Automotive Industry Weekly Digest

13May– 17May 2024

S&P Global
Mobility

Contents

[Forecast & Analysis Highlights] Automakers' passenger NEV wholesale volumes grow 33% YOY in China during April

Passenger new-energy vehicle (NEV) sales reached 800,000 units in April, marking a year-over-year increase of 33%, according to preliminary data released by the China Passenger Car Association (CPCA). Compared with March, China's sales volumes of passenger NEVs declined by 2% in April. The NEV sales consist of wholesale volumes of battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and extended-range electric vehicles. The association said that the gap between the market leaders and smaller companies has shown signs of widening in recent months in the NEV market. Manufacturers with sales of 10,000 units or more accounted for 85% of the market in March, the most recent month for which such data is available.

Outlook and implications

According to the CPCA, NEV wholesale volumes in April were led by BYD (312,048 units), Tesla China (62,167 units), Changan Auto (51,682 units), Geely Auto (51,428 units), and SAIC-General Motors-Wuling (35,124 units). Chery Auto (29,761 units), GAC AION (28,113 units), Li Auto (25,787 units), Seres (25,496 units) and Great Wall Motor (22,376 units) claimed the sixth to tenth positions in the NEV manufacturers' rankings in April. Among the top-sellers in April, BYD posted strong growth of 49% year over year in sales volumes. The Chinese automaker's sales were helped by its expanding product portfolio and price cuts on 2024 model-year vehicles. Tesla's sales contracted by 18% amid intensifying competition from Chinese brands. GAC AION, the NEV subsidiary of GAC Motor, also saw its sales plunge in April, dropping by 32% year over year, with sales of its entry-level AION S and Y slowing down in recent months.

[Forecast & Analysis Highlights] Chinese NEV startups NIO, Xpeng, Zeekr and Li Auto announce delivery results for April

S&P Global Mobility perspective	
Implications	Chinese new-energy vehicle (NEV) startup manufacturers NIO, Li Auto, Xpeng and Zeekr have announced their delivery results for April.
Outlook	The four Chinese startup manufacturers all posted higher sales in April compared with the same month of 2023. This growth was driven by the addition of new models, or model variants, as well as price cuts.

Li Auto

Chinese NEV startup manufacturers NIO, Li Auto, Xpeng and Zeekr have announced their delivery results for April, which show mixed performances amid intensifying competition and price cuts.

Zeekr, the premium electric vehicle (EV) brand of Geely Holding Group, delivered 16,089 vehicles in April, a year-over-year increase of 99%. The April result, which marked a new delivery record for Zeekr, took the company's year-to-date deliveries to 49,148 units, a surge of 111% compared with the corresponding period of 2023. Zeekr has a lineup of four battery electric vehicles (BEVs) on sale in China: the Zeekr 001, 007, X and 009. In April, the company introduced an entry-level rear-wheel-drive (RWD) variant of the 007 without the lidar sensor, lowering the starting price of the midsize sedan by 20,000 yuan (US$2,762) to 209,900 yuan. Despite being an entry-level model in the Zeekr family, the 007 RWD version still features a 310-kWh electric motor, enabling the model to accelerate from 0 to 100 km/h in 5.6 seconds. The model's 75-kWh battery also offers a decent driving range of up to 668 km under the China Light-Vehicle Test Cycle (CLTC).

NIO, which is also positioned in the premium EV market, delivered 15,620 vehicles in April, representing a year-over-year increase of 134.6%. The deliveries consisted of 8,817 electric sport utility vehicles (SUVs) and 6,803 electric sedans. For the year to date, NIO's deliveries have increased by 21.0% year over year to 45,673 units. In

April, NIO launched the mid-cycle version of the ET7 sedan. Deliveries of the new model, priced from 428,000 yuan, will begin on April 30.

Xpeng delivered 9,393 EVs in April, a 33.0% increase year over year. Xpeng's G9 electric multipurpose vehicle (MPV) continued to lead sales in mainland China's battery electric MPV market; the model's deliveries reached 1,959 units in April. In the year to date, Xpeng's deliveries have totaled 31,214 units, up 23.0% year over year. Xpeng is set to announce its new EV brand, MONA (Made of New AI), in June. The first model from this new brand will feature Xpeng's latest AI-powered smart car technologies to appeal to mass-market car buyers.

