



Automotive Industry Weekly Digest

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[OEM Highlights] GM Aspirations to End Sales of Gasoline-Powered Light Vehicles by 2035 Latest Sign that Peak Gasoline Demand from Light Vehicles Has Already Come and Gone

Oil demand (gasoline and diesel) from LVs peaked in 2019

The recent announcement by GM that it aspires to phase out sales of oil-powered light vehicles (LVs) by 2035—part of a broader proposal to make the automaker a net-zero-carbon company—is a prominent signpost that oil demand from LVs has already peaked, according to a new analysis by Jim Burkhard and the IHS Markit Crude Oil Market Service.

IHS Markit places the global peak for oil demand (gasoline and diesel) from LVs in 2019 when said demand averaged 29.1 million barrels per day (MMb/d). The peak in demand is due to the impact of rising vehicle fuel economy and emission standards, and as time goes by, from more sales of electric vehicles.

“The GM announcement is a notable signpost on the road to decarbonization of road transportation. It demonstrates growing acceptance of tighter vehicle emission standards and of the energy transition beginning to move at a faster pace. When it comes to oil demand from light vehicles, it’s the latest sign that the 2019 peak is permanent.” – Jim Burkhard, vice president, oil markets and mobility and energy future, IHS Markit

For the oil market, what matters is the amount of demand that will be displaced by electricity.

Previous IHS Markit research has projected that electric vehicles (including battery, plug-in hybrid and fuel cell electric) will comprise 60-80% of all new car sales in 2050 (compared to just 2.2% of new car sales in 2020, according to IHS Markit data).

Nevertheless, oil will still be the dominant energy source for transportation for years to come due to the sheer size of the global car fleet and the amount of time it takes for it to turn over.

In 2020, there were about 9.2 million light plug-in electric vehicles (PEVs) in the global light vehicle fleet. When you include 20,000 fuel cell electric vehicles, these vehicles displaced about 150,000 barrels per day (b/d) of oil consumption—less than 0.2% of world consumption. When you include electric city buses and two-wheelers, the amount of oil displaced by electric vehicles totals 370,000 b/d, or just 0.4% of world oil demand in 2020.

“By 2020 electricity use in road transportation had only displaced about 370,000 b/d of oil demand—0.4% of world oil consumption. But it is clear that this will rise. By 2025, as much as 1.5 MMb/d of oil will be displaced.” – Jim Burkhard, vice president, oil markets and mobility and energy future, IHS Markit



The amount of oil displaced by electricity will continue to rise, led by growth in PEV sales. IHS Markit estimates that by 2025 light PEVs will displace about 0.9-1.1 MMb/d of world oil demand. Adding in electric buses and two wheelers, oil displacement by electricity in road transport could hit 1.5 MMb/d—the equivalent of 1.4% of what IHS Markit projects for total world oil demand in 2025.

That much displacement—while still relatively small—is significant in the sense that oil-powered LVs were the biggest source of aggregate oil demand growth from 2000 to 2019. Increased electrification, along with rising fuel economy and emissions standards, will play an important role in the plateau and then decline of world oil demand that IHS Markit expects to emerge at some point over the next 10-15 years in its base case outlook.

“The GM announcement is the latest piece in a much larger story. It’s further proof that, while the road ahead is still a long one when it comes to dislodging oil as the predominant transportation fuel, it is very much a one-way street and there is no turning back.” – Felipe Balieiro, director, mobility and energy future, IHS Markit



[OEM Highlights] Toyota adjusts vehicle production in Japan in wake of last week's earthquake

Toyota plans to adjust production operations at its Japanese plants as a result of an earthquake in the country last week, according to a company press statement. Of the total 28 assembly lines at its 15 plants in Japan, Toyota will suspend operations on 14 production lines at nine plants over different shifts from 17 to 20 February inclusive. The plants affected by this production suspension include its Takaoka plant, Tahara plant, Miyata plant, Iwate plant, Fujimatsu plant, Yoshiwara plant, Gifu plant, and Hamura plant. Among the vehicles whose production will be affected are the Toyota Harrier, Prius, RAV4, Prado, and C-HR and the Lexus NX, UX, and CT. The automaker has not revealed how much production will be lost as a result of this suspension.



