



# Automotive Industry Weekly Digest

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## [OEM Highlight] Xpeng adds 111 supercharging stations in China during October

Chinese electric vehicle (EV) maker Xpeng has opened 111 new supercharging stations in China in October, bringing the total number of its supercharging station to 550. As of the end of October, Xpeng's supercharging network covers 158 cities in China. Xpeng also operates 129 destination charging facilities in China, of which 21 were opened in October.



### Outlook and implications

The rapid expansion of Xpeng's supercharging network will help the EV startup to attract more customers in China, especially in second- and third-tier cities where EV adoption is hindered by underdeveloped public charging infrastructure. At its Tech Day event held on 24 October, Xpeng unveiled its 480-kW high-voltage supercharging technology, a technology it aims to roll out to its charging network in the near-term. If it becomes available to customers on a large scale, Xpeng's 480-kW supercharging technology will shorten the charging time of its EVs significantly to compete with Tesla. Tesla currently makes its V3 superchargers at its manufacturing plant in Shanghai. The V3 supercharger supports a charging output of up to 250 kW, which Tesla says has the capacity ultimately to cut the amount of time customers spend charging by an average of 50%.

## [OEM Highlight] Changan launches AVATR EV brand

### IHS Markit perspective

**Implications** Chinese automaker Chongqing Changan Automobile (Changan) introduced its electric vehicle (EV) brand AVATR and unveiled the AVATR 11, the first model from AVATR.

**Outlook** The new brand, targeting the premium EV market, aims to begin deliveries of its first model, the AVATR 11, in the third quarter of 2022.

Chinese automaker Chongqing Changan Automobile (Changan) introduced its premium electric vehicle (EV) brand AVATR and unveiled the AVATR 11, the first model from AVATR, yesterday (15 November). According to Changan, the official launch of this new model is scheduled in the second quarter of 2022. Consequently, detailed specifications of the new model are to be announced at a later date. However, the automaker did share some key performance metrics of the AVATR 11. The model, a mid-size sport utility vehicle (SUV), is designed by Nader Faghizadeh, a former BMW designer. Nader was involved in the design of several BMW models, including the BMW 6 Series Gran Coupe and the M6 Gran Coupe. This helps to explain the AVATR 11's coupé-



like styling, although its high-ground clearance gives the model the stance of a typical SUV. The company says the new model will have a range of 700 kilometres and will be able to accelerate from 0 to 100 km per hour in less than 4 seconds. The model will be based on a 200-kW, high-voltage architecture to enable fast charging and it will have 400TOPS computing power, says Changan.



According to Tan Ben Hong, CEO of AVATR, the AVATR 11 is based on the CHN platform, an EV architecture jointly developed by Changan, Huawei, and Contemporary Amperex Technology Ltd (CATL). As one of the main investors in AVATR, CATL, a leading battery-maker in the market, is to provide its latest battery solutions for the AVATR 11, says Changan. The model will also feature Huawei's Harmony OS system, an operating system that delivers a cross-platform experience to users, the company says. According to AVATR CEO Tan Ben Hong, deliveries of the AVATR 11 are set to begin in the third quarter of 2022. The body-in-white version has already rolled off Changan's plant in Chongqing. The company plans to follow the AVATR 11 with four new models by 2026. To accommodate production of the new models, Changan plans to invest in dedicated production lines at its Chongqing manufacturing site. The planned production capacity is 350,000 units per annum.

## Outlook and implications

Changan has finally launched its premium EV brand and provided a look at the first model under this new brand, the AVATR 11. The automaker has lagged behind its counterparts, such as GAC Motor and Geely Auto, in fleshing out its EV strategy. GAC's AION brand has already rolled out four models in the market and ZEEKR, the EV brand launched by Geely, has just begun deliveries of its first model. The AVATR brand is likely to have dedicated showrooms, a common practice adopted for new EV brands. However, the new brand is likely to share resources with Changan in terms of sales and distribution. The AVATR 11 will face fierce competition when it enters the market. The premium EV space is becoming increasingly crowded as automakers speed up EV launches. NIO, for instance, plans to roll out two new SUVs in 2022 based on its new-generation platform, while Xpeng is expected to begin production of a new, mid-size SUV next year.