Li Auto, which primarily focuses on range-extended electric vehicles (REEVs), posted flat delivery results for April. It delivered a total of 25,787 vehicles during the month, up 0.4% year over year. Li Auto 's cumulative deliveries have now reached 106,187 units in the year to date. The company expanded its L-series SUV lineup with the L6 in April. With a starting price of 249,800 yuan, the new model is a more accessible offering for SUV buyers looking for a five-seat model. Li Auto claims that orders for the L6 have already surpassed 20,000 in the first 12 days since its sales launch on April 18.

Outlook and implications

The four Chinese startup manufacturers all posted higher sales in April compared with the same month of 2023. This growth was driven by the addition of new models, or model variants, as well as price cuts. Li Auto, for instance, is seeking to lure consumers with generous time-limited offers for the L6, which include a one-off price reduction of 5,000 yuan, a free upgrade to paid paint colors or larger wheel rim options and a complimentary wallbox home charger if customers place their order by May 5.

The expansion of product lineups with lower-priced models is also a tactic widely adopted by Chinese automakers to cope with slowing EV sales. The first EV from Xpeng's new MONA brand will be priced below 200,000 yuan. Its startup peer NIO will also launch its sub-brand, ONVO, in mid-May to compete with Tesla in the 200,000–300,000-yuan price segment. Both the Tesla Model 3 and Model Y are priced below the 300,000-yuan mark, which is a price point that separates mass-market models from premium-segment models. Automakers are faced with the challenge of effectively addressing demand from premium and luxury car buyers in the EV era when most EVs boast fast acceleration times and well-equipped cabins as their key selling points. The greater availability of mass-market-priced performance-oriented BEVs from Chinese brands also makes it hard for German premium brands including BMW and Mercedes-Benz to command a price premium in the Chinese BEV market. Data from the China Passenger Car Association (CPCA) suggests that BEVs priced between 300,000 yuan and 400,000 yuan accounted for only 2% of NEV sales, which primarily consist of BEVs and plug-in hybrid

electric vehicles (PHEVs), in the Chinese market in the first quarter of 2024. This compares with a 15% sales share for BEVs with a price tag of 200,000–300,000 yuan in the same period.

[OEM Highlights] French government, automotive industry commit to substantial BEV market increase by 2027, BYD invited to invest locally

The French government and automotive industry have signed a strategic agreement that will lift battery-electric light-vehicle sales in the country substantially by 2027. Reuters reports that in the wake of French President Emmanuel Macron setting a goal for automakers in the country to produce 2 million hybrid and battery-electric vehicles (BEVs) by the end of the decade, an interim target for sales has been set. According to a briefing by France’ s Ministry of the Economy, Finance and Industrial and Digital Sovereignty, the automotive industry in the country has agreed to 800,000 battery-electric passenger sales by 2027, up from 200,000 units in 2022. Furthermore, its automakers will lift battery-electric light commercial vehicle (LCV) sales to over 100,000 units per annum (upa) by 2027, from only 16,500 units in 2022. The agreement also calls for 400,000 charging points by 2030 and 25,000 quick charging points by the end of 2027 along major travel routes and in large cities. French Minister for the Economy, Finance and Industrial and Digital Sovereignty Bruno Le Maire was quoted by Reuters as telling a news conference, “The choice that has to be made is whether we want to be a country of [car] producers or a country of consumers. We have made the choice to be a big electric vehicle producer nation.” Separately, Le Maire was also quoted by Reuters as saying that BYD and other Chinese automakers would be welcome to invest in manufacturing products in France. He was quoted as saying during a meeting with representatives of the automotive sector, “France welcomes all industrial projects. BYD and the Chinese auto industry are very welcome in France.”