Outlook and implications

A strong earthquake hit the coast of Fukushima Prefecture last week. According to media reports, although the earthquake had no significant impact on Toyota's factories, it did affect some of the automaker's suppliers, causing a delay in parts supply. IHS Markit currently forecasts a production loss of around 19,000 units for Toyota during February as a result of this suspension of operations.



[Hot Topics Highlights] Automotive Semiconductor Shortage Update: Nearly one million vehicles delayed

Since late 2020, there has been disruption within the supply chain of semiconductors to the automotive sector. Pressure built as the industry recovered from the widespread lockdowns implemented in the first half of 2020 and that recovery cycle clashed with increasing demand from the wider consumer electronics sector, which was itself recovering strongly late in the year, building stocks for the holiday season.

As a result, vehicle manufacturers are finding increased disruption to the supply of systems using semiconductors in the first quarter. We do not have every major OEM identified so additional risk would sit there, and that can be applied to almost all regions, although the visibility in Japan is close to comprehensive.

The semiconductor supply chain for microcontroller unit (MCUs) normally has 12 to 16 weeks lead time from order to delivery to OEM/Tier 1. So, today's issues in the semiconductor production have approximately doubled the normal lead time to at least 26 weeks. We expect the situation to hit bottom around the end of March, although the supply chain will still be constrained into Q3. In our volume assessment, we have only considered the impact in Q1.

Relative to chip supply, however, based on known factors today, IHS Markit analysts anticipate the bottom of the chip shortage crisis likely towards the end of March for MCUs. Beginning in April, we anticipate MCU supply will improve but still not meet OEM demand. In the third quarter, it appears MCU supply could meet the OEMs' ongoing demand at that time, but perhaps not make up the missed demand from the first half of 2021. It is anticipated that MCU supply in the fourth quarter could be able to meet OEMs' ongoing demand and start making up the missed demand from the first half of 2021.

Eventually all OEMs will be impacted by the MCU supply constraints, those with more inventory in their supply channel -- for examples smaller OEMs or some Japanese OEMs because of their use of distributors to hold inventory -- may be less impacted until their inventory is consumed.



As a result of this situation, integrated circuit (IC) vendors will need to revisit working with foundries, either by diversifying relationships to use more foundry suppliers or to use the same suppliers but diversify the number of regions the ICs are produced in.

In addition, there may be some slight steps for chip manufacturers to bring back more in-house wafer processing, but IHS Markit does not expect a total reversing of the "fab-light" strategy which prevails in the industry to save on CAPEX. Especially for advanced nodes, the dependence on Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics Corporation (UMC) will remain.



The situation remains highly fluid and we continue to track the impact of these developments alongside our assessment of the recovery in production since the outbreak of the COVID-19 pandemic. Currently there are varying estimates as to the length of the semiconductor shortage, with some suggestions that the situation will improve from the second quarter onwards, while some of the lower level disruption could even be recovered within the current quarter.

Overall, the global light vehicle production volume at risk has risen to nearly a million units for the first quarter. At this level, we still expect the majority of volume can be recovered across the balance of the year, so we expect of the current shortages to be more of a seasonal impact, with volume lost in the first quarter, displaced to later in the year, rather than an absolute reduction to the 2021 calendar year forecast. However, as we move closer to the million-unit mark and as plants building high-demand programs are brought into the mix, it could become more challenging to entirely offset production losses within the calendar year.

Although the current situation is expected to be limited mostly to 2021, it has brought concerns over the supply chain in certain areas to the forefront. Both European Union and the Biden Administration in the US are considering ways to address the shortage and reduce the dependence on the supply chain from Asia with more localized production.

“At this stage, while we anticipate a million vehicles will be delayed from production in the first quarter, we expect the industry to recover later in the year, with little expected risk to the full year forecast of 84.6 million units at this time. We are continuing to monitor, however, and the situation remains fluid.” -- Mark Fulthorpe, Executive director, Global light vehicle production, IHS Markit

“It will get worse before it gets better. Short term all that can be done is juggling priorities in the foundries to make more automotive MCUs instead of products for other markets. Longer term, the automotive industry needs to make supply assurance as high a priority as cost savings to incentivize the supply chain to be more diverse. Moving to more advanced process nodes makes the industry even more susceptible to a limited number of foundry options.” -- Phil Amsrud, Principal senior analyst, IHS Markit

[Hot Topics Highlights] Asian chipmakers rush to expand capacity to help automakers deal with semiconductor shortage

SMIC says capacity boost would not occur quickly due to longer lead times for equipment procurement



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Source: Getty Images/ Morsa Images

Asian manufacturers are pushing to expand their production capacity to meet global semiconductor demand, especially from the automotive industry, *Reuters* reported on 8 February. However, the companies have also said that it could take months to meet the strong demand. Semiconductor Manufacturing International Corp cautioned that the capacity boost would not occur quickly due to longer lead times for equipment procurement.