The announcement by Changan indicates that the AVATR brand has gained support from several investors. In its first round of fund raising, AVATR has secured an investment of CNY2.42 billion (USD379 million) from a group of investors. The automaker said there is a possibility of the brand going public in the future. For this, AVATR will have to show to investors that it will serve as a new growth point for Changan and its models will be able to compete with models launched by Geely's ZEEKR brand, as well as EV startups NIO and Xpeng Motors. As a key partner, Huawei will bring its latest smart cabin technologies to the AVATR 11. However, models currently featuring Huawei's technologies, such as the Arcfox Alpha S, seem to come with a high price tag, which makes them less appealing compared to models launched by startup EV brands.



## [AutoMobility LA 2021 Highlights] AutoMobility LA 2021: Toyota, Nissan announce US-specification EVs

### IHS Markit perspective

**Implications** Toyota has revealed the US-specification production version of its new bZ4X electric sport utility vehicle, while Nissan has revealed the US-specification Ariya electric vehicle (EV), both at events around the 2021 Los Angeles International Auto Show and AutoMobility LA expo.

**Outlook** For both Nissan and Toyota, these vehicles provide the opportunity for the brands to regain relevance in the EV space. Although Nissan has offered two generations of the Leaf EV, the current generation remains a five-door hatchback and, of late, tends to be overshadowed by other market entries. Toyota offered a RAV4 EV briefly but has not had a notable battery electric vehicle offering in the US market. Both vehicles follow the compact crossover utility vehicle (CUV) formula and offer similar levels of safety and connectivity technology.

Toyota has revealed the US-specification production version of its new bZ4X electric vehicle (EV), while Nissan has revealed the US-specification Ariya EV, both at events this week around the 2021 Los Angeles International Auto Show (19–28 November) and AutoMobility LA expo (17–18 November) in California, United States.

### Nissan Ariya

Nissan's next EV is due to arrive in the United States in 2022 for the 2023 model year. As well as revealing the production version, Nissan has opened reservations for the new Ariya EV, a compact crossover utility vehicle (CUV), and has announced the US pricing. The Ariya comes to the market with an 87-kilowatt-hour (kWh) lithium-ion battery and a 238-horsepower motor in the front-wheel-drive (FWD) models. The e4ORCE dual motor in the Platinum+ e-4ORCE all-wheel-drive (AWD) trim level develops 389 horsepower and 442 pound-feet of peak torque. However, the extra power reduces the range down to an estimated 265 miles. In the FWD, single-motor version, the base level (the Ariya Venture+ FWD, priced at USD45,950) will have an estimated range of 300 miles. The Ariya Evolve+ FWD and Ariya Premiere FWD (priced at USD48,950 and USD53,450, respectively) will have estimated ranges of 285 miles.



2023 Nissan Ariya.

Picture courtesy of Nissan North America



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*2023 Nissan Ariya.**Picture courtesy of Nissan North America**2023 Nissan Ariya.**Picture courtesy of Nissan North America*

The feature content of the Ariya includes the base vehicle having as standard ProPilot Assist with Navi-link advanced driver-assistance technology with 12.3-inch display and 19-inch aluminum alloy wheels with all-season tyres. The Ariya's interior features large screens and an open layout. The standard car comes with cloth seats, as well as dual-zone climate control, front and rear parking sensors, LED lighting, Nissan connected navigation and over-the-air firmware update capability, among other features. The Evolve+ FWD version has a power panoramic moonroof, power liftgate, an intelligent around-view monitor (compared with a basic rear-view monitor in the standard car), wireless charging and a rear-view camera mirror. The Premier FWD version has ProPilot Assist 2.0 and ProPilot Park. The Platinum+ e4ORCE AWD version has active sound control, leather seating surfaces, hands-free liftgate, cooled seats, and Bose premium audio, as well as a 20-inch wheel option. Nissan states that further versions of the Ariya will join the model range, with the details to come.