Outlook and implications

The agreement that has been signed between the French government and the automotive sector in France seems intended to maintain the momentum behind investments that have already been made to build BEVs locally. Renault has been big driver thanks to its ElectriCity group of facilities that has seen the Douai site converted to solely building BEVs, while Maubeuge assembles the battery-electric Renault Kangoo alongside sibling products for Mercedes and Nissan. Furthermore, the Sandouville and Batilly facilities will both build high

volumes of battery-electric LCVs in the future — the former via the new Flexis joint venture (JV). As for Stellantis, there are already battery-electric variants of its current passenger car and LCV range built here currently, but this will expand with the next-generation Peugeot 3008 and 5008 as well as the next-generation Citroën C5 Aircross in the future. S&P Global Mobility's current forecast shows that the target for battery-electric light-vehicle sales may not be a huge stretch for the industry. Mobility forecasts that battery-electric passenger car registrations will reach 742,100 units in 2027, less than 60,000 units behind its target, while battery-electric LCV registrations are expected to overshoot the goal to hit 152,200 units in 2027. The production goal is set to be more of a stretch given that Mobility does not expect light-vehicle production in the country to reach 2 million units by 2030, and instead it is forecast to hit 1.56 million units. Of this, we forecast that almost 1.1 million units will be battery-electric.

[OEM Highlights] NIO to source batteries from BYD to power mass-market-priced EVs

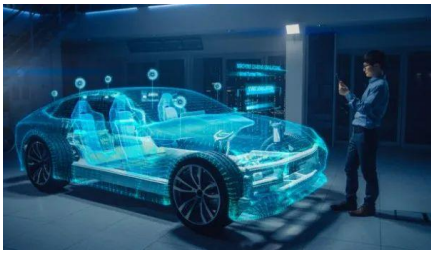
Chinese electric vehicle (EV) maker NIO has struck a deal with BYD to source batteries for its new mass-market-priced EV brand's vehicles aimed to compete with Tesla EVs, according to a Reuters report, citing three sources with direct knowledge of the matter. The deal will see BYD joining CATL, NIO's largest battery supplier, to supply a smaller battery pack for one version of the new Onvo brand's EV, two of the sources told Reuters. Another Chinese battery maker, CALB, already a NIO supplier, will supply the brand with a larger battery pack of 85 kilowatt-hours (kWh). When contacted by Reuters, NIO said the information was "inaccurate" but did not elaborate.

Outlook and implications

NIO is expected to launch its mass-market EV brand, Onvo, in May. The new brand is due to begin deliveries of its first model, the L60, in the second half of 2024. Previous media reports suggest the L60 is likely to have two battery options, a 60-kWh standard-range battery and a 90-kWh long-range battery. The smaller battery, which has less capacity than the entry-level 75-kWh battery used in NIO’ s existing products, will use lithium iron phosphate (LFP) chemistry. However, none of the specifications of the batteries has been confirmed by NIO. Given the L60 is positioned by NIO as a high-volume model that is aimed as a competitor to the Tesla Model Y, the model is expected to be a well-equipped product with a high level of technology and cabin comfort features. In this context, sourcing a smaller-capacity LFP battery from BYD will help NIO to bring down the cost of the L60, although the trade-off is the driving range of the entry-level variant of the L60 may fall short of customer expectations. BYD has battery supply deals with a number of automakers. Its customer base for LFP batteries includes Xiaomi, FAW Group and Toyota.

[OEM Highlights] Geely collaborates with Foretellix to accelerate autonomous vehicle development

Geely has collaborated with verification expert Foretellix to accelerate the safe large-scale deployment of autonomous vehicles (AVs), according to a company statement. As part of this partnership, Foretellix's Foretify platform will be integrated with Geely's development and verification & validation flows, as well as its advanced simulator. Geely will leverage the platform to automatically analyze driving logs from their test vehicles and replay multiple variations in virtual simulation, thereby optimizing the utilization of physical drives. The goal of this partnership is to reduce Geely ‘s research and development (R&D) costs while enhancing the development efficiency of its AV system. ChuanHai Li, the vice president of Geely Research and Development, said, "The Foretellix solution will expedite and enhance Geely's development and validation process. It will enable us to ensure proper ODD [Operational Design Domain] coverage, quickly identify unknown corner cases, and resolve them more efficiently. Our partnership with Forerellix will be crucial in Geely's quest to overcome safety challenges and commercialize AVs faster."



Outlook and implications

Foretellix has developed a software platform that uses big data analytics and artificial intelligence (AI) technologies to test the safety of AV systems. Foretellix's Foretify platform will enable various functionalities such as efficient synthetic data generation for AI training, automated scenario-based virtual testing, large-scale failure triage, performance and KPI assessment, and measurement of Operational Design Domain (ODD) coverage. The company's safety-driven verification and validation (SDV) platform, which can test millions of driving scenarios, is used by Volvo Group, Torc (a Daimler Truck subsidiary) and many others. Last month, Foretellix partnered with NVIDIA to automate the process of AV development.