Outlook and implications

In January, Taiwan Semiconductor Manufacturing (TSMC) said that it will prioritize automotive semiconductors production if it can increase capacity. TSMC had reportedly told the ministry that it would optimize the production process and, if possible, focus on the production of automotive semiconductors. The development came after reports of Germany urging Taiwan to ask manufacturers help ease the semiconductor shortage currently plaguing the automotive sector.

The semiconductor supply shortage has resulted in most automakers slashing vehicle production. Reports indicate that the issue could persist at least till the third quarter of fiscal 2021. Automakers including Toyota, Ford Subaru, Audi, Volkswagen, and Fiat Chrysler Automobiles have cut production.



[Autonomous Driving Highlights] WeRide receives permit to launch autonomous ride-hailing operations in Guangzhou

Autonomous vehicle (AV) startup WeRide has received a permit for ride-hailing operation by the Guangzhou Municipal Transportation Bureau, according to a blog posted on the Medium website. The company claims to becoming China's first AV company with this kind of qualification. Tony Han, founder and CEO of WeRide, said, "Today I am very delighted to see that we have taken another solid step towards the commercialization of autonomous driving. WeRide becomes the first AD company in China to have obtained the permit for ride-hailing operation, adding another important advantage to those we have already had in the industry. We have been prepared for the application of this license with significant investment of energy and time throughout the process".



Outlook and implications

WeRide focuses on deploying Level 4 AVs on public roads and has started testing fully driverless cars in China. WeRide claims its robo-taxis in Guangzhou have completed a total of 147,128 trips for more than 60,000 passengers during the first year of its service's operation. The company has also recently launched a mini-robobus trial service for the public at Guangzhou International Bio Island. The company completed a Series-B funding round of USD310 million.

[Autonomous Driving Highlights] Baidu introduces autonomous MaaS platform in Guangzhou

Baidu has partnered with the Guangzhou Huangpu District government to roll out multi-modal autonomous MaaS (mobility as a service) platform. The platform is powered by artificial intelligence (AI) technology to provide diverse transportation services in Guangzhou (China) by deploying over 40 autonomous vehicles (AVs). This autonomous fleet comprises five different model types – Robotaxi, Robobus, Apolong, Apollocop, and New Species Vehicle, and will begin serving the city starting this Chinese New Year holiday period. To facilitate the service, Baidu has established over 50 Robotaxi pick-up stations in the district and has plans to increase it to 1,000. Users can book these AV services through the Baidu Maps and Apollo Go mobile applications.



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Outlook and implications

Baidu launched its AV platform, Apollo, in July 2017 and has attracted more than 200 partners. The company has obtained more than 190 licences to test AVs and has conducted road tests in 27 cities, covering more than 7 million km. Baidu has also conducted public trials of robotaxis in Beijing, Changsha, and Cangzhou. Recently, Baidu has received approval from the US state of California to test AVs without a safety driver behind the wheel.



[Supplier Trends and Highlights] FEV-lead project develops 3D printed lightweight diesel engine

Major components of a baseline diesel-powered passenger car can be made roughly 21% lighter using additive manufacturing methods



Source: FEV Group

FEV, along with partners, has developed a lightweight diesel engine using additive manufacturing, commonly known as 3D printing, under the LeiMot project (“Lightweight Engine”), the company announced in a press release on 17 December. The other project partners include a renowned automobile manufacturer, research institutions, universities of applied sciences, development service providers, equipment manufacturers, and automotive suppliers. Germany’s Federal Ministry for Economy and Energy is funding the LeiMot research project.

FEV said that major components of a baseline diesel-powered passenger car can be made roughly 21% lighter thanks to additive manufacturing methods, while increasing the efficiency of engine functions such as cooling and oil circulation.

“This allows components to be fabricated through additive manufacturing. That is, one layer at a time based on material in powder form. In this specific instance, it was aluminum alloy AlSi10Mg, but we also considered fiber-reinforced plastics. The components produced using this method weigh around 21% less. At the same time, the new, installation-compatible engine parts—cylinder head and crankcase—increase the powertrain’s efficiency,” said Ralf Bey, LeiMot project manager at FEV.

