

Automotive Industry Weekly Digest

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[OEM Highlights] Tesla sells 65,814 Chinese-made vehicles in March

Tesla sold 65,814 Chinese-made vehicles in March, according to data from the China Passenger Car Association (CPCA). CPCA data suggest that retail sales volume of new energy passenger vehicles in China, including battery electric vehicles and plug-in hybrid vehicles, were 445,000 units in March, up 138% year on year (y/y).



Outlook and implications

According to CPCA data, sales volume of Tesla's China-made vehicles, have totalled 182,174 units in the first quarter of 2022. The figure include sales in China and export volume. The pace of Tesla's production and sales in China, however, is set to slow down in the second quarter as the Shanghai lockdown has led to production suspension at its Shanghai plant since 28 March. At the time of writing, Tesla has already recorded a production loss of 15 days at the Gigafactory Shanghai and it is still unclear when it will be able to resume production in the city as the majority of Shanghai is still subject to lockdown measures which are introduced to stem from COVID-19 virus to spread among the public. Tesla's Gigafactory Shanghai has demonstrated the ability to sustain vehicle production at above a run rate of 450,000 per year. The automaker last year produced more than 480,000 vehicles in Shanghai, of which more than 160,000 were exported to overseas markets.

[OEM Highlights] Smart relaunches brand with new #1 Crossover

IHS Markit perspective

Implications Smart has revealed its new #1 electric crossover that will spearhead the brand's relaunch under the new joint Mercedes-Geely ownership structure.

Outlook The new model is a crisp and modern design while retaining the compact dimensions of previous Smarts, and with a claimed range of 440 km it should find customers in both the Chinese and European markets.



Smart

Smart has revealed the production version of its #1 battery electric vehicle (BEV), which will relaunch the brand that has struggled since its inception in 1998 to build volume and become profitable. According to Automotive News Europe (ANE), the crisply designed B-segment crossover has a range of 440 km (270 miles) and has the ability to go from a 10% charge to 80% in just 30 minutes. Smart showed the #1, which is pronounced “hashtag one” in Berlin at a launch event yesterday (7 April). The new model is the largest Smart ever designed at 4,270 mm, longer than the existing Smart FourFor four-seater which is built at Renault’s Revoz plant in Slovenia. CEO of Smart Europe Dirk Adelman said that pre-orders for the #1 would begin in September, while those customers wishing to commit to one of the first cars will have to confirm their order by December. Production at the new Chinese plant for the model will begin at the end of the year. Adelman said that the #1 was “the nucleus of all things to come” from the brand in the future, leading the biggest revamp the brand has seen in its 24-year history. He added, “With the rebranding, we will put an even greater focus on the seamless mobility experience.”

The real potential unique selling point (USP) of the #1 is its large battery capacity and correspondingly very useful range, which means it is not simply pitched as a ‘city car’ as Smarts have traditionally been regarded. It has a 66 kw/h battery that works in conjunction with a 200 kilowatt electric motor, currently making it a unique offering in the BEV market with its combination of highly compact dimensions and useable range. Smart admitted that the 440-km range figure is preliminary, and that it has yet to be tested under WLTP conditions, but there are currently no B-segment BEV offerings with anywhere near that kind of capability. The production model’s styling is very close to that of the Concept #1 concept that was shown as last year’s September’s IAA Munich motor show.

Outlook and implications

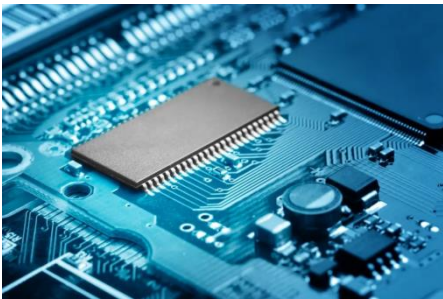
The #1 is the first fruit of Smart’s new ownership model, which was realised in 2019 when existing Daimler (now Mercedes-Benz Group) shareholder Geely entered into a 50:50 joint venture (JV) by acquiring half the shares in the company. Smart has sold around 2.3 million cars since the brand was launched with the first generation One back in 1998. The car was a novel and innovative concept when it was first launched, and Daimler had high hopes that the brand would see strong sales growth amid demand for new urban mobility solutions. However, the sales numbers represent a sales running rate of around 100,000 units per annum, going some way towards explaining why it is believed that Smart has made consistent losses over its two-decade history (although Daimler never split out its financial performance separately from Mercedes-Benz Cars). It is notoriously difficult to make meaningful margins on small passenger cars, and despite the innovation that has gone into the engineering of the ForTwo with its Tridion steel monocoque safety cell and rear-engined drivetrain, the brand has always been a financial drag on its parent company Daimler, even when it partnered with Renault for the design and engineering of the latest ForFour in an effort to improve economies of scale for Smart. The JV with Geely is aimed at rebirthing the brand as a premium small BEV manufacturer for the European and Chinese markets, with the #1 being built at a new factory in Xian (China). The plant will have annual capacity of about 150,000 units per annum (upa) when full capacity is achieved. A lot will depend on pricing, but the car is likely to start at about EUR30,000



