Automotive Industry Weekly Digest

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S&P Global
Mobility

Contents

[Forecast & Analysis Highlights] Chinese NEV manufacturer Li Auto reaches 600,000-unit delivery milestone

S&P Global Mobility perspective	
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Outlook	With the upcoming Li MEGA, Li Auto will be able to establish a foothold in the upper end of the MPV segment, where demand has been increasingly driven by private car buyers. The three-row MPV measuring 5.3 meters long is a product developed specifically to address affluent family-oriented buyers. However, with the starting price expected to reach 500,000 yuan, it remains to be seen if the MEGA can deliver volume for Li Auto.

Li Auto

Li Auto's cumulative vehicle deliveries have reached 600,000 units, according a company statement. The Chinese new energy vehicle (NEV) manufacturer delivered the 600,000th vehicle, a Li L9 sport utility vehicle (SUV), to its owner on Dec. 14. Li Auto's pace of sales expansion accelerated notably in the second half of this year, propelled by a strong performance from its L Series of SUVs, the L7, L8 and L9. The automaker's sales in November surpassed the 40,000-unit mark for a second consecutive month, taking its year-to-date (January–November) deliveries to 325,677 units. The year-to-date figure also suggested the company has beaten its own full-year target of selling 300,000 vehicles before the year ends. Despite having nearly identical design and positioned in the same E-SUV segment, the three models of the L Series managed to address their own target customer groups without cannibalizing sales from one another. The L7, the best-selling model in the range, sold 16,900 units in November, while sales of the L8 were 12,700 units in November. The L9, the largest and highest priced model in the range, sold 12,200 units last month. The three models' cumulative deliveries surpassed 100,000 units as of Dec. 14, according to Li Auto. In the first 11 months of the year, the L7, L8 and L9 have taken the top three spots in the E-SUV sales rankings followed by the BMW X5, and Leapmotor C11. Given the most affordable model of the L Series starts at 319,800 yuan (US$44,867), Li Auto was able to post decent margin levels and stay profitable in the past three quarters. Its gross margin in the third quarter of 2023 stood at 21.8%, up from 21.0% and 20.4% respectively in the second and first quarters. Its third-quarter financial reports also shows that its net income for the third quarter reached 2.81 billion yuan, improved from 2.31 billion yuan in the second quarter and 933.8 million yuan in the first quarter.

In December, Li Auto is expected to announce the pricing and specifications of its all-new flagship model, the Li MEGA. The MEGA is a large multipurpose vehicle (MPV) and is also Li Auto's first model to be powered by a

battery electric powertrain. The company said it is confident this new model will be the best-selling nameplate in the over-500,000 yuan segment in the Chinese auto market. The MEGA is expected to start at around 500,000 yuan, much higher than the starting price of the L9.

Outlook and implications

The Li L Series represents the most successful new products in the Chinese auto market in the past two years. This product line of three extended range electric vehicles (EREVs) has quickly snapped up market share from large SUVs introduced by global carmakers. Sales of the Toyota Highlander, for instance, contracted by 15% year over year in the first 11 months of 2023 to 68,933 units. Sales of the Volkswagen Teramont also fell by 26% year over year in the same period to 42,100 units. With the MEGA, Li Auto will be able to establish a foothold in the upper end of the MPV segment, where demand has been increasingly driven by private car buyers. The three-row MPV measuring 5.3 meters long is a product developed specifically to address affluent family-oriented buyers. However, with a starting price expected to reach 500,000 yuan, it remains to be seen if the MEGA can deliver volume for Li Auto. A considerable portion of new orders for the MEGA are likely to come from replacement demand of existing EV owners. That said, its competition will certainly include large premium-segment electric SUVs as well as new electric MPV entries such as the Zeekr 009 and Volvo EM90. Both the Zeekr and Volvo MPVs are battery electric vehicles that come with hefty price tags.

[OEM Highlights] Nissan to export EVs developed in China to global markets

Japanese automaker Nissan is considering exporting its existing line-up of internal combustion engine (ICE) vehicles and upcoming new energy vehicles (NEVs) developed and manufactured in China to overseas markets, reports Reuters, citing Masashi Matsuyama, vice president of Nissan Motor and president of Nissan China. Nissan is considering aiming the exports at the same markets as those targeted by Chinese rivals such as BYD, according to Matsuyama. However, he gave no details on the plan. In addition, Nissan has announced plans to establish a joint research center with China's Tsinghua University next year, focusing on research and development of EVs, including charging infrastructure and battery recycling.