[Technology & Mobility Highlights] Red Hat, Qualcomm team up for software-defined vehicle platform

The collaboration will accelerate intelligent, connected vehicles through open-source and software-defined solutions

Source: Getty Images/ alphaspirit

Red Hat, a leading provider of open-source solutions, has collaborated with Qualcomm Technologies to demonstrate a pre-integrated platform for software-defined vehicles (SDVs). The platform, powered by Qualcomm Technologies' Snapdragon Ride Flex System-on-Chip (SoC) and the Red Hat In-Vehicle Operating System, aims to accelerate the development and deployment of microservices-based advanced driver assistance system (ADAS) applications.

This collaboration between Red Hat and Qualcomm Technologies will enable automakers to develop features in the cloud and push those container-native workloads and applications to a test facility or vehicle, streamlining the development process and enabling faster adaptation to evolving consumer demands.

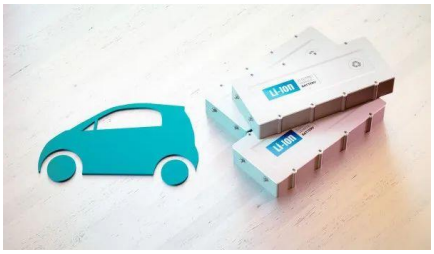
Francis Chow, vice president and general manager of In-Vehicle Operating System and Edge at Red Hat, said, "By collaborating with Qualcomm Technologies, we are empowering automakers to redefine vehicle capabilities through open source and software-defined solutions. This new approach will enable us to work together to accelerate the industry's journey towards more intelligent, connected vehicles, driving innovation and agility while delivering unparalleled experiences to drivers worldwide."

Bill Pinnell, vice president of product management at Qualcomm Technologies Inc., said, "With the adoption of open source, SDVs, and cloud technologies, the automotive industry can drive continuous improvements, adapt to changing customer demands, and deliver innovative solutions that can enhance the driving experience.

We remain committed to supporting automakers on this transformative journey and our work with Red Hat is a testament to our shared vision of a future where SDVs redefine mobility."

[EV & Energy Efficiency Highlights] CATL in talks with several carmakers on technology licensing partnerships

Under the LRS model, CATL will provide technology licensing as well as plant construction and operation services



Source: Getty Images/ Petmal

Mainland China’s largest battery-maker Contemporary Amperex Technology Co. Ltd. (CATL) is in talks with about a dozen global carmakers on forging technology licensing partnerships, a news report published by CnEVPost said May 5.

CATL is negotiating with about a dozen global original equipment manufacturers for a license royalty service (LRS) model of cooperation, a CATL spokesperson told the media publication in an interview.

Under the LRS model, CATL will provide technology licensing as well as plant construction and operation services to help global carmakers get up-to-speed with battery production capabilities.

According to the company, the LRS model can be a win-win for all parties as partnering automakers can gain access to CATL’s battery technology while learning how to produce electric vehicle batteries. For CATL, the LRS model can add a new revenue model to its earnings along with leveraging expansion globally.

Citing the company executive, the news report further said that CATL's technology can even be licensed to its battery rivals.

CATL currently supplies EV batteries to Tesla and Nio, among several other leading automakers worldwide.

The battery-maker had an installed battery capacity of 259.7 GWh in 2023. It continues to command almost 37% of the global battery market.

The LRS model will help CATL navigate the complex regulatory requirements set by the US government, which is looking to onshore EVs and the EV battery supply chain in North America in order to reduce its dependency on foreign imports. The mandate, which is primarily aimed at reducing the dependency on EV battery and battery material companies based in mainland China, was introduced in the form of the US Inflation Reduction Act in 2022.

Reportedly, CATL has been in talking terms with US legacy automakers, mainly Ford Motor Co. and General Motors, on its LRS model.

[EV & Energy Efficiency Highlights] Electrify America plans to expand EV charging network

Electrify America, a leading North American DC charge-point operator (CPO), plans to increase its network to 5,000 DC fast chargers across the region by the end of 2024, according to a company press release. The expansion will involve setting up larger electric vehicle (EV) charging stations to cater for the growing demand for public DC fast charging, as well as enhancing the Plug&Charge payment technology to boost EV adoption.