in Europe given its large battery capacity, with the Honda e and Mini E being obvious competitors, albeit with much smaller ranges than the #1. IHS Markit sees initial volumes of 27,000 in 2023, rising to 50,000 by 2026.

[Technology & Mobility Highlights] VW expects semiconductor shortage to last until 2024

The Volkswagen (VW) Group is now forecasting that the semiconductor shortage will last until 2024. The company's chief financial officer (CFO) Arno Antlitz said that he does not expect the semiconductor supply to completely normalise until 2024, by which time he said there will still be structural undersupply, according to an interview with German newspaper *Börsen-Zeitung*. He said he expected the situation to ease as 2022 goes on, but that the problem will remain as additional capacity that is coming online will not be enough to keep with growing demand. Antlitz said, "We see a structural undersupply in 2022, which is only likely to ease somewhat in the third or fourth quarter. The situation should improve in 2023, but the structural problem will not yet have been fully resolved."



Outlook and implications

Reports of disruption within the supply chain of semiconductors to the automotive sector began in late 2020, and is continuing through the first quarter of 2022, with increasing uncertainty on geopolitical disruptions. Pressure built up as the automotive industry's recovery from the widespread coronavirus disease 2019 (COVID-19) virus pandemic-related lockdowns experienced during the first half of 2020 clashed with increasing demand from the wider consumer electronics sector, itself recovering strongly and, late in the year, building stocks for the holiday season. The situation was further exacerbated by other factors, including the fire at Renesas' Naka (Japan) facility on 19 March 2021, which only reopened fully in late June, and following the severe weather that hit the southwest US in February 2021. Other factors have also come into play more recently, such as the impact of the COVID-19 virus pandemic on parts of Southeast Asia, and especially Malaysia which undertakes many labour-intensive back-end tasks in the semiconductor supply process. Floods in Malaysia during December 2021 have also had an impact.



[Technology & Mobility Highlights] Hyundai Mobis unveils UTILe future bumper concept

Hyundai Mobis has unveiled its United, Transformed, Interactive, Lighting (UTILe) intuitive future bumper concept to improve user experience, Hyundai Motor Group reported on 28 March. The bumper design and construction is primarily for use in electric vehicles (EVs) and autonomous vehicles.



Outlook and implications

Hyundai Mobis's UTILe incorporates a wide range of design philosophies. 'United' integrates lightweight construction to combine the plastic fender, plastic bonnet (hood), and bumper into a single structure using injection moulding to reduce overall weight by 20% when compared with traditional front-end steel/pressed panels. The design uses an innovative bonnet release mechanism that can be operated from inside the cabin to access space underneath the bonnet. 'Transformed' incorporates active air flap (AAF) flexible design to close grille openings at high speeds, thereby helping the vehicle improve fuel efficiency by 2.3%. When closed, the AAF provides a flush surface that can be integrated with lighting to enhance front-end aesthetics. 'Interactive' smart face enables the front-end module to be integrated with an LCD screen to provide communications and messaging mediums to welcome occupants. The exterior smart surface's functional features include QR payment codes, pedestrian warnings, and entertainment applications that can also double as a screen for occupants to watch from outside the vehicle. The interactive front-end uses the bumper cover as the speaker diaphragm to reduce overall weight by 75% and parts by 58%. As for 'Lighting', the front-end bumper is designed to hold four modules in successive layers: the outer cover, inner lens, RGB LED/printed circuit board (PCB), and inner housing. The dynamic lighting module on the bumper depicts vehicle charging, welcome/goodbye, and beat function modes. Design trends within the automotive industry are rapidly evolving, and this can certainly be applied to vehicle front-end modules combined with illuminated grilles and logos, among other integrations. Exterior lighting other than headlamps and tail-lamps is increasingly being used to differentiate vehicles and as a style statement. With more OEMs driving electrification and smart intelligent vehicles, automakers can exercise the freedom to design the grille freely as there is no engine sitting behind the grille and no radiator pulling in the air. The function of the grille is evolving in the EV era, from mostly operational to strictly ornamental. In some cases, the grille serves no purpose at all and this acts as a key brand differentiator for automakers. This is the reason why many automakers are still interested in designing and constructing the front fascia of their future vehicles so well to attract customers.