Outlook and implications

Japanese carmakers are rethinking their strategies in China amid the rise of Chinese brands and a shift in consumer demand to NEVs, which are slowing the sales of global automakers. China remains an important market for global carmakers for its strong consumption growth, as well as its well-developed automotive supply chain. Increasing numbers of automakers are looking to follow the suit of US electric vehicle (EV) manufacturer Tesla to leverage their Chinese manufacturing plants to supply markets outside China. Tesla, MG and Chery are among a few automakers that have kept their Chinese factories running at high capacity levels on strong exports. MG, for instance, has been supplying overseas markets with Chinese-made vehicles, and the company has seen greater demand in overseas market than in the Chinese market. China is also a major production hub from Chery, which exports more than 40% of its vehicle produced in China to global markets. Among Japanese brands, Nissan has witnessed the most severe sales declines in the past few years. Production of Nissan brand vehicles in China contracted by 33% from 2018 levels to 821,437 units in 2022. In 2023, production of Nissan brand vehicles is expected to drop by 23% year over year to less than 630,000 units.

[OEM Highlights] NIO announces US$2.2B strategic equity investment from CYVN

NIO has announced that it has entered into a share subscription agreement with CYVN Holdings L.L.C through its affiliate CYVN Investments RSC Ltd, an investment vehicle based in Abu Dhabi. Under the agreement, CYVN will invest an aggregate of US$2.2 billion in cash to subscribe for 294,000,000 newly issued Class A ordinary shares of NIO at a per share purchase price of US$7.50. After the completion of the investment, CYVN will beneficially own approximately 20.1% of NIO's total issued and outstanding shares. The closing of the transaction is expected to take place in the final week of December.

Outlook and implications

The US$2.2 billion investment from CYVN will significantly raise the shareholding position of CYVN in NIO from 7% to 20.1%, with it becoming NIO's largest shareholder. The Abu Dhabi-based company in July announced two separate transitions related to its investment in NIO, including acquiring 40,137,614 Class A ordinary shares of NIO held by Tencent at US$350 million and an investment of US$738.5 million through a share subscription plan.

[Technology & Mobility Highlights] HERE’s HD live map powers BMW’s Personal Pilot Level 3 automated vehicle function

HERE Technologies is integrating its HD live map into BMW's new 7-Series, equipped with the Level 3 "BMW Personal Pilot" highly automated vehicle function. The Personal Pilot allows drivers to disengage from driving under specific conditions and will be introduced in Germany in March 2024, according to a company statement. The HD live map, built on HERE's UniMap technology, provides crucial safety-enhancing data for tasks such as localization, prediction, and path planning, enhancing situational awareness by delivering precise road network information in advance. The map data also help define the operational design domain (ODD), indicating when and where the Personal Pilot function can be activated. Nicolai Martin, SVP Driving Experience at BMW Group, said, “The Here HD live map plays a central role for our BMW Personal Pilot Level 3 functionality. It acts as the primary input source to create the car’s driving path, providing critical information about attributes such as geometry, lane positioning and predicting road traffic signs in time. With the BMW Personal Pilot, the car drives itself ‘on-map’, with the car’s sensors acting as an extra layer sharing the safety load with the map.”

Outlook and implications

The BMW Personal Pilot will enable the vehicle to drive itself at a maximum speed of 60 km/h in heavy traffic when activated. The Level 3 system, supported by live HD maps and a suite of sensors including 3D Lidar sensor, will enable drivers to take their hands off the steering wheel and temporarily divert their attention away from the road, as the system is responsible for the task of driving. However, the driver will be alerted via visual and acoustic signals when required to take over. If the driver does not respond as required, the vehicle will be brought to a controlled stop. Meanwhile, the HERE HD live map is a comprehensive map system comprising three layers: the road model with detailed road characteristics, the HD lane model providing precise lane-level information, and the localization layer that classifies roadside elements. Currently, about 180 million cars, including over 40 million in Europe and North America, are equipped with HERE maps, using their data for advanced driver-assistance systems (ADAS) and automated vehicle functions.

