

Editorial

We Must Educate And Advocate To Advance Our Field

There's an enormous amount of skill, talent, and passion about vehicle lighting within and around the DVN community, and there's an enormous amount of ignorance and misinformation about vehicle lighting among the driving and lawmaking public. We love to devise excellent new lights and find ways of getting them onto vehicles, and we're good at it. But technical hurdles aren't the only challenges for us to vanquish; there are also legal, regulatory, and public-understanding obstacles. That's probably more or less true everywhere, but it's worse in some places than in others. In Germany, well-known companies and driver-advocacy outfits sponsor car light safety months; service vans roam the streets and parkades adjusting and repairing vehicle lights while driver- and car-orientated magazines run feature-length articles about lighting. None of that happens to any meaningful degree in America.

Consider a letter we recently received at the DVN editorial offices. Edited for clarity (and, er, manners) it reads:

"I recently read an article in the New York Times about ADB headlamps. Your [DVN] editor was quoted. I've viewed a few of the ADB simulation videos. Nothing there to convince me it actually works as advertised. I have no faith that this technology is going to protect my eyeballs from getting blasted. When I have a vehicle behind me blasting my eyes, I adjust my mirrors to shoot the light directly back into the driver's eyes. I'll need to use that technique with ADBs following me. What happens to the sensors, cameras, etc that control the ADB's when they have their own very bright light reflected back to them?"

"Whenever ADB technology becomes approved by the NHTSA, I'll believe it works when I see it. I drive a 2004 Toyota Corolla with standard halogen headlamps. I can see ahead just fine at night, unless I'm blinded by super-halogenes or LEDs or some bonehead with the high beams on. ADB is a money-making compensation for morons behind the wheel. No one would develop this if there wasn't money to be made."

The letter writer displays profound ignorance, comparable to that of the drive-in movie theatre owner who got his fellows to [raise hell](#) about ADB. We mustn't just dismiss him and his ilk as dumb cranks, though, for these are the people who need ADB's safety benefits. These are the people who will eventually be making decisions of whether to buy ADB. And some of these people are the ones who will be writing the state vehicle codes that will have a lot of say in whether and how ADB can actually be used on the roads.

There are occasional glimmers, but for the most part Americans don't know or care much about car lights—whether they're using them at night or writing the laws that govern their use. That's been a problem for a long time, and it's going to be a much bigger problem once ADB will be authorised federally. We need to get to work right away to address this appropriately, or we'll have an awful mess on our hands.

This week we take a look at how comparable issues were addressed the last time a technology revolution stood ready to sweep aside the severe inadequacies in the existing headlamps. There's a reading assignment involved—please take the time to do it. It's not just a fascinating glimpse of technological history, it's also a pretty good road map for what we need to do in the here and now.

Through the night brightly,

Daniel Stern, DVN Chief Editor



In Depth Lighting Technology

A Reading Assignment: Look Back to See the Road Ahead

By Daniel Stern, DVN Chief Editor

There's really no debate possible: ADB is truly a revolutionary breakthrough. Specifically, what it's broken through is the

century-old dilemma of the night driver: high beams with adequate seeing but excessive glare, or low beams with reasonable glare control but inadequate seeing distance. An ADB system, thoughtfully specified and configured and correctly installed and aimed, gives high-beam seeing with low-beam glare, thus resolving the quandary as ideally as can presently be done.



without ADB



with ADB

As everyone reading this already knows, night drivers in the Land of the Free and the Home of the Brave, just about alone in the developed world, can't have the safety benefit of ADB, because US regulations still prohibit it. NHTSA's proposed ADB regulation has been analysed and reported quite a bit in the pages of DVN. We can hope at least the worst of its problems will be addressed in a thoughtful and appropriate manner, but one way or another it's probably reasonable to assume some kind of ADB will eventually be legalised in the United States.

But...what then? Well, then cars with ADB start being available to U.S. buyers. But that's not the end of the regulatory battle; in fact, it's closer to the beginning. Federal Motor Vehicle Safety Standard № 108 defines how a vehicle's lighting system may, must, and must not be equipped and configured, and how the vehicle's lights may, must, and must not perform. Compliance with the requirements is mandatory for the vehicle to be legally eligible for introduction into interstate commerce (i.e., for it to be legally offered for first sale). Once that sale happens, the regulatory picture changes. Vehicles in use—that is, vehicles that have been sold to a first owner and registered—are regulated by the individual states. A vehicle's owner is legally bound not by the Federal Motor Vehicle Safety Standards, but by the vehicle equipment codes of the state where the vehicle is registered, and by the lighting-use laws of the states where the vehicle is driven.