Nissan opened reservations of the Ariya for US buyers on 16 November, with early customers being eligible for a two-year free EVgo membership and USD500 charging credits when the reservation turns into a purchase. This specifically applies to the first 10,000 reservations made before 31 January 2022. In terms of corporate commitment, Nissan has said that it expects 40% of its US vehicle sales be EVs by 2030 and that more models are to be electrified.

## **Toyota bZ4X**

Toyota chose this week to unveil the US-market production version of its all-new bZ4X electric CUV, also the next step in the company's EV evolution. However, Toyota did not reveal the pricing or detailed specifications. The bZ4X is in the compact segment, although the flat floor of its dedicated EV platform enables increased interior room, particularly for second-row passengers. The bZ4X goes on sale in the US in mid-2022 and Toyota provided only initial data when revealing the model. The US specification does not differ significantly from the Japanese-market specification released last month. The new EV weighs 4,232 pounds (lb) in FWD form and 4,420 lb in AWD form – this compares to 3,370 lb for the lightest version of the Toyota RAV4 and 3,655 lb for the heaviest version of the RAV4. The EV range of the bZ4X is estimated at 250 miles using the US Environmental Protection





Agency (EPA) testing cycle for the FWD version. The estimated range of the AWD version is to be announced later. Toyota has designed the bZ4X to retain 90% of its battery capacity after 10 years in service, providing reassurance on the length of battery life. The overall length of the US-spec model is 184.6 inches and the wheelbase is 112.2 inches. The FWD bZ4X has a 150-kW motor at the front wheels, while the AWD version has two 80-kW motors, one at the front and one at the rear. The lithium-ion battery system of the FWD version has a total power of 71.4 kWh, while the AWD version has total battery power of 72.8 kWh. The styling of the bZ4X is edgy, with black accents over all four wheel arches, mimicking off-road wheel arches. Toyota says the design is aerodynamic, with a sleek silhouette. The interior has a unique instrument panel with a small multi-information display placed higher than usual and not covered with a traditional cowl, which Toyota says improves the driver's sight lines. Toyota states that soundproofing on glass and other wind-noise reduction features contribute to a quieter cabin. Full details of the model are not yet available.



2023 Toyota bZ4X.

Picture by Stephanie Brinley



2023 Toyota bZ4X.

Picture by Stephanie Brinley



2023 Toyota bZ4X.

Picture courtesy of Toyota

The 'bZ' part of the new EVs name stands for 'beyond zero' and is a new sub-brand that Toyota plans to use for select EVs in future; the company plans seven new bZ products by 2025. However, in the US market, the meaning of the nomenclature may not be grasped readily. The bZ4X is on an EV platform that Toyota is calling e-TNGA, which has a battery pack flat under the floor. The battery cross-framing structure, Toyota says, contributes



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to vehicle rigidity and is designed to withstand collision from any angle. The battery cells use a non-conductive coolant running through separate flow channels to maintain optimal battery temperature. As EVs need to counter the extra weight of a battery versus an engine, the bZ4X has a lightweight body structure of high-tensile steel. In addition, Toyota says it has used several systems designed to ensure battery safety in operation and to prevent and detect signs of battery failure. Toyota says these systems include a production process that helps eliminate contamination; redundant monitoring of the battery voltage, current, and temperature to detect signs of abnormal heating and to help prevent overheating; a high-resistance coolant system to help prevent fire from short circuits even if there is a coolant leak; and integration of the battery pack within the floor of the body frame. To address concerns about EV performance in colder weather, the bZ4X has a heat-pump system for heating and air conditioning, seat and steering wheel heaters, and a front-seat radiant foot-and-leg heater.