[Technology & Mobility Highlights] AAM to display next-generation electric drive systems

The company continues to support a rapidly changing global auto industry by expanding electrification platforms for any type of vehicle

Source: Getty Images Plus/ Vasyl Stetsyuk

American Axle & Manufacturing (AAM) plans to display its industry-leading technologies at the 2024 Consumer Electronics Show, the company said in a press release on Dec 19. Speaking on the company's presence at the show, David C. Dauch, AAM Chairman and Chief Executive Officer said, "CES is the premier event to showcase the full breadth and depth of our innovative solutions and tell our story to a broad range of partners. AAM continues to support a rapidly changing global auto industry by expanding our electrification platforms for any type of vehicle. This includes performance sedans, SUVs, light- and heavy-duty trucks and skateboards, empowering OEMs to create cleaner and more efficient vehicles."

The company has been known as a leading creator of solutions for the transition to electric mobility with a focus on driveline technology. It will showcase many of its technologies and products in its booth, with a focus on:

Electric Drive Unit (EDU) Technology is the best-in-class EDU technology for both hybrid and fully electric powertrains. The Mercedes AMG GT 63 S E Performance sedan will be in the booth, which features AAM's award winning EDU providing a power/torque output of 150 kW/204HP.

e-Beam Technology, the next generation of front and rear e-Beam axles integrating AAM's 3-in-1 e-Drive technology will also be on display. AAM will showcase a uniquely designed battery electric light-duty truck featuring AAM's 3-in-1 high-speed EDUs. The light-duty pickup truck, built entirely by AAM engineers from a production ICE platform, features a single 150kW EDU driving the front wheels and a 425kW e-Beam in the rear.

Furthermore, there will be a full assortment of components including but not limited to rotor shafts, park lock actuators, output shafts and differentials will be on display. These product technologies are designed and manufactured all over the world for various OEM customers, demonstrating AAM's commitment to quality, technology leadership, and operational excellence.

[EV & Energy Efficiency Highlights] Zeekr presents ultra-fast-charging LFP battery

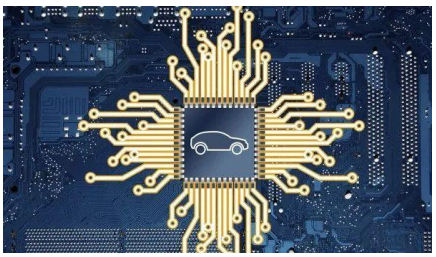
Zeekr, the electric vehicle (EV) brand under Geely Holding Group, presented a self-developed battery with LFP (lithium iron phosphate) chemistry. According to electrive, the new LPF battery for 800-volt EVs will be used for the first time in the Zeekr 007, an electric sedan slated for market launch in China on Dec. 27. According to Zeekr, the LFP battery supports high output charging at up to 500kW, adding a range of 500 km within 15 minutes. In addition, thanks to the use of newly developed materials and a simplified structural design, the volume utilization of the new battery pack will reach 83.7%, according to the company.

Outlook and implications

According to Zeekr, the new fast-charging LPF battery is developed in-house by Zeekr from cell to pack and will be produced at its newly opened manufacturing plant in Chuzhou city. Charging the battery from 10% to 80% of an SoC (State of Charge) takes just 15 minutes at a Zeekr V3 supercharger which boasts peak charging output of up to 800kW. With the Zeekr 007 starting deliveries in January 2024, Zeekr is expanding its charging infrastructure network to allow Zeekr EV owners to benefit from its fast-charging system. As of end of November 2023, Zeekr has deployed 2,261 superchargers in China and plans to expand its fast-charging network to 10,000 superchargers, including the V3 chargers, by end of 2026. Zeekr's rival NIO is also developing its own battery technologies, however with concerns over high operating costs, NIO said it will not take battery manufacturing in-house.

[Supplier Highlights] Asahi Kasei Microdevices to showcase automotive acoustic and charging solutions

Asahi Kasei Microdevices will exhibit an automotive audio demonstration, a millimeter-wave radar system and a Bluetooth low energy transmitter IC for its tire pressure monitoring system



Source: Getty Images/Jae Young Ju

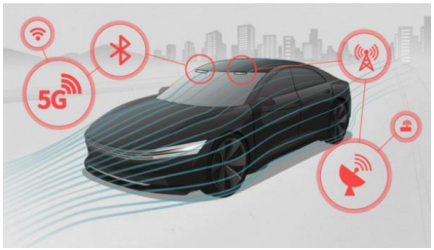
Asahi Kasei Microdevices (AKM) will showcase its latest sensing and mixed-signal solutions for mobility sector at CES 2024 next month, it said in a press release on December 18. The company will exhibit an automotive audio demonstration, a Millimeter-wave radar system, and a Bluetooth Low Energy Transmitter IC for Tire Pressure Monitoring System (TPMS).