Outlook and implications

The latest announcement coincided with the six-year anniversary of the installation of Electrify America's first charging station in the United States, a venture backed by Volkswagen. In 2023, the company reported significant growth, with over 10 million customer charging sessions, a figure that doubled the 2022 sessions, according to verified data. Electrify America estimates that this surge in EV charging sessions would have resulted in over 1.3 billion electric miles driven, thereby averting the use of more than 52 million gallons of gasoline. The CPO continued its expansion in 2023, extending its EV charging network to over 900 stations across 47 US states, the District of Columbia, and six provinces in Canada. Key growth drivers for Electrify America include expansion into Hawaii and North Dakota in the US, increasing the total number of EV chargers in the network to over 4,000, and upgrading over 680 underperforming legacy chargers to Electrify America's next-generation charger, highlights the press release.

[Supplier Highlights] Infineon supplies range of products for Xiaomi’ s new SU7 smart electric vehicle

Infineon supplies SiC power modules to Xiaomi EV

Source: Getty Images Plus/ Natee Meepian

In a press release announcement on May 6, Infineon Technologies said that it will provide the silicon carbide (SiC) power modules HybridPACK Drive G2 CoolSiC and bare die products to Xiaomi EV for its recently announced SU7 until 2027. Infineon’ s CoolSiC-based power modules allow for higher operating temperatures. Traction inverters based on the technology can, for example, further increase electric vehicle range.

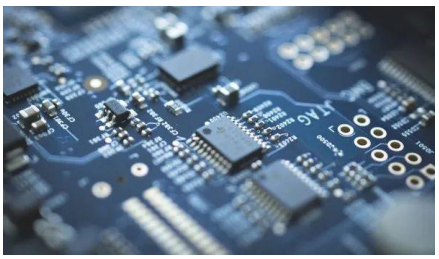
Infineon provides two HybridPACK Drive G2 CoolSiC 1,200-V modules for the Xiaomi SU7 Max. In addition, Infineon supplies Xiaomi EV with a broad range of products per car, including, for example, EiceDRIVER gate drivers and more than 10 microcontrollers in various applications. The two companies also agreed to further cooperate on SiC automotive applications to fully utilize the benefits of Infineon’ s SiC portfolio.

Zhenyu Huang, vice president of Xiaomi EV and general manager of the Supply Chain Department, said, “Infineon is an important partner with leading technologies and resilient manufacturing capabilities in power semiconductors as well as a highly scalable microcontroller product portfolio. The cooperation between the two companies will not only help stabilize the supply of silicon carbide for Xiaomi EV, but also help us build a high-performance, safe and reliable luxury car with leading-edge features for our customers.”

Peter Schiefer, president of Infineon’ s Automotive division, said, “We are very pleased to work with dynamic players such as Xiaomi EV and provide them with silicon carbide products designed to enhance the performance of electric cars even further. As the leading partner to the automotive industry, we are well positioned with our broad product portfolio, system understanding and multi-site manufacturing base to shape the mobility of the future.”

[Supplier Highlights] STMicroelectronics introduces inertial modules for automotive application

The modules deliver accuracy in vehicle navigation, body electronics and automated driving systems



Source: Getty Images/Wiyada Arunwaikit

According to a press release on May 6, STMicroelectronics has introduced the ASM330LHBG1 automotive 3-axis accelerometer and 3-axis gyroscope module with a safety-software library.

The ASM330LHBG1 is AEC-Q100 Grade-1 qualified for the ambient operating temperature range -40°C to 125°C, allowing use such as next to the engine compartment and in areas exposed to sunlight. The modules deliver accuracy for systems such as vehicle navigation, body electronics, in driver support and highly automated driving systems. Typical uses include support for precise positioning in navigation systems, digitally stabilizing cameras, Lidars and radars, and in active suspension, door modules, vehicle-to-everything (V2X) applications, adaptive lighting, and motion-activated functions.