The bZ4X has over-the-air software update capability, cloud-based map information (with the initial trial period or a subsequent subscription) for real-time traffic data and parking space availability, digital key (including the ability to share access via a smartphone), charging station information, and driving range information. Toyota has not provided detailed information on charging time, but it says the bZ4X will be compatible with high-output chargers and capable of charging to 80% full power within one hour. The model will have Toyota's Safety Sense advanced driver-assistance system, including improvements such as expanding the detection range of the millimetre-wave radar and monocular camera, as well as improvements to other existing functions and the addition of low-light cyclist detection, daytime motorcyclist detection, and guardrail detection.

The bZ4X was shown as a concept earlier this year and is a vehicle that is part of the Toyota-Subaru partnership projects. Subaru's version has also been revealed this week and is called the Solterra. There is very little difference between the bZ4X and the Solterra, from an exterior design or specification perspective, although Subaru is using its own advanced driver-assistance system.

## Outlook and implications

For both Nissan and Toyota, these vehicles provide the opportunity for the brands to regain relevance in the EV space. Although Nissan has offered two generations of the Leaf EV, the current generation remains a five-door hatchback and, of late, tends to be overshadowed by other market entries. Toyota offered a RAV4 EV briefly but has not had a notable battery electric vehicle offering in the US market. Both vehicles follow the compact CUV formula and offer similar levels of safety and connectivity technology.

The Ariya's US launch was delayed by the semiconductor shortage, which means it feels like a long, slow introduction. The Ariya also arrives with a more conservative design, inside and out, while the design of the bZ4X is angular and technical. The bZ4X was shown as a concept earlier this year, first in April at the Shanghai Motor Show. The model was first revealed in July 2020. The Ariya and the bZ4X both arrive as interest in EVs is increasing sharply, in part because of social issues relating to carbon neutrality and the assumption that a broader transition to EVs is the next step. There remain challenges to mainstream acceptance of EVs, but there are massive efforts from public and private sources working to overcome them, particularly in the area of infrastructure and charging access, as well as automakers working to reducing costs.

According to IHS Markit's light-vehicle registration data, in the US, the retail share of EVs has grown from 2.0% in 2020 to 3.2% during January–September 2021. Although EVs still represent a small portion of the market, their registrations are growing. Much of this has to do with increased availability of models and fresh offerings. Tesla remains the highest-volume EV seller and currently has the most production capacity. However, the growing





number of new EV choices coming to the market is expected to continue to lead to increased consumer interest and a continuing increase in both market share and sales volume.

Through 2026, IHS Markit forecasts annual US sales of the Nissan Ariya at 25,000–33,000 units and the Toyota bZ4X at 20,000–25,000 units. The bZ4X is not Toyota's first US-market battery EV, but Nissan does have somewhat more credibility in the space and a larger existing EV owner base to draw from in seeking to gain market traction with the Ariya.

## [AutoMobility LA 2021 Highlights] AutoMobility LA 2021: Porsche reveals new Cayman, Taycan variants

Porsche has displayed a range of powertrain solutions with variants of the Cayman, Taycan, and Panamera at the annual auto expo. Porsche has noted it intends to take a three-pronged approach to powertrains in future, including battery electric vehicles (BEVs), plug-in hybrids (PHEVs) and “thrilling” combustion engines. The new 718 Cayman GT4 RS and 718 Cayman GT4 RS Clubsport push the Cayman performance further, with a package specific to drivers who take the car on track, and is due to arrive in mid-2022. The GT4 RS Cayman gets lightweight design construction, as it carries forward, but the engine upgrade brings the line to 493 hp. Pricing for the 718 Cayman GT4 RS, however, has risen to USD141,700. In addition, the show hosted the US reveal of the 2022 model year Taycan GTS and GTS Sport Turismo. The GTS Sport Turismo gives 590 hp, when using launch control, with suspension also revised for the increased power. The Sport Turismo is a long-roof sedan, with more trunk space. The Taycan GTS, whether standard or Sport Turismo body styles, carries a USD133,300 base price and will be offered in the second quarter of 2022 for the US market. Finally, the brand's AutoMobility LA line-up also included a Panamera Platinum edition. The limited edition starts at USD101,900.