[EV & Energy Efficiency Highlights] DiDi in talks with Haima Automobile on EV partnership

Didi Chuxing (DiDi) is reportedly in talks with Haima Automobile about a partnership to manufacture electric vehicles (EVs). According to a report by Bloomberg, DiDi is also discussing potential partnerships with other carmakers. However, these discussions are ongoing and no final decision on an arrangement has been made.



Outlook and implications

In 2020, DiDi launched an EV for ride-sharing in partnership with Chinese automaker BYD. DiDi is currently facing a regulatory crackdown in China over its privacy and cybersecurity practices following its initial public offering (IPO) in the US. DiDi stated that it has begun preparations to withdraw its listing on the New York Stock Exchange and that it is to pursue a listing in Hong Kong SAR, which is also reportedly paused as requirements to prevent security and data leaks had fallen short.

[EV & Energy Efficiency Highlights] German solar BEV startup Sono partners with Valmet on production

German solar-powered car startup Sono will partner with Finnish contract manufacturer Valmet to put its unique concept into production, according to a Reuters report. Sono originally said that its production partner for its partly solar-powered passenger car concept would be National Electric Vehicle Sweden (NEVS), the Swedish electric vehicle unit of Evergrande Group, but a contract was never signed.



Outlook and implications



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Valmet has been looking for new business partners for its contract manufacturing business; it currently manufactures cars for Mercedes-Benz. Sono was founded in 2016 in Munich and has developed a battery electric vehicle (BEV) with solar cells integrated into the roof and body, boosting the car's range by an average of 112 km per week beyond the 305-km range of its battery. It is a concept that has yet to be proven commercially but the keen planned price point of EUR25,176 could be key in attracting customers. The initial 17,000 customers that have put deposits down have secured the car for EUR23,950, although the price will rise when the company hits 18,500 reservations.



[Forecast & Analysis Highlights] Xpeng, NIO, Li Auto vehicle deliveries surge during March; automakers face COVID-19-related lockdown challenges in China

IHS Markit perspective

Implications Xpeng, Li Auto, and NIO posted strong first-quarter delivery results despite challenges posed by the global semiconductor shortage.

Outlook Heading into the second quarter of 2022, EV manufacturers are faced with uncertainties brought by the resurgence of COVID-19, as well as the fluctuation in commodity prices.



Abby Chun Tu

Chinese electric vehicle (EV) startups NIO, Xpeng, and Li Auto have announced their delivery results for March. Xpeng's vehicle deliveries increased by 202% year on year (y/y) in March to 15,414 vehicles. The EV maker's March deliveries consist of 9,183 units of the P7 electric sedan, 4,398 units of the P5 electric sedan, and 1,833 units of the G3 and G3i compact sport utility vehicles (SUVs). Total deliveries for the first quarter reached 34,561 units, representing a 159% increase y/y. The P7 remained the best-selling Xpeng model in the first quarter with total deliveries totalling 19,427 units. P5 deliveries also ramped up quickly during the first quarter to 10,486 units.

NIO announced that it delivered 9,985 vehicles in March, representing an increase of 37.6% y/y. The deliveries consist of 1,726 units of the ES8, 5,064 units of the ES6, 3,032 units the EC6, and 163 units of the ET7. In the first quarter, NIO delivered 25,768 vehicles, up by 28.5% y/y. NIO delivered 9,985 vehicles in March, representing an increase of 37.6% y/y. The EV maker plans to unveil the 2022 model year (MY) NIO ES8, ES6, and EC6 in May. These new models will feature its latest digital cockpit hardware. NIO also plans to debut its NIO ES7, a new E-segment five-seater SUV based on its NIO Technology 2.0 (NT2) platform in May.

Li Auto announced that it delivered 11,034 Li One vehicles in March, up by 125.2% y/y. The strong March performance took the company's first-quarter deliveries to 31,716 units, representing a 152.1% y/y increase. Li Auto has propped the launch of its second model, the L9 SUV, amid a new wave of the coronavirus disease 2019 (COVID-19) virus outbreak in China. The L9 was originally scheduled for market debut on 16 April.