Automotive solutions include an acoustic design solution called VELVET SOUND for cars, an immersive audio experience in the company's demo car, combining high-quality audio ICs, software, and tuning techniques. The company's on-board charger form factor reduction solution will reduce the size and weight of On-Board Charger systems in EVs, offering environmental benefits such as vehicle weight reduction and extended driving range. The company's Bluetooth Low Energy transmit-only device can be easily added to TPMS systems, eliminating the need for additional RF radios.

"Asahi Kasei Microdevices is excited to once again participate in CES and present our latest innovations to industry peers and stakeholders. CES will be the perfect opportunity to showcase our team's unwavering dedication and tireless efforts to bring OEMs and consumers diverse, innovative solutions that propose a future lifestyle enhanced by electronics. We look forward to our on-site demonstrations that allow visitors to experience our mobility and health technologies first-hand," said Gregg Rouse, President of AKM Semiconductor.

[Supplier Highlights] LG Electronics to unveil transparent antenna for cars

The antenna is designed in collaboration with Saint-Gobain Sekurit



Source: LG Electronics

LG Electronics has developed a transparent antenna for automobiles, which will be showcased at CES 2024, it said in a press release dated December 18. The antenna is designed in collaboration with Saint-Gobain Sekurit. The film-type antenna is applied directly to vehicle glass, providing seamless design and enhanced telecommunications capabilities. The transparent antenna can be integrated into car windshields or glass sunroofs, allowing for compatibility with various types of glass and vehicle designs. The antenna features over 80 of LG's patented innovations, including transparent antenna patterns and transparent electrode technology.

The partnership with Saint-Gobain Sekurit has enhanced product integrity by developing a method to apply the transparent antenna onto glass. The companies aim to provide an enriched and unique in-vehicle environment, bringing the future of mobility to fruition.

"We're pleased to unveil our smart glass featuring LG's transparent antenna technology. In collaboration with LG, a leader in vehicle component solutions, we are pioneering advancements in vehicle telecommunications. Our common objective aim is to provide an enriched and unique in-vehicle environment, bringing the future of mobility to fruition," said Thibaut Heitz, Innovation and R&D Director of Saint-Gobain Sekurit.

[VIP ASSET] S&P Global Mobility forecasts 88.3M light-vehicle sales worldwide in 2024【1】

S&P Global Mobility perspective	
Implications	S&P Global Mobility forecasts 88.3 million new vehicle sales worldwide next year as the recovery rolls on. With the brakes off the supply chain, the risk to further growth is that demand momentum fades as consumer uncertainty overtakes pent-up demand.
Outlook	The light-vehicle output recovery continues to feed inventory restocking efforts across many regions, as supply chain and demand is further recovering, supported by lingering pent-up consumer demand. Despite indications that EV growth may happen more slowly than once imagined for some markets, the longer-term trajectory expectations are not changed and EV sales and production will continue to grow. S&P Global Mobility remains wary on overall recovery prospects, however, with consumer demand challenged by elevated vehicle pricing alongside challenging credit and lending conditions. As a result, we see global light-vehicle sales growth in 2024, expected at about 2.8% over 2023, at a slower pace than in 2023, expected to be up over 2022 by about 9%.

Global new light-vehicle sales in 2024 will rise by 2.8% year over year, according to the latest forecast by S&P Global Mobility. The forecast outlook incorporates stickier interest rates, improving supply chains, the affordability squeeze, lofty new vehicle prices, patchy consumer confidence, energy price/supply concerns, auto lending risks, and ongoing electrification growing pains.

Getty Images

Colin Couchman, executive director of global light-vehicle forecasting for S&P Global Mobility, said, “2024 is expected to be another year of cagey recovery, with the auto industry moving beyond clear supply-side risks, into a murkier macro-led demand environment. A major concern is how ‘natural’ EV [electric vehicle] demand will fare as governments consider scaling back interventionist policy support – especially for incentives and subsidies, industrial policy, and OEM planning targets."

Full-year 2023 global light-vehicle sales — projected to reach nearly 86.0 million units by S&P Global Mobility — represent a 8.9% increase from 2022 levels, with new auto demand benefiting from ongoing output gains from restocking inventories as supply chains normalize.