### Outlook and implications

The expanded range offers opportunity for editions that continue to herald Porsche's sport and performance history, consistently with the expansion of powertrain choices. Porsche calls California a “second home” for the brand, and the company says it has increased sales in the US by 30% over January–September. Overall, the variants build on the existing presence as well as continuing Porsche's efforts at having high-power, high-performance vehicles. Although they are not substantially different from the standard solutions, the extra power ensures Porsche remains at the head of the class in that metric as well as keeping the brand's track reputation intact.



## [Auto Guangzhou 2021 Highlights] Auto Guangzhou 2021: Xpeng to unveil new electric SUV

Chinese electric vehicle maker Xpeng has announced that it will unveil a new smart electric-vehicle (EV) model at Auto Guangzhou 2021. The auto exhibition, formally known as the 19th Guangzhou International Automobile Exhibition, will take place in Guangzhou, China, on 19 November. An image of the new model has been released by Xpeng to warm up for the launch, although details on the design are difficult to capture as it has been darkened.



### Outlook and implications

According to recent media reports, this new Xpeng sport utility vehicle (SUV), the fourth one in the automaker's line-up, will be a midsize SUV positioned higher than the G3, a compact electric crossover. The new model is expected to share the same platform, the Edward, with the P7 sedan and will feature Xpeng's Xpilot 4.0 system, an in-house developed advanced driver assistance system (ADAS). According to Xpeng, the Xpilot 4.0 will allow it to bring new technologies, such as LiDAR sensors and high-voltage charging, to its new models. Xpeng still lacks a mainstream SUV to compete with its peers such as NIO and Li Auto. The automaker also needs to brace itself for competition from traditional automakers like Volkswagen, whose sales have risen rapidly in China thanks to the launch of the ID.4 and ID.6 electric SUVs. Xpeng has recorded consistent sales growth during 2021 as its flagship P7 electric sedan gains traction in the market. The smaller P5, which just started delivery in October, will help Xpeng generate new orders in the fourth quarter, although the model's near-term deliveries will still be constrained by short microchip supply, according to the company.

## [Auto Guangzhou 2021 Highlights] Auto Guangzhou 2021: Great Wall Motor to debut premium model with four LiDAR sensors

Chinese automaker Great Wall Motor will reveal the first model under its premium brand, referred to currently as "Shalong", at Auto Guangzhou 2021, formally known as the 19th Guangzhou International Automobile Exhibition. According to the automaker, the new model will be a mid to full-size electric sedan equipped with four LiDAR sensors.



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## Outlook and implications

Previously known as Project SL, Shalong represents Great Wall's latest effort to uplift its brand to compete in the premium electric-vehicle (EV) segment. At this stage, we still lack details on this new brand. However, given its positioning, future models from Shalong will need to showcase Great Wall's technologies capacities in making not only EVs, but also smart vehicles with competitive autonomous driving solutions. The introduction of four LiDARs on Shalong's first model will enable it to compete with similar entrants from EV startups, such as NIO and Xpeng. NIO is set to begin deliveries of the brand's first LiDAR-powered model, the ET7, in the first quarter of 2022, and Xpeng has already begun sales of its P5 sedan powered by two LiDAR sensors. Previous reports indicate that the LiDAR sensors are likely to be supplied by German supplier Ibeo Automotive Systems. According to a separate statement issued by Ibeo in July 2020, the company's solid-state LiDAR will be used first on Great Wall's WEY-branded model to enable the application of Level 3 automated driving. The first LiDAR-powered WEY model is expected to hit the market by the end of 2021.