Outlook and implications

Xpeng, Li Auto, and NIO posted strong first-quarter delivery results despite challenges posed by the semiconductor shortage. Heading into the second quarter of 2022, EV manufacturers are faced with uncertainties brought by the resurgence of COVID-19, as well as the fluctuation in commodity prices. EV manufacturers are the



mostly affected ones by the rising cost of critical EV minerals, especially nickel and cobalt. Many EV manufacturers have responded to the recent price surge in raw materials by hiking the prices of their EVs. Xpeng and Li Auto both raised the prices of their vehicles in March. Vehicle buyers will need to pay CNY11,800 (USD1,855) more for the Li One, which is now priced at CNY349,800. The prices of Xpeng vehicles were raised by up to CNY20,000 in March, according to a company statement. The widespread price hike of new-energy vehicles (NEVs), coupled with China's move to cut NEV subsidy, has further pushed up the upfront cost of owning an electrified vehicle for consumers.

The resurgence of COVID-19 in northern Chinese cities Changchun and Jilin, as well as China's financial centre Shanghai, has presented new challenges to automakers amid the semiconductor crisis. The eastern and southern parts of Shanghai entered into a lockdown on 28 March, which expanded to the entire city on 1 April. As the city's daily COVID-19 cases are still on the rise, local authorities have yet to announce a date to lift the lockdown restrictions. Volkswagen's (VW)'s joint-venture (JV) plant with SAIC Motor Group has suspended production since 1 April. The lockdown also affects SAIC Motor, which produces Roewe and MG models at its Lingang plant in Shanghai, and SAIC General Motors, which builds Cadillac, Buick, and Chevrolet models in the city. Tesla's production in Shanghai is also affected by the lockdown. The US EV maker has suspended production at its Shanghai factory since 28 March. At the time of writing, Tesla has yet to reveal when it would be able to resume production in Shanghai. Prior to the lockdown, customers already faced a wait time of between 20 and 24 weeks for a China-made Model 3 rear wheel drive (RWD) and an estimated delivery time of up to 12 weeks for the Model Y RWD. It would take even longer to ease Tesla's order backlog for the Model 3 and Model Y with production at the Shanghai plant being affected by the lockdown.

[Forecast & Analysis Highlights] GAC reports 31% y/y sales growth in March, group's NEV volumes soar

Chinese automaker GAC Group recorded a 30.7% year-on-year (y/y) increase in sales to 227,471 units during March, according to a company statement. Among the group's joint ventures (JVs), GAC Toyota led sales in March. The JV sold 97,006 vehicles last month, up 41% y/y. Sales of the GAC Honda JV increased 21.5% y/y to 76,833 units last month, while sales of the GAC Mitsubishi Motors JV totalled 2,002 units, down 66.6% y/y. Sales of the GAC Fiat Chrysler Automobiles JV plummeted from 2,523 units in March 2021 to just 1 unit last month. Sales of GAC's wholly owned brands managed by GAC Motor, the group's passenger vehicle subsidiary, increased by 15.1% y/y to 30,091 units in March. GAC AION New Energy, the subsidiary that manages the AION electric vehicle (EV) brand, sold 20,317 vehicles during March, compared with 7,013 units in the same month of 2021. In the first quarter of 2022, GAC sales increased 22.5% y/y to 608,167 units. Thanks to strong demand for AION EVs, GAC's new-energy vehicle (NEV) sales in the first quarter soared by 144.8% y/y to 52,819 units.





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Outlook and implications

GAC posted double-digit sales growth in March thanks to strong performances from the GAC Honda and GAC Toyota JVs, which jointly contributed more than 75% of GAC's sales last month. GAC's wholly owned subsidiaries, GAC Motor and GAC AION, continued to record an improvement in sales in March. The group's self-owned production lines contributed 22% of its total sales last month, compared with 19% in the same month last year. To meet rising demand for AION models, GAC has invested in new production capacity in Guangzhou to support the brand's expansion in the NEV market. Regarding the group's JVs, GAC Fiat Chrysler sold just one unit and the JV's Guangzhou plant produced only one vehicle in March. GAC did not provide details regarding the operational status of GAC Fiat Chrysler. The Chinese automaker is currently in talks with Stellantis over plans to revive Jeep's sales in China. Stellantis says it has already reached an agreement with GAC to gain a controlling stake in GAC Fiat Chrysler. This move will enable Stellantis to have greater control over its Chinese JV's operations, but will also reduce GAC's motivation to continue to invest in the JV.



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[Supplier Highlights] LiangDao Intelligence collaborates with Innoviz for lidar solutions

Companies to focus on the development of perception solutions, validation, and data collection



Source: Getty/ Nikola Ilic

LiangDao Intelligence has partnered with Innoviz Technologies to explore the customization of Innoviz's lidar solutions for OEMs in the mainland Chinese region, it said in a press release on 13 April. The companies will also focus on the development of perception solutions, validation and data collection for series production of high-resolution lidar based on InnovizTwo.