Outlook and implications

The aim of the project is to enable even conventional production methods to benefit increasingly from the opportunities afforded by additive manufacturing. The focus was on the cylinder heads and crankcase of a state-of-the-art, mass-produced, two-liter diesel engine. Both parts were manufactured using a selective laser powder bed fusion (LPBF) process instead of die-cast aluminum as in the past. The new cross-current cooling system enables the cylinders’ temperatures to be lowered, while simultaneously reducing the amount of water needed.

The newly designed cylinder head alone saves 2.3 kg, or 22% of the weight compared to the original component. To accomplish that, engineers needed to reinforce certain areas, especially those subjected to high mechanical stress, because the combustion process primarily exerts bending loads, while the engine as a whole is subjected to torsional loads. The best ratio of weight reduction to rigidity is a combination of an I-beam (IPB) and an integrated, closed drawer.

When considering the aspects of weight and rigidity of the crankcase, the decision was made to go with what is called a short-skirt design with a bedplate of aluminum. Replacing the steel bearing caps with the bedplate was made possible



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by the reduced friction main bearing diameters of the diesel base engine. With the redesigned crankcase, including the bedplate, the weight was lowered by 5.1 kg compared to the original components.

[Supplier Trends and Highlights] Microchip develops high-side current sense amplifiers for automotive applications

The devices feature an EMI filter that offers added protection against high-frequency electrical interference



Source: Getty Images/MF3d

Microchip Technology has developed high-side current sense amplifiers for the automotive industry, the company said in a press release on 16 February. Operational at a temperature range of -40°C to $+150^{\circ}\text{C}$, it allows the use of smaller value shunt resistors while maintaining a high measurement resolution. This enables a more accurate and energy efficient current measurement solution for components and applications in extreme temperatures, like the motor within a vehicle's water pump.

“The addition of high-side current sense amplifiers to Microchip's portfolio augments our total system solution for critical functions such as motor control, power supplies and battery management. Combined with our mixed signal solutions, microcontrollers, power management and communication offerings, Microchip enables our clients to move quickly from concept to production by utilizing a low-risk, proven supply partner,” said Bryan Liddiard, VP, Microchip Technology's mixed signal linear business unit.

Outlook and implications

Microchip Technology provides smart, connected, and secure embedded control solutions with over 120,000 customers across industrial, automotive, consumer, aerospace and defense, communications, and computing markets. The MCP6C02 and MCP6C04 devices feature an on-chip electromagnetic interference (EMI) filter and a zero-drift architecture. The EMI filter offers added protection against high-frequency electrical interference.

Last week, Microchip unveiled a hardware-based audio endpoint solution for audio video bridging (AVB). The audio endpoint controller connects the vehicles' infotainment devices including speakers, amplifiers, microphones, navigation systems, radio tuners, and smart headrests with Ethernet AVB.



[GSP] Middle East/Africa Sales and Production Commentary - 2021.01

Middle East/Africa sales

December 2020: -19.9%; 0.267 million units vs. 0.333 million units

YTD 2020: -18.4%; 2.901 million units vs. 3.553 million units

- Light vehicle demand in the Middle East and African (MEA) region in December 2020 is expected to have dramatically decreased 19.9% compared with December 2019. This result builds on the previous negative months of November (down 15.0%) through March (down 29.4%), when the vehicle sales market began to crash. Overall, in the 10 months of the COVID-19 crisis from March to December 2020, demand collapsed 23.6%, with 707,000 fewer vehicles registered.
- Regional economies were already very fragile and further negative effects to business and consumers from the COVID-19 pandemic have deeply worsened the economic development and the near-term outlook. In addition, record-low crude oil prices have further depressed countries that heavily depend on export revenues, as supply heavily overshadows global demand. Key industry sectors in developed countries, such as airlines, cruises, cargo shipping, fuel stations, and manufacturing plants, have significantly lowered demand for oil, resulting from government-imposed lockdowns, forcing consumers to stay at home.
- January–December year-to-date (YTD) estimated volumes were down 18.4%. The negative trend that has developed in the past few years is expected to continue in the near term. The full–year 2021 forecast for the MEA region is set at 3.127 million units (revised down 0.011 million units versus last month), representing a 7.8% year-on-year (y/y) increase, which still holds total regional volumes back to levels reached 16 years ago. Moreover, falling demand in six consecutive years highlights the economic instability across the region and the cautiousness of consumers to commit to a new vehicle purchase.
- As previously forecast, the declining vehicle demand trend is expected to persist throughout the first half of 2021. The market is experiencing a steep fall owing to the economic disruptions of the COVID-19 virus. Vehicle sales in December 2020 were affected by the distinct performances across the region, with specific economic developments affecting various markets and subregions in different ways. Vehicle demand during December in the Middle East (excluding Iran) and the Gulf crashed (down 28.1%) compared with the same month of 2019. Similarly, vehicle demand in Iran drastically decreased (down 17.2%), and the African continent slipped (down 13.3%).