The state vehicle codes are a horrendous mess; there's really no other way to put it. They are nowhere near uniform state-to-state. Some states have only bare-bones requirements to the effect of "Two low beams capable of illuminating 100 feet ahead, two high beams capable of illuminating 200 feet ahead, two red tail lights visible 300 feet away at night, two red brake lights visible 500 feet away at night, two white or amber front turn signals, two red or amber rear turn signals". At the other extreme, some states require—at least theoretically; enforcement is another matter—that all vehicles have lighting systems fully compliant with FMVSS № 108. Many states have vehicle lighting codes that are a putrid mix of severely outdated, commercially biased, and technically baseless requirements and prescriptions (and that's on top of the general ignorance of the American driving and vehicle-servicing public with regard to lighting systems).

For example: it is not uncommon to find, in these state codes, prohibitions on headlight bulbs producing more than 32 candlepower (402 lumens) — that is the amount of light produced by a common P21W or 1156 bulb used in brake lights and turn signals since the 1950s. The 32cp limit dates back to the 1930s, and would render each and every vehicle on the road illegal if it weren't for the principle of Federal preemption: any state regulation covering an item or aspect of vehicle equipment or performance is null and void to whatever degree it differs from any federal regulation covering that same item or aspect of vehicle equipment or performance. So the states can write as many laws as they like banning headlight bulbs over 32cp, but those bans can't be enforced because the federal rules allow headlight bulbs producing much more light than that. This also means a state can't, for example, require amber rear turn signals or green tail lights or side turn signal repeaters (because the federal standard allows amber or red rear signals, requires red tail lights, and doesn't require repeaters).

Fine, but what does any of this have to do with ADB? Simple: when ADB gets authorised at the federal level, there will be cars on the roads that the state laws are utterly unequipped to deal with, and federal permission for ADB won't do a thing about those state codes. It's more than just ADB greatly amplifying the safety consequences of most states' failure to periodically check and adjust headlamp aim, though there certainly is that—we've [reported](#) on the extreme difficulty of getting a proper aim job in North America. State laws also control how a driver must, may, and must not use the lights on a vehicle, and that could make real problems once ADB hits the road.

Consider: many state laws say, in one way or another, that headlamps must be operated in a manner that does not cause glare to others. Let's leave the initial-aim problem aside for the moment. Say we're driving along in an ADB-equipped car. The ADB is doing its job, shadowing other drivers out of the beam, but hiding off to the side of the road is a police officer, who gets zapped with high-intensity light. They zoom out from their hiding place and write the driver a ticket for improper use of lights—it's almost guaranteed to happen, the same way drivers got tickets in some states for the "blue" light from their federally-legal HID headlamps for awhile after those came out. Legally, states can't ban headlamps that meet the federal rules. Practically, those tickets got written, and some of them stuck.

As a community, we've put a great deal of largely successful effort toward shaping ADB regulations, first in the UN agencies and organisations and then in SAE, and now we're doing our best with NHTSA. In all these cases the goal has been to shape the regulations such that they allow and encourage good systems while barring and discouraging bad ones. But we must not neglect the state side of the equation, or the safety benefits of ADB will at best be blunted and minimised; at worst they will be inverted—misaimed lamps have always been a safety hazard; when the lamp can move light around, the danger of misaim stands to be much worse—and the very concept of smarter, more capable lighting will be cast into disrepute. Significant chunks of the public are skittish and unsure about the whole idea of smart vehicles, and primed to reject the concept out of hand. Just look at how many companies stopped or delayed their AV testing and development activities after a self-driving Volvo, thoughtlessly modified by Uber, killed a pedestrian while under the negligent control of a slack "safety driver" who was watching TV on her phone at the time. Public and legislative sentiment hinged on the AV aspect, not on the entirely human failures that

caused the collision. This isn't new, either; it's worked the same ever since the motorcar began to edge out the horse and buggy. People distrust, fear, and blame what they don't understand.