## [GSP] Japan/Korea Sales and Production Commentary -2021.10

### Japan/Korea sales

**September 2021: -33%: 0.42 million units vs. 0.62 million units**

**YTD 2021: -0.4%: 4.69 million units vs. 4.71 million units**

Japanese light vehicle sales decreased by 2.6% year on year (y/y) in August 2021, while Japanese new vehicle sales declined in July and in the consecutive months of August and September after rising for several months. Sales had started to improve as consumers gradually returned to a new normal amid the coronavirus disease 2019 (COVID-19) outbreak. However, the number of new COVID-19 cases spiked, and the government announced a state of emergency in some major areas in Japan through July before extending it twice: to the end of August and then to the end of September. Key factors that continue to keep consumers cautious and pose downside risks include weak employment conditions in the short term because of uncertainties about new infections with the spread of the Delta variant and the relatively slow progress with the vaccine rollout, although it has improved and has been accelerating in recent weeks. In addition, major OEMs' product-supply disruption emerged and accelerated in response to shortages of semiconductors and other components including some electronic devices, be it domestic or imported brands.

Earlier this year, the economic situation showed slightly better-than-expected momentum, as some affluent families could afford durable goods such as higher-priced cars instead of actively going abroad or taking long holidays to return to their hometowns.

The environmental performance tax reduction support was extended again until the end of 2021. This support particularly aims to cope with the effects of the COVID-19 pandemic. Moreover, the eco-car tax breaks have been extended for two more years, from April 2021 to 2023, with a more stringent threshold on the fuel economy level, which might also support domestic demand for vehicles with better fuel economy, although insufficient to fully compensate for the recovery in sales; serious supply concerns could become a huge headwind in sales.



Most domestic OEMs in Japan posted a y/y decrease in sales except Mitsubishi in September. Sales at Toyota (including the Lexus brand) decreased by 36.9% y/y. Sales at Honda were down by 33.4% y/y and sales at Nissan decreased slightly by 13.5% y/y.

Owing to the post-recovery effect of the COVID-19 crisis in 2020, the Japanese market's overall domestic sales forecast in 2021 is set at 4.59 million units—up by 1.8% compared with 2020; sales in some of the remaining months could be negatively affected by product supply side constraints.

South Korea's total light vehicle sales should decrease by 35% y/y (estimated) in September 2021, mainly because of the global semiconductor shortage and the prolonged COVID-19 pandemic, which continued to weigh down on vehicle production and sales.



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All of South Korea's domestic OEMs posted y/y declines in September 2021. Hyundai sales were down 34.6% y/y, Kia by 30.1% y/y, SsangYong down by 53%, while Renault Samsung's sales decreased by 25.8% y/y and GM Korea's by 36.5%. Sales of imported vehicles were also down by 8.9% y/y in September 2021.

The post-consumption tax relief already ended in 2020, but the government decided to extend it until June 2021 to tentatively boost vehicle sales before deciding to further extend it until the end of 2021. However, the prolonged effects of the special consumption tax reduction are waning and are becoming less impactful in terms of sales and development sustainability in the short term, as well as growing negative impact from production activity and component shortages. The country's sales of new vehicles in 2021 will likely decrease by 9.9% compared with 2020 to 1.68 million units after increasing by 6.4% in 2020 compared with 2019.

## Japan/Korea production

**September 2021: -44.6%; 0.63 million units vs. 1.13 million units**

**YTD 2021: +1.4%; 8.10 million units vs. 8.00 million units**

In Japan, September 2021 output likely drastically decreased 49.5% year on year (y/y). The negative impact of the supply constraint has affected the domestic operations. Owing to semiconductor shortages that have continued since January this year, as well as shortages of other parts attributed to resurges of COVID-19 cases in Association of Southeast Asian Nations (ASEAN) countries, especially in Vietnam and Malaysia, whereby strict containment measures have been executed and resulted in supply disruption for many suppliers and semiconductor companies, all OEMs have been forced to halt production, cut holiday operations and overtime, and reduce the line rate. In particular, Toyota, including Daihatsu, had some downtime at almost all plants in September. Other OEMs faced the same situation. As a result, all OEMs recorded double-digit year-on-year drops in September 2021. Mitsubishi declined 10.6%, Suzuki decreased 16.8%, Nissan dropped 32.6%, Toyota including Daihatsu stagnated 56.3%, Honda was down 57.9%, Mazda abated 59.1%, and Subaru fell 73.2% y/y.

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