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- IHS Markit forecasts new vehicle sales in 2021 to increase 7.3% across the Middle East (excluding Iran) and Gulf subregion. The first quarter shall fall at a much slower, albeit negative rate, as some consumers pull forward vehicle purchases to avoid higher value-added tax (VAT) rates to be introduced in some countries at the start of the second quarter. A strong and positive recovery is expected in the second quarter of 2021 owing to the comparison with a dreadfully low result during the second quarter of 2020. The remaining third and fourth quarters of 2021 are expected to hit cautious low growth, as the vaccine is rolled out, and the economies reopen with fewer restrictions allowing for consumer spending levels to begin to rise in step with more positive confidence indicators.
- Unfortunately, the African continent has felt the full force of the COVID-19 pandemic in the second half of 2020, and this struggle will continue throughout 2021, as the global epicenter of the virus moves away from Europe and the United States. Unfortunately, this expectation has been confirmed as African leaders struggle to contain the virus from further spreading, and South Africa in particular has recorded a higher number of positive cases.
- Demand for new vehicles in Africa decreased by an estimated 13.3% in December, canceling out the slight possibility of a turnaround, as substantial pent-up demand has significantly risen over the years. Since 2015, vehicle sales have considerably fallen from the highs of fewer than 2.0 million units to the current lows of fewer than 1.0 million units. The positive momentum during late 2018 and the first half of 2019 was short-lived, and the start of a turnaround is expected for late 2021. Countries in North Africa, such as Algeria and Morocco, have fallen into negative territory, joining South Africa and hurting the region's overall demand levels. As a result of much weaker consumer demand, vehicle demand across Africa is estimated to have decreased 28.5% in full-year 2020, with relative support from the rise in commodity prices and heavily affected by lower global crude oil demand. As a result, vehicle demand is falling back to levels achieved 17 years ago, in 2003. This scenario will lead to more hardship across Sub-Saharan countries, while North African countries also suffer from a slowdown in Western Europe. IHS Markit forecasts a 13.6% increase in new vehicle sales for 2021 across the African continent.
- South Africa is the largest vehicle market in Africa, but the economic landscape has been extremely difficult during the past few years and further depressed owing to COVID-19. Demand for new vehicles continues to struggle owing to the political tension within the African National Congress (ANC), which in turn has led to economic policy stagnation. General elections were held in May 2019 and won by the ANC led by Cyril Ramaphosa, whose main task has been to provide greater stability, which is critical and necessary to turn around low consumer confidence levels. Big-ticket purchases, such as new vehicles, have been largely postponed and are expected to remain weak well into the second half of 2021. As a result of the government lockdown for 35 days from 27 March, which restricted movement and closed businesses, IHS Markit expects a severe decrease in consumer spending. Vehicle sales in April crashed 98.7% and contracted 68.2% in May, as car dealerships were forced to close under the government's lockdown measures and only reopened during mid-May. Vehicle sales in the six-month period from June through December decreased by an average of 24.4%, or 76,000 fewer units, compared with the same period of the previous year.
- The Sub-Saharan region has also struggled in recent years owing to low global oil prices hurting oil revenues for exporting countries and low commodity prices hurting agricultural and mining revenues for other nations. Following the high volumes reached in 2014, vehicle demand has struggled to achieve any consistency trending downward in the past five years, and imports of used vehicles continue to flood the



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continent despite the government policy. Vehicle sales in 2021 are forecast to remain at the levels achieved 20 years ago. A stronger turnaround is projected for beyond 2022, as more governments implement growth strategies for the automotive sector.