“We are happy to bring the most reliable and highest-resolution LiDAR to the Chinese market, paired with our new partner LiangDao Intelligence. We are impressed by LiangDao's many years of experience and the distinguished projects their teams have been involved with. We appreciate their unique understanding of the automotive lidar market in China and look forward to jointly accelerating the introduction of mutual series production solutions of our high-resolution LiDAR for the Chinese market,” said Omer Keilaf, CEO and cofounder of Innoviz.

Outlook and implications

The companies first collaborated in 2018 and going forward, both the parties will look to collaborate on building a complete lidar hardware assembly line and supply chain system in mainland China to accelerate the commercialization of autonomous driving. LiangDao Intelligence provides full-stack service of series-production vehicle lidar system. At CES 2022, Innoviz unveiled the B-prototype of its new lidar, InnovizTwo which reportedly gives a 30x performance improvement and a 70% cost reduction compared to the InnovizOne.

[Supplier Highlights] Electrify America to launch next-generation EV chargers, deploy on-site battery systems

Electrify America's new generation chargers include ultra-fast chargers with up to 150 and 350 kW of charging power



Source: Getty/deepblue4you

Electric vehicle (EV) charging network Electrify America, which is a subsidiary of Volkswagen Group of America, plans to introduce its next generation chargers with functional design updates to enhance EV charging experience for its customers, the company said on 24 March 2022. The update is part of Electrify America's new design vision for some of its future charging stations aimed at enhancing the charging experience.

Electrify America said it plans to sharpen the focus on customer needs and reimagine the charging experience by introducing The Charging Station of the Future, Today, which can add design and comfort elements such as solar canopies and awnings, customer waiting areas and other customer-focused services at select locations.

The company's plan to introduce new generation chargers include the ultra-fast chargers with up to 150 and 350 kW of charging power. The new chargers will feature an all-new design that refines the look while reducing the footprint of the charger, a recessed and brighter human-machine interface (HMI) screen to help reduce the glare from sunlight, making it easier for customers to view the operational instructions and charging progress and a single connector cable with an all-new cable management system to ease the effort to plug in the cable no matter where the charging port resides on a customer's EV.

Electrify America also disclosed that its new EV charging station design vision includes integrating energy and cost-saving technology to help improve efficiency and make the charging experience more simple, fast and comfortable. By expanding the deployment of onsite battery energy storage systems (BESS) to more than 150 stations, the company continues to build on previous investments to help manage the energy load to the grid and capture excess solar energy where possible, it said.

Outlook and implications

Electrify America's new design vision includes new showcase stations that would feature up to 20 ultra-fast DC chargers. Additionally, the company is also planning to add a number of options at various locations including customer lounges, EV showcase areas, dedicated event space, overhead solar canopies to shield customers from the sun and inclement weather, on-site security cameras and additional lighting. It further added that charging stations located at select shopping locations may offer valet charging and curbside delivery options too.

Notably, the company is also adding solar awnings to 400-500 individual chargers at 100 charging stations across the US. While these solar awnings provide shelter from the sun and weather, the energy captured by them will be utilized to help power the station's operations, it said, adding that the solar energy captured from these solar canopies is routed to the onsite battery energy storage systems onsite.

According to Giovanni Palazzo, president and CEO of Electrify America, the company aims to reinvent the look and feel at many of its EV charging stations to meet and exceed the expectations of customers moving from a



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gas-powered vehicle to an EV. “These new designs will help elevate the charging experience for our customers, building on the foundation of our ultra-fast and reliable coast-to-coast network,” he said.



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[VIP ASSET] How autonomous trucks will transform landscape of logistics industry

The logistics industry is going through profound changes with digitisation and other technological advances that have the potential to decrease substantially the cost of transporting goods over land. Although autonomous passenger cars are receiving the most attention, autonomous technology is expected to have a greater impact on the global trucking and logistics industry. Autonomous trucks are gaining a great deal of traction in the transportation industries because of a growing shortage of drivers, improved efficiency, and increased safety.



A truck driver shortage is adding to global supply chain challenges, preventing the trucking sector from fulfilling the increased demand driven by a boom in e-commerce. In the US, according to an October 2021 estimate by the American Trucking Associations, the shortage of truck drivers was at an all-time high of 80,000. The shortfall might increase to more than 160,000 drivers by 2030, according to the industry body, due to an ageing workforce and an expected freight increase.

Another huge challenge in the logistics industry is underutilisation and inefficient load procurement; hence, these trucks will enable autonomous loading and unloading of containers in yards and ports, resulting in increased efficiency. The low utilisation rates not only reduce the efficiency of operations and distribution for the rest of the supply chain, but also increase the number of trucks on the road, resulting in increased greenhouse gas emissions.

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