With all that as context, please go and read [this](#) (pdf) as soon as you can. It's an annotated account of the advent and successful 1940 rollout of the sealed-beam headlamp in the United States. It was written by the son of one of the General Electric lighting engineers who played a major role, and the technical notes are probably of some interest to those DVN members with an appreciation for the history of technology. But of much greater relevance to today's ADB situation is the detailed description, from an engineering-ethics perspective, of the extensive political, educational, and social-engineering work that had to be done to get state legislators and the public onside with the new headlamp system, and to get state equipment codes appropriately revised to accommodate and manage it properly. We face a very similar set of tasks now, with ADB

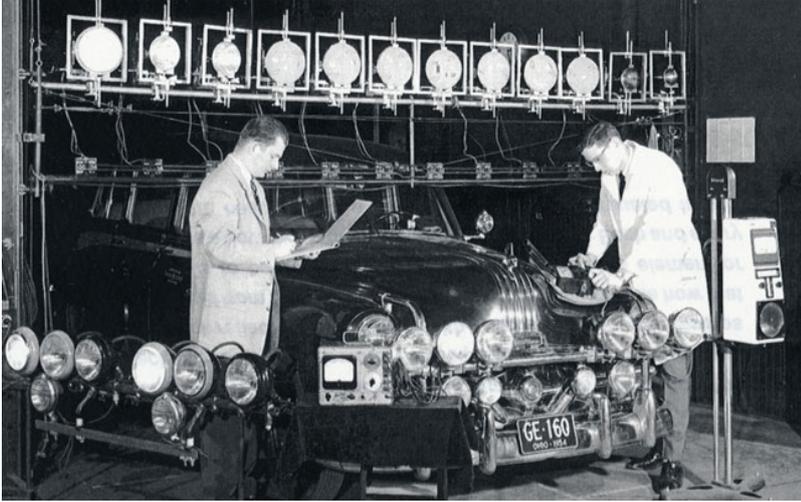


Photo courtesy of Val Roper: sealed beam R&D in GE's auto lab, early 1950s

The parallels between the situations then and now are strikingly direct; the first two items on the list of benefits to the new sealed-beam headlamp were "a glare-free traffic beam under all normal load conditions" and "a much safer light for open road conditions"—the very same benefits now being offered by ADB systems.

Whether or not NHTSA will hear and heed us, we are doing a fine job of providing them the needed knowledge, information, and data. We absolutely must do the same thing for state legislators and the general public. We cannot leave this to happen by itself—it won't. We cannot dust off our hands and say "We've engineered good systems and put them into production; our job's done", for it is not. We cannot just shrug our shoulders and assume some legislator somewhere will deal with it—they won't (or rather: they will, but the results won't be good!). We need to be actively developing and pursuing strategies to meaningfully, practically, and productively educate drivers, service technicians, and lawmakers about how today's and tomorrow's car lights are to be handled.

The promise of the sealed beam system wound up fulfilled, as will be the promise of ADB if—but only if—we do the work to clear the waypath not only at the federal level but down at the state level where the tires meet the road...and the headlamps illuminate it.

LIGHTING NEWS

Top NHTSA official Heidi King to leave, report says

Heidi King, Deputy Administrator of the National Highway Traffic Safety Administration, is planning to leave the agency as soon as next days,, reports E&E News.

She comes to NHTSA with extensive experience in public safety, innovation, risk management, evidence-based decision-making and law enforcement.

Heidi King, nominated as NHTSA's administrator, never been confirmed by the U.S. Senate, is not being forced out of her job,

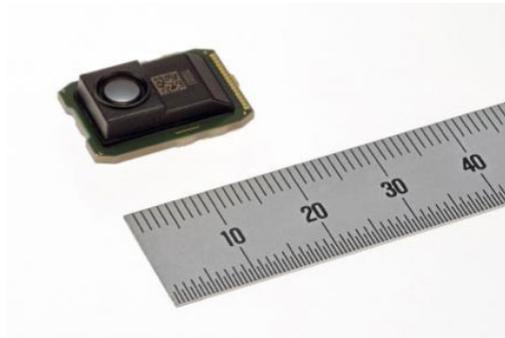


King is reportedly frustrated with her stalled confirmation to lead the agency. She has served as the de-facto top official since Mark Rosekind stepped down as administrator shortly before Trump's inauguration. Trump tapped King to lead NHTSA in April 2018, but her nomination has stalled in the Senate.