Equipped with ST's machine-learning core (MLC) and programmable finite state machine (FSM), the ASM330LHBG1 can run AI algorithms in the sensor to provide smart functionality at very low power. This inertial measurement unit (IMU) is pin-to-pin compatible and shares the same configuration of registers as ST's automotive IMUs with a lower operating temperature range, permitting a seamless upgrade.

In addition, the modules contain embedded temperature compensation, which ensures stability over wide-ranging operating conditions, and provide a six-channel synchronized output to enhance the accuracy of dead-reckoning algorithms. There are also Inter-Integrated Circuit (I^2C), MIPI I3C and SPI serial interfaces, smart programmable interrupts, and a 3-KB FIFO that eases managing sensor data to minimize load on the host processor.

[VIP ASSET] Software-defined vehicles - An identity crisis for the industry?

Throughout the past hundred years or so, vehicles have largely been defined by their brand and all the engineering effort that is wrapped up in creating that equity. Software-defined vehicles represent a sea-change in vehicle development processes and challenge the industry's core competencies and hard fought brand identities.

We are entering an era where vehicles will be defined by their software. Think of that statement. In isolation, it says a lot. Throughout the past hundred years or so, vehicles have largely been defined by their brand. Alfred Sloan built a whole company on this principle. Today, Carlos Tavares, with Stellantis, has built a house of brands that appeal to different parts of the market with varying degrees of overlap. The brand of car we drove defined who we were as people. Driving a Volvo defined one as a "steady Eddie." Brands even defined whole professions. Saab? Ergo, must be a dentist.

In the era of the software-defined vehicle (SDV) all that history and car culture is in danger of being jettisoned. We have been here before and only recently. At one juncture electric vehicles threatened homogeneity and erosion of brand identity. SDVs will mean a vehicle is only as good as its software. There is a danger that the understanding of physics and engineering that had served a brand's DNA for decades will count for less. The components and systems that make a vehicle steer, stop and start could become off-the-shelf commodities in the new world of SDVs. Already, at CES 2024 we saw signs that mechanical components are being decontented in the SDV era, with the thought that software will be able to mask any intrinsic shortcomings of lower-functioning components.

The industry will argue that the SDV will allow vehicles to be anything that the customer wants to experience. Want your vehicle set up for a track day? Want to maximize your vehicle's energy efficiency? Want to upgrade your vehicle's infotainment or connectivity? "Certainly, sir or madam. Just make a one-time payment or

subscribe here." However, to deliver an experience in keeping with a brand it could mean that differentiating hardware is retained, watering down the benefits of SDVs. Otherwise, the experience will only be as good as the software; will the software be able to provide a facsimile of a brand's historic equity?

And herein lies the problem. Software moving center stage in the world of automotive is inherently risky. It lies outside the sector's core competencies. It will define companies in the future, and it is doing so now. Think of the Fisker Ocean and the software problems that are detracting from an otherwise sound vehicle. Remember the issues with Volkswagen's first ID vehicles? These issues and many more will escalate in the future. For the US market, data compiled by the National Highway Traffic Safety Administration shows that software-related recalls have increased from a 10% share in 2019 to 15% in 2023.

The industry's brand equity equations are being redefined and under threat. And that threatens the established order. SDVs' advantages are often drawn alongside those of the smartphone. But there are other, more ominous, portents in the mobile phone world. Failing at SDVs could leave some on the side of Nokia, while those who succeed become the next Apple.

Look carefully and the signs are already there. Much of the change in the Chinese market in the past few years (international brands that are not Tesla nor premium have seen market share slide) has been ascribed to Chinese brands' EV presence and the head start gifted to them by benevolent government policies. They are part of the market change, but there is more to it.

The Chinese market is still relatively young, and its consumers are full of digital natives. Personal transportation's ability to get from A to B becomes the commodity, not the experience it once was. The experience is defined by what's going on in the vehicle. Here, Chinese brands have run with the SDV idea first developed and productionized by Tesla. Like Tesla, they have none of the legacy vehicle architectures or systems and processes to maintain what the old guard juggles with.

Please add WeChat ID (SPGlobalMobility), join the VIP group for the full article

###

Email

AskMobility@spglobal.com

Local Automotive Site

中国（中文）：SPGlobal.com/China_Automotive

日本（日文）：SPGlobal.com/Japan_Automotive

韩国（韩文）：SPGlobal.com/Korea_Automotive

S&P Global Mobility