win-win for us and the community."

The new office complex is designed to promote more team collaboration and to keep employees physically energized, mentally stimulated, engaged and refreshed, Dubensky said. Ample lounge space and cafés encourage movement, offering flexibility in terms of where employees choose to work each day. Wellness rooms, as well as reflection rooms for prayer and meditation encourage employees



Ford has converted an unused portion of a shopping mall into a new workspace.

to take breaks to recharge. The space also features lactation rooms for nursing mothers.

Walk-up stations for working are included in the new footprint. Employees can access a treadmill desk and walk at a 2 mph pace while returning email, taking a call or working on other tasks.

Designed around movement, the space promotes wellness by helping people feel healthier, more energized and accomplished while burning a few calories in the process.

Personal work areas are more

open to encourage collaboration, Dubensky said. Ergonomically designed workstations feature adjustable-height desks that offer a custom fit, along with the ability for employees to change posture throughout the day to promote energy and stimulation.

Materials have been carefully selected to foster employee wellness and sustainability. The new visitor lobby features an accent wall of reclaimed wood, while carpet made from recycled content is fully recyclable at the end of its lifecycle.

Zero volatile organic compound paint is used throughout the space.

"I was both hesitant and excited about the move," said Natalie Pohlman, a Ford College Graduate and supplier technical assistance site engineer who recently relocated to Ford's new Town Center Office.

"Since moving in, I've met a lot of new people. Having the team in one place, along with access to all of the collaboration space has made it easier to work to-

# Mopar Celebrates Opening of First of Two Planned Sites

Mopar's latest facility is open for business.

Fiat Chrysler celebrated the official opening of a new Mopar Parts Distribution Center (PDC) in Winchester, Va., on April 18.

The 400,000-plus square-foot facility represents a \$12.2 million investment by Fiat Chrysler and more than 70 jobs over two shifts, said Mopar spokesman Darren Jacobs. It is also the first of two new Mopar PDCs scheduled to open in the U.S. this year.

Fiat Chrysler and UAW leadership were joined by federal and state government dignitaries and dealership representatives in marking the Winchester PDC grand opening, Jacobs said. Ceremony attendees included Pietro Gorlier, head of Parts and Service (Mopar), FCA - Global; Norwood Jewell, UAW vice president and director of the Chrysler Department; Mark Bosanac, director -NAFTA Supply Chain Management and Global Parts Supply Chain Management and Operations; Kevin Farrish, president, Farrish Chrysler Dodge Jeep Ram; Urooj Mughal, representative for U.S. Senator Tim Kaine; Dave Stegmaier, director of Community Outreach for U.S. Representative Barbara Comstock; and Hayes Framme, Virginia deputy secretary of Commerce and Trade.

We are celebrating our 80th anniversary in 2017, and throughout the years customer satisfaction has been and continues to be the Mopar brand's No. 1 priority," said Gorlier.

This new Parts Distribution Center builds upon our mission, allowing us to more quickly and efficiently serve our dealers and customers, delivering the parts they need, when they need them. This is our 22nd PDC in North America and we'll continue to expand our distribution network as the parts and accessories business keeps growing."

"Today's opening adds more than 70 jobs to the Virginia economy and makes the Mopar brand's delivery of parts to dealers and consumers more efficient. FCA continues to grow, which is a constant reminder that the auto loans were a great investment," said Jewell.



Fiat Chrysler's newest Mopar facility located in Virginia is now open for business.

framed Record statement issued by Congresswoman Comstock was opening of the PDC, Jacobs said.

A special Mopar logo, featuring a commemorative plague and signed by all event attendees, was also presented to Winchester PDC employees and management during the opening ceremo-

The new facility will handle more than 50,000 total part numbers distributed to over 200 Fiat Chrysler dealerships, located primarily in the Mid-Atlantic region.

Fiat Chrysler invested \$12.2 million in equipment for the Winchester facility, Jacobs said.

In addition to the more than 70 jobs created, Fiat Chrysler is also utilizing local resources for assistance in areas such as janitorial services, facilities management and exterior building mainte-

The Winchester operation expands the brand's current distribution network to 22 facilities in North America, with more than 50 PDCs (including joint ven-

Congressional tures) in operation worldwide, a \$10.4 million investment in a Jacobs said.

The Winchester PDC was presented in honor of the official launched under Fiat Chrysler That facility will encompass World Class Logistics methodology, which establishes a synchronized supply chain that progressively eliminates waste through the contribution of all employees and the rigorous use of methods and standards that promote an approach of continuous improvement.

The facility will be LEED (Leadership in Energy and Environmental Design) certified. LEED, administered by the United States Green Building Council, is a comprehensive system to define, measure and validate green buildings, Jacobs said. Certification in the national recognition program is based on strict standards in five key areas: site planning, water management, energy, material use and indoor environmental quality. As part of the LEED initiative, the PDC design incorporates more than 80 skylights, filtering in natural light to the workplace.

In addition to the Winchester PDC, FCA US has also announced

new Mopar PDC located in Romulus, Jacobs said.

500.000 square feet and more than 100 workers. Construction is currently in progress on the Metro Detroit facility, with a projected opening in 2017 fourth quarter.

Jacobs said that these are Winchester PDC key figure numbers to remember:

- Two shifts;
- 10 inbound tractor-trailers daily;
- 24 outbound tractor-trailers daily;
- 27 acres (facility footprint);
- 70+ employees;
- 83 skylights;
- 200+ dealers served; • 400,000 square-feet (PDC
- size); • 9.2 million+ pieces shipped annually;
- 50,000+ part numbers handled:
- \$12.2 million invested in designing and building the new Mopor facility;
- 2.6 million+ order lines shipped annually.

### **Volvo Joins Rush** For EV Cars in Chinese Market

SHANGHAI (AP) - Volvo Cars, the Chinese-owned Swedish automaker, said April 19 it plans to make electric cars in China for sale worldwide starting in 2019 amid pressure by Beijing for global auto brands to help develop its fledgling industry in alternatives to gasoline.

The announcement at the Shanghai auto show is among a flurry of automakers' plans for electric models in China, their industry's biggest market. The ruling Communist Party has the world's most aggressive EV goals, both to clean up smogshrouded cities and seeking the lead in an emerging industry.

On April 18, General Motors Co. said it will produce a gasoline-electric hybrid version of its Chevrolet Volt in China. Ford, Volkswagen AG, Nissan Motor Co. and other brands also intend to sell electric models in China, adding to competition in a market that has been dominated by lower-cost Chinese producers.

Volvo said its first pure-electric model will be based on the economy-size CMA platform it shares with Chinese automaker Geely, which bought the Swedish brand from Ford in 2010. It said the name, size and other details were yet to be decided.

"It will be for global export. So it is built from the start to work all over the world," said Henrik Green, Volvo's senior vice president, research and development.

Volvo has three factories in China. In 2015, it became the first automaker to export Chinese-made cars to the U.S.

Chinese buyers have shown little enthusiasm for electric cars due to concern about cost, reliability and limited range. But Chinese authorities are using a mix of incentives and penalties to push for electric models. OEMs are scrambling to develop models with consumer appeal.

"It's clear that China wants to take a leading role globally in terms of the regulatory environment and electrification," said David Schoch, Ford's president for the Asia-Pacific.





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- ONSTAR w/4G LTE w/BUILT-IN WI-FI HOTSPOT! STK# BG1419

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