King has been the chief architect of Trump's plan to roll back Corporate Average Fuel Economy standards from Obama-era levels. NHTSA and the U.S. EPA are planning to freeze CAFE standards at 2020 levels through the 2026 model year. That would allow vehicles to drive 35 mpg on average by 2025 rather than the 50 mpg mandated by Obama.

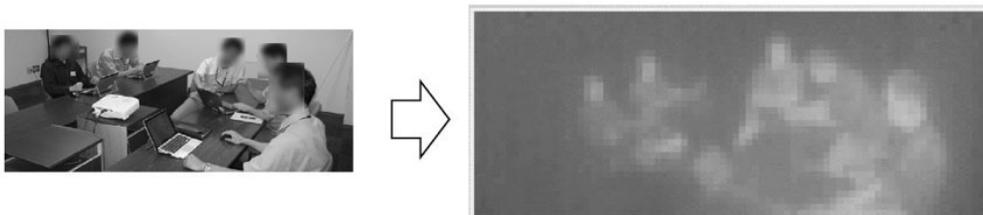
New IR Sensor Classifies Heat Sources

Mitsubishi Electric have developed a thermal sensor that accurately distinguishes between humans and other heat sources, for the identification of human-specific behaviour such as walking, running, or raising hands.



With a high 80 × 32 pixel count, the MEIDIR (Mitsubishi Electric Diode InfraRed) sensor uses thermal diode infrared sensor technology the company developed for the "DAICHI-2" (ALOS-2) Advanced Land Observing Satellite.

Compared to today's 16 × 16-pixel thermopile sensors, the device offers 10 times finer pixel resolution and five times finer thermal resolution at 100mK, or 0.1 degree Celsius. Each thermal diode (or sensor pixel) is supported by microfabricated legs that convey energy efficiently without releasing heat, enabling more pixels to be used for increased resolution. Electrical noise is minimised by mounting the thermal diodes and high-spec amplifiers close to each other on the same chip, helping to maintain accuracy and achieve high thermal resolution. The detailed infrared images make it possible to distinguish between humans and other heat sources as well as to identify specific behaviour.



Scenes taken with normal camera (L) and thermal IR sensor (R)

Measuring 19.5 × 13.5 × 9.5 mm, the device comes in a package 80% smaller than that of existing sensors, it boasts a 78° × 29° field of view and has a detectable temperature range of -5 to +60 °C.

Hella Expand Special-OE Electronics

The Special OE segment comprises agricultural and construction work, buses and motorhomes, electric cars and also the marine sector. It's also an area where Hella are working to carry on their electronics expertise.



The global supplier, based in Lippstadt, are continuously ramping up their electronics portfolio with a wide range of products from actuators, sensors and energy management through body electronics and whole driver assistance systems. Application specialists are involved in supporting customers when it comes to adapting the various products to the relevant vehicle application and also in the business of overall system integration.

Since 1957, Hella have been transferring their high technological expertise from their core automotive business to applications in special original equipment. "Intelligent battery sensors, accelerator pedal sensors, rain/light sensors, actuators or turning angle sensors—we offer our customers every kind of product that makes vehicles safer, more efficient and more comfortable", says Daniel Quick, Head of Electronics Product Management in the Special Original Equipment division at Hella. Particular focus is placed here on adapting the solutions to customer requirements. "The products cannot be taken over 1:1 from the automotive business, because special vehicles have different technical requirements". Moreover, the products are exposed to stronger mechanical vibrations and temperature fluctuations during use. Hella developers therefore reconfigure the products accordingly and further develop them. One example is Hella's intelligent battery sensors, which monitor the battery status and energy flow in the vehicle. Hella say they are the market leader in this field, and offer an array of products for vehicles with 12- and 24-volt systems. Intelligent battery sensors in motor homes make it possible to check several series-connected batteries up to 500 amps.

Materials War Will Continue With ACES Vehicle Designs

Automated, connected, electric and shared vehicles (ACES) will have a profound impact on society and how new vehicles are designed and built, but it is unlikely their materials composition and manufacturing techniques will change dramatically in the foreseeable future. That's according to experts at the CAR Management Briefing Seminars.