Market-by-market forecasts

Europe: Wrapping up 2023, solid Western/Central European market momentum should deliver 14.7 million units (+12.8% year over year), as improved vehicle production levels help delivery times and inventory recovery. For 2024, S&P Global Mobility forecasts 15.1 million units, up by 2.9% year over year — reflecting economic recession risks, tighter credit conditions, easing pent-up demand, still-high car prices, and tapering EV subsidies.

"Key challenges for Europe include the dynamic electrification transition, alongside wait-and-see customers, lurking Chinese OEMs, energy woes, and looming EU elections," Couchman said.

United States: US sales volumes are expected to reach 15.9 million units in 2024, an estimated increase of 2.0% from the projected 2023 level of 15.5 million units. “Just when the auto industry is looking to return to a sense of normalcy from the supply side of the equation, US consumers in the market for new vehicle in 2024 will continue to face affordability issues by way of high interest rates, tight credit conditions and slow-to-recede new vehicle prices,” said Chris Hopson, manager of North American light vehicle sales forecasting for S&P Global Mobility. “An uncertain consumer translates to an expectation of a mildly progressing auto sales environment next year.”

[VIP ASSET] 2024 EV forecast: the supply chain, charging network, and battery materials market【1】

For the electric vehicle sector, 2023 saw waning consumer preferences for EVs, several promising startups fall by the wayside, a decline in battery materials costs, and ambitious OEMs and suppliers from mainland China turning their focus to exports of vehicles as well as components. S&P Global Mobility's forecast for 2024 is one of cautious optimism - with an increase in affordable EVs, reliable vehicle-charging ecosystems, and profitable returns.

Despite the slowdown in consumer sentiment toward EVs, there is nonetheless an ongoing necessity for emissions reductions - with EV regulations and milestones largely intact and looming a year closer. However, slowing consumer desire for existing EVs could boost profitable internal combustion engine (ICE) markets and legacy automaker portfolios, driving consolidation and attracting private equity interest.

Crucial strategic decisions regarding capital expenditures in the electrification space need to be made in the near term. Several OEMs are beyond the point of no return in their shift to EVs, while some suppliers might be questioning the wisdom of going "all in" on EVs quite so soon.

Much of the decision will be based on being able to deliver at scale affordable mass-market EVs with enhanced real-world range. These vehicles need to be integrated into charging ecosystems that are both abundant and reliable. While ensuring profitability and maintaining margins, these efforts are aimed at delivering returns for investors who are eagerly awaiting returns on their capital investments in the light passenger vehicle sector's contribution to the energy transition.

Here is our forecast breakout by various sectors within the electrification space:

Global EV sales

Despite slowing consumer demand for electric vehicles, reports of the demise of EVs have been greatly exaggerated. S&P Global Mobility's 2024 global sales forecast projects battery electric passenger vehicles to be on track to post 13.3 million units worldwide for 2024 - accounting for an estimated 16.2% of global passenger vehicle sales. For reference, 2023 posted an estimated 9.6 million BEVs, for 12% market share.

Major markets are forecast for most of this volume, though smaller markets will also see modest increases. Forecasted BEV share by region is as follows:

BEV Share Estimates, 2024	BEV Share Estimate in Region	YOY Change (2024 v. 2023)
Europe (Central/Western)	22.2%	+41%
US	13.2%	+66.4%
China	28.6%	+28%
India	4.1%	+39.0%
Global	16.2%	+39.5%

Source: S&P Global Mobility, BEV share estimates, December 2023.

The EV supply chain

OEMs are shifting toward in-house development of electrified propulsion components, and the landscape of outsourced programs for components such as integrated e-Axles is exceptionally competitive.

Mainland China's control over the electric motor market and its required resources has led to growing technical and political efforts to diversify away from permanent magnet (PM) usage. Primary platforms, specifically secondary e-Axle applications in all-wheel drive, are transitioning away from PM.

Increased OEM-supplier partnerships signal attempts to control the electric motor market against mainland China's dominance. E-fuels' "free pass" in Europe offers an opportunity amid declining EV sentiment, prompting a shift of focus to research and development (R&D) and supply chain scaling.

Additionally, the increase in production volumes is expected to encourage more partnerships, alliances and joint ventures. This collaboration allows OEMs to have greater control over a critical propulsion value chain, which can present technical challenges and potential supply chain constraints.

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