- North African countries have also been struggling to put their economies on the right path to economic growth. Demand for new vehicles heavily fell in the three-year period (2015–17) owing to the economic collapse in Algeria, Egypt, and Tunisia. Overall, North African vehicle sales have fallen to levels registered 15 years ago. In 2018, Algeria implemented a vehicle import quota system and has since continued to tank, with sales developments destined to be drastically lower than the normal market demand; Egypt's vehicle market had been struggling and is forecast to begin a slow recovery from mid-2021 onward. Lastly, Morocco's vehicle market continues to develop in line with its economic growth, despite weaker sales resulting from effects of the COVID-19 virus outbreak on the economy and significant trading partners. IHS Markit expects a mild recovery in demand for new vehicles across North Africa in 2021, as more carmakers and many tier suppliers have delayed expanding their manufacturing footprint in the region.
- Demand for new vehicles in the Middle East and Gulf region (excluding Iran) fell by an estimated 28.1% in December, largely owing to the negative results across all countries owing to economic restrictions related to the COVID-19 virus outbreak. For 2021, the trend is expected to turn slightly positive, and full-year vehicle sales are forecast to increase 7.3%. Further at the negative end of the scale, Iranian vehicle sales have collapsed to levels reached over 20 years ago, since the highs registered in 2017 at 1.6 million units, down to 0.8 million units in the present day. The stark double-digit declines are a direct result of the renewed economic sanctions imposed by the US under the Trump administration. The Iranian market in 2021 is forecast to stagnate as poor economic development concerns continue to affect the negative sentiments of Iranians. Across the Gulf region, higher taxation has slowed demand for high-priced goods. Iran and Saudi Arabia are the largest vehicle markets in the Middle East and Gulf region, and their performance will strongly affect overall demand. In recent years, Iran's vehicle demand registered one in every two vehicles sold in the region, thus highlighting the importance of the country.
- The high volatility in demand for new vehicles is expected to continue and lies in the political turmoil within the Gulf region, where countries have turned on Iran and previously Qatar, led by Saudi Arabia. In September 2019, a further crisis emerged owing to the drone strike carried out on two targets owned by Saudi Arabia's state-owned Aramco company at the Khurais oil field and the Abqaiq processing facility.
- Low oil prices have also been pushed down further owing to the varied global lockdowns, which have grounded industries, such as airlines, cruises, and road transportation, and led to significantly low oil demand in developed markets. Vehicle demand in the first half of 2021 will likely remain very weak in the Middle East and Gulf region (excluding Iran), as a result of lower-than-optimal crude oil prices. Vehicle demand will remain depressed for Iran.



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[VIP ASSET] JLR announces new Reimagine strategy, Jaguar to become BEV-only by 2025

IHS Markit perspective

Implications	JLR has announced its new 'Reimagine' strategy, which will focus on shaking up the business and lead to Jaguar becoming a BEV-only brand by 2025.
Outlook	The announcement forms the long-awaited strategic plan for JLR since the arrival of Thierry Bolloré as CEO in September last year. Although the business will pivot, the direction of travel is not wholly unexpected given the wider trends within the automotive industry and the need to create a financially sustainable business. However, questions still need to be answered, although this may happen at an investor day planned for next week.

Jaguar Land Rover (JLR) has announced its new 'Reimagine' strategy, which will focus on giving the Tata Motors-owned premium and luxury unit a much needed shake-up.

On the announcement, CEO Thierry Bolloré said, "Jaguar Land Rover is unique in the global automotive industry. Designers of peerless models, an unrivalled understanding of the future luxury needs of its customers, emotionally rich brand equity, a spirit of Britishness and unrivalled access to leading global players in technology and sustainability within the wider Tata Group. We are harnessing those ingredients today to reimagine the business, the two brands and the customer experience of tomorrow. The Reimagine strategy allows us to enhance and celebrate that uniqueness like never before. Together, we can design an even more sustainable and positive impact on the world around us."

According to the automaker, the new strategy will involve JLR underpinning its Land Rover and Jaguar brands on two separate platforms and strategies that give "two clear, unique personalities", but both focusing on electrification.