Carbon-fibre composites and additive manufacturing might find their way into the mix in a small way, but today's well-proven mixed-material strategies are likely to continue to rule the day, even though steel, aluminum and plastics will continue to battle each other for every kilogram.

Mario Greco, chairman of the Aluminum Association's Aluminum Transportation Group, says since 2014 many new vehicles have been introduced with aluminum closure panels and other major parts. Jose Chirino, automotive team vice chair of the American Chemistry Council, mentions the newest GMC Sierra Denali fullsize pickup was introduced with an optional carbon-fibre bed: "The polymer composite material is lightweight and this benefit cascades throughout the vehicle, improving fuel efficiency, engine power, braking distance and many other features. This is the chemistry that happens when steel, aluminum and plastics join forces".

Polymers and composites will play a key role in future vehicles in bumpers and other body parts because sensors and radar systems can "see" through these materials. The Volkswagen Atlas has a front-end module made of a composite material, for example.

Osram Buy Into AV AI Startup

Fluxunit, Osram's venture capital arm, will contribute to the financing round of a startup called Recogni. Based in Silicon Valley and with subsidiary in Munich, Recogni are developing a vision-orientated AI platform for autonomous vehicles, to facilitate processing of sensor data from lidar, camera, and radar systems in real time and at low power consumption.



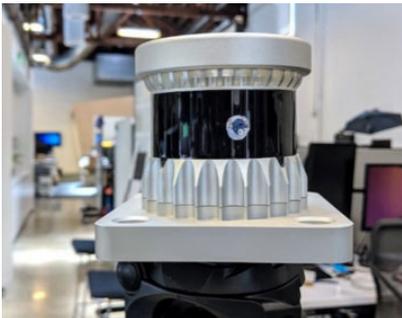
As the automotive industry is transitioning to autonomous vehicles, a network of computers is needed to drive these vehicles efficiently on a limited energy budget. While these AI systems are trained offline, in actual use in the vehicle they need to process the sensor data in real time. Today, autonomous vehicles have hit a processing efficiency wall and will have to climb it before they can transition to the next levels of autonomy. Recogni are focused on creating high-performance and low-power AI processing to help make AVs a reality. They're positioning themselves to revolutionise the processing of sensor data for Level 2+ AVs. Using what they're calling a Vision Cognition Processor, Recogni have set out to solve the problems of running perception algorithms in the vehicle in real time and at low power consumption.

The investment in Recogni underlines Osram's transition from a lighting company towards a high-tech photonics company in various future applications such as autonomous driving.

DRIVER ASSISTANCE NEWS

Lidar Industry Expansion Carries On

Following the global autonomous driving technology development, lidar companies worldwide are speeding up their business expansion all around the world. This past June, Germany-based lidar sensor maker Ibeo established a wholly-owned U.S. subsidiary in Detroit. This is to cater for the growing demand for lidar technology in the U.S. and expand their business segment into one of the most important markets for autonomous driving.



Ibeo have begun volume production for an automaker in Europe, and they see the U.S. as one of the most important markets for autonomous driving. And U.S.-based Ouster crossed the sea in the opposite direction, moving towards Europe and Asia-Pacific. The lidar sensor supplier from San Francisco opened new offices in Paris, Shanghai, and Hong Kong to strengthen their global sales.

The expansion will intensify the company's regional support and local direct sales as well as channel management. Ouster expect to accelerate their growing footprint across 15 industries including automotive, robotics, security, defense, and mining.

A Busy Week for Lidar Tech Builders

China-based RoboSense announced an arrangement for ControlWorks to provide RoboSense's Smart lidar Sensor Systems to Korean automakers, tier 1s, and others with localised sales channels, product services, and technical support for the Korean market.



RoboSense's autonomous perception systems comprises advanced lidar hardware and AI point cloud perception algorithms to output, in real time, environment information from the 3D point cloud.

Meanwhile, Seoul Robotics revealed SENSAR, an industrial-grade software solution to provide scalable 3D perception while integrating multiple lidar sensors. SR say their SENSAR can quickly understand 3D lidar data in diverse environments with its AI algorithm providing fundamental object processing such as detection, classification, tracking, and prediction. The system also fuses data from different types of lidars to help the computer understand the environment without having to rely on a previously built map. SENSAR enables a wide range of applications such as detecting intruders for security systems and predicting the distance to pedestrians on a crosswalk for autonomous driving applications.

Synopsis to Buy QTronic

Synopsys have signed a definitive agreement to acquire Romania-based QTronic, who specialise in simulation, test tools and services for automotive software and systems development, including developing and maintaining bespoke software.



When completed, the acquisition will broaden Synopsys' product portfolio of automotive solutions serving the needs of automakers and tier-1s and add a team of engineers to accelerate technology development and customer deployment. The transaction is subject to customary closing conditions and regulatory filings, and is expected to close in Synopsys' fourth quarter of fiscal year 2019.

The rapid growth of vehicle software, combined with the complex interaction of hardware, software and physical components, creates a challenge for automobile manufacturers and their suppliers developing future vehicles. QTronic simulation and test tools will accelerate Synopsys' delivery of a comprehensive automotive virtual prototyping solution for system and software development throughout the automotive electronic supply chain.

GENERAL NEWS

West Europe Market Flat in July

New car sales in Western Europe grew by just 0.1% year-on-year (YoY) in July according to data released by LMC Automotive. The annualised selling rate (SAAR) climbed to 14.3m units a year in July, from 14.2m units a year in June.



- Germany continues to be the powerhouse of Western European car sales, thriving amongst a generally stagnant region. Sales increased 4.7% YoY in July, with the selling rate rising beyond 3.8m units a year.
- The UK market, however, was down 4% YoY in July, and the selling rate fell to 2.28m units a year.
- French car sales fell 1.8% YoY in July; however the selling rate continued to linger around the 2.2m units a year mark. Italian registrations were down 0.1% YoY in July, despite an extra selling day. The selling rate – which at 1.9m units/year is in line with the average for the year to date (YTD) – underlines the lacklustre pace of sales in Italy.
- The Spanish market disappointed also in July, contracting by 11% YoY in July, whilst the selling rate has fallen further, to 1.2m units a year.

For the YTD, Western European car sales are down 3% YoY, although the selling rate is currently averaging a relatively strong 14.4m units a year. Next month is likely to see significant YoY declines in almost all Western European markets, given an exceptional base effect. August 2018 posted the highest selling rate ever seen in Western Europe (18.4m units/year), due to purchases being brought forward ahead of the WLTP implementation. From September, the YoY comparisons should swing back into positive territory, but given the generally sluggish performance of most major markets in the YTD, full year growth is likely to remain subdued, LMC said.

LMC forecasts that for the year as a whole, the West European car market will turn out at 14.23m units, virtually flat on 2018.

West European car sales by country, July 2019

	July 2019	July 2018	change	YTD 2019	YTD 2018	%change
W Europe	1,186,000	1,185,000	0.1%	8,848,000	9,124,000	-3%
France	172,000	175,000	-1.8%	1,339,000	1,364,000	-1.8%
Germany	333,000	318,000	4.7%	2,182,000	2,157,000	1.2%
Italy	153,000	153,000	-0.1%	1,235,000	1,275,000	-3.1%
Spain	117,000	131,000	-11.1%	809,000	866,000	-6.5%
UK	157,000	164,000	-4.1%	1,426,000	1,478,000	-3.5%

PSA, Dongfeng to drop 2 China auto plants, halve workforce, Reuters reports

PSA Group and partner Dongfeng Motor have agreed to cut thousands of jobs in China and drop two of their four shared assembly plants, according to a document seen by Reuters, in a last-ditch bid to curb mounting losses as the world's largest auto market loses steam.

Dongfeng Peugeot Citroen Automobiles (DPCA), the carmakers' joint venture based in Wuhan, central China, will halve its workforce to 4,000 as it closes one plant and sells another under plans agreed last month between PSA CEO Carlos Tavares and Dongfeng Chairman Zhu Yanfeng, the document showed.



The agreement may avert a threatened withdrawal by PSA, according to two sources at the French carmaker who said their CEO had signaled that PSA might otherwise exit the 27-year-old partnership with its 12.2 percent shareholder, Dongfeng, or even leave China altogether.

PSA is attempting a reboot in adverse conditions. Once an auto industry cash cow, the Chinese market contracted last year for the first time since the 1990s and is expected to decline another 5 percent in 2019, squeezed by a worsening U.S.-China trade war.

DPCA will now close its original assembly plant, Wuhan 1, and redevelop the site in a commercial partnership with the local government, according to the plans. The factory's tooling and production will be transferred to the Wuhan 3 facility.