Land Rover will continue to offer vehicles through three families - Range Rover, Discovery, and Defender. JLR has said that the brand will use the forthcoming flexible Modular Longitudinal Architecture (MLA) which will offer electrified internal combustion engines (ICE) and full battery electric vehicle (BEV) variants as its product line-up evolves. Land Rover will also introduce the BEV-biased Electric Modular Architecture (EMA), which will also support advanced electrified ICE vehicles. It added that six BEV variants will be made available during the next five years, the first of which by 2024, while by 2030 all models will be available with BEV powertrains. It also added that by 2030, around 60% of the brand's vehicles will be equipped with "zero tailpipe powertrains".



Jaguar will fundamentally change its strategy, with JLR stating, "By the middle of the decade, Jaguar will have undergone a renaissance to emerge as a pure electric luxury brand with a dramatically beautiful new portfolio of emotionally engaging designs and pioneering next-generation technologies." It adds that future Jaguar models will be built exclusively



on a BEV architecture. However, the company added that the planned XJ replacement will no longer form part of the line-up “as the brand looks to realise its unique potential”, although it said that the nameplate may be retained.

As well as BEV powertrains, JLR is preparing to adopt hydrogen fuel cell technology. It said that development is already under way and that prototypes will begin testing on UK roads within the next 12 months as part of a long-term investment programme. This is likely to be aimed at longer range and off-road capable applications.



The company has said that to support this push into electrification technologies alongside the development of “connected services to enhance the journey and experiences of customers, alongside data-centric technologies that will further improve their ownership ecosystem” it will spend around GBP2.5 billion annually.

The simplification that will come from its new architecture strategy is also expected to help to achieve “new benchmark standards in efficient scale and quality for the luxury sector” by consolidating the number of platforms and models being produced per plant. It said that the company will “retain its plant and assembly facilities in the home UK market and around the world” while Solihull (UK) will become home to the future JLR BEV architecture as well as manufacturing MLA-based Land Rovers.

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[VIP ASSET] EU, US looking at ways of reducing risk of semiconductor supply chain

IHS Markit perspective

Implications	As the global supply of semiconductors continues to see bottlenecks that are disrupting production in the automotive sector, the EU and US are said to be looking at ways of taking the risk out of the supply chain.
Outlook	While the constrained supply of semiconductors is likely to be short-lived and IHS Markit expects most of the light-vehicle production lost to be recovered during the remainder of 2021, it underlines the supply security issues that stem from a reliance on other parts of the world for these components. This looks set to strengthen a push to make more production of these components locally.

As the global supply of semiconductors faces ongoing bottlenecks that are disrupting production in the automotive sector, two key markets are looking at ways of mitigating risk in the supply chain of this increasingly important component.

A report published by Bloomberg News has suggested that the European Union is looking at ways of supporting semiconductor production locally to reduce its reliance on Asia and the US. Sources have told the news service that the project, led in part by the European Commissioner for Internal Market, Thierry Breton, is exploring how to manufacture semiconductors that have features smaller than 10 nanometres, before eventually reducing this to 2 nanometres. The people added that this could involve the redevelopment of an existing foundry or building a new one. However, the sources added that no final decision has been taken, and the time frame of the project is still to be determined.

Following the report, an official at France's Ministry of Economy and Finance told Bloomberg at a press briefing that two of the leaders in this technology, Taiwan Semiconductor Manufacturing Co. (TSMC) and Samsung Electronics, could be involved in the project, but nothing has been decided.

Furthermore, Nina Kao, a spokesperson for TSMC said in an email to the news service that "When it comes to fab location selection, we need to consider many factors including customers' need. TSMC does not rule out any possibility, but there is no concrete plan at this time."



Separately, the *Financial Times* (FT) reports that the US government is also looking at ways to address a shortage of semiconductors which has hit domestic vehicle manufacturing, and is said to have been exacerbated by sanctions on Chinese chipmaker SMIC. White House press secretary Jen Psaki said that the new administration



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was “identifying potential chokepoints in the supply chain” and that President Joe Biden would sign an executive order that would result in “a comprehensive review of supply chains for critical goods” in the coming weeks.

This comes in the wake of 15 senators, including the Senate Majority Leader Chuck Schumer, calling on the administration to undertake actions against the shortage, which they have said threatens the country's “post-pandemic economic recovery”. They have recommended that it secures funding that was authorised by the US Congress in 2020 in the CHIPS Act, to boost domestic manufacturing in this area.

The chief executives of local companies involved in the semiconductor space, including Intel, Qualcomm, and GlobalFoundries, have also called on President Biden to include funding for expanding production of this component to be included in his new infrastructure plan.

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