Headcount across DPCA will fall to 5,000 from 8,000 by the end of 2019 and to 4,000 within another three years, as it also sells off its idling Wuhan 2 facility, according to the document -- which noted ongoing discussions with unidentified potential buyers. Underperforming vehicles will be dropped as the Peugeot and Citroen lineups are streamlined around more profitable models, mirroring the European turnaround strategy now powering record margins in PSA's home markets.

Global Auto Market Risk is On the Rise

The entire global vehicle market is facing flat-to-falling sales for the foreseeable future, says Jeff Schuster (photo), president of global forecasting at LMC Automotive.

"Risk to auto sales globally is rising, and uncertainty remains high," Schuster told *Automotive News*.



The mature markets of Western Europe, the U.S., Japan and Korea will likely contract in volume over the next five to seven years, Schuster said, which means the industry's global growth opportunities will rely on emerging markets.

"This leaves countries that are highly volatile—Brazil, Russia, India, Turkey, China—to drive growth globally," Schuster said. "But right now, many of these countries are in a decline, and that's a risk to the long-term global market." He thinks global light-vehicle sales will decline 2.6 percent in 2019 to around 92.2 million units. Through 2025, he expects sales to muster a compound annual growth rate of just under 2 percent.

Trade friction and tariffs will continue to generate risk in global planning, especially with the European Union. At the same time,

more stringent emission regulations, especially in the form of new carbon dioxide requirements in Europe and China, have automakers counting more heavily on sales opportunities in electrification. China accounted for 60 percent of battery-electric vehicles sold in 2018, totaling 770,000 units, Schuster said, and in 2030, China's battery-electric vehicle count is expected to reach 6.4 million.

"The challenge in China and Europe is that these manufacturers need their battery-electric vehicles to hit the emission standards," Schuster said. "There are price and infrastructure challenges that manufacturers will have to face. They also need consumers to buy the vehicles."

Lanxess' New Heat-Reflecting Plastic Pigment

Lanxess have developed a black pigment which reflects 20% more of the sun's near-infrared radiation (NIR) than conventional products. Plastic roofs and facade elements coloured with their new Bayferrox 303 T heat up much less due to solar radiation, meaning the building's inside temperature can be reduced.



"The temperature in a polymer matrix coloured with Bayferrox 303 T is as much as 8°C lower than when a conventional black pigment is used," says Stefano Bartolucci, Lanxess' global plastics market segment manager at the company's Inorganic Pigments business unit. This improves the indoor climate and reduces energy consumption for air conditioning. Using the Bayferrox 303 T black pigment can also extend the service life of a plastic component considerably as the thermal decomposition of a polymer matrix is reduced due to lower heat absorption.

In addition, the difference between day- and nighttime temperatures is much lower. Plastic components are therefore less exposed to thermomechanical stresses which can lead to crack formation or breakage. "In addition to outdoor applications, Bayferrox 303 T's characteristics make it suitable for use in the automotive industry, for example, to colour the dashboard, which is exposed to high and sustained solar radiation," says Bartolucci.

"Our pigment makes an effective contribution to reducing heat development in the passenger compartment."a

Novelis Launch New Sheet Aluminium

Novelis have launched Advanz 6HS-s650, an aluminium automotive body sheet product. Available globally as part of the Novelis Advanz product portfolio, 6HS-s650 is targeted to applications demanding high in-service strength such as A- and B-pillars, floors, tunnels, rockers, side impact door beams, bumper beams, roof rail inserts, underbody frames, and EV battery enclosure components.



For many applications, 6HS-s650 brings reduction of process costs and complexity by eliminating post-form heat treatment while enabling up to 45% lighter weight than high-strength steels.

"By providing a product stronger than existing aluminium alloys without sacrificing formability, automotive designers and engineers will have more flexibility to lightweight the cars, trucks and SUVs of the future." says Pierre Labat, Novelis' automotive vice president. The 6HS-s65 product can also be recycled into new high-strength aluminium products as part of a closed-loop recycling process.

Novelis is the world leader in rolled aluminum products and recycling, and the largest global producer of automotive and beverage can sheet. Recently, they have commercialised 6HS-s650 as part of their Alumineering electric vehicle battery enclosure solution and as a structural component for an as-yet-unidentified EV platform