

China Big NEV Plan – What it means and its opportunities.

Analysis of China NEV market and NEV start-ups

White Paper

Giving substance to reality.

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Shanghai, February 2021

Management Summary

The new energy vehicle (NEV) in China is commonly categorised with BEV, PHEV, FCEV, Range Extender EV which are eligible for subsidies and special NEV green license plate, while traditional mild hybrid or full hybrid vehicles, are not deemed as NEV.

China has announced big plans to further grow its NEV industry and market. It is already the world's largest NEV market by countries with total sales of 1.2 million NEVs in 2020. To put this into perspective: This number roughly equals total vehicle sales in the EU for the same year. By 2025, NEV sales in China are targeted to account for 20% of total passenger vehicle sales, which would amount to around 6.1 million in volume. To achieve that, China's government has released national and regional support policies and infrastructure plans.

But it is not only the "20% share" target itself. Chinese OEMs and new NEV start-ups rush into the race aiming to reshuffle the industry and auto business. Speed and agility, user centricity, and entrepreneurship characterize start-ups such as NIO, XPeng, and Li Auto, and set them apart from traditional OEMs.

What does this mean for multinational OEMs? First, multinational OEMs should act more aggressively now and develop a concrete action plan for the 2025/2030 commitment about electrification. OEMs also need to focus on building competitive advantages in new areas like e-powertrain, battery, software, vehicle integration, manufacturing, and customer experience. Last, they could draw their conclusions from the cases of success and failure of NEV start-up companies in China.



Prospects for China's NEV Market

The world's largest NEV market

China's State Council has announced a new development plan for the NEV industry in October 2020, aiming to stimulate the development of China's NEV sector. By definition, NEVs include battery electric, plug-in hybrid, range extender EVs and hydrogen fuel-cell vehicles. According to the plan, NEV sales in China is targeted to account for 20% of total passenger vehicle sales by 2025, which will be around 6.1 million NEV sales in 2025. This means a CAGR of 39% from the 1.2 million NEV sold in 2020.

6.1 million =
20% in 2025

China's NEV passenger car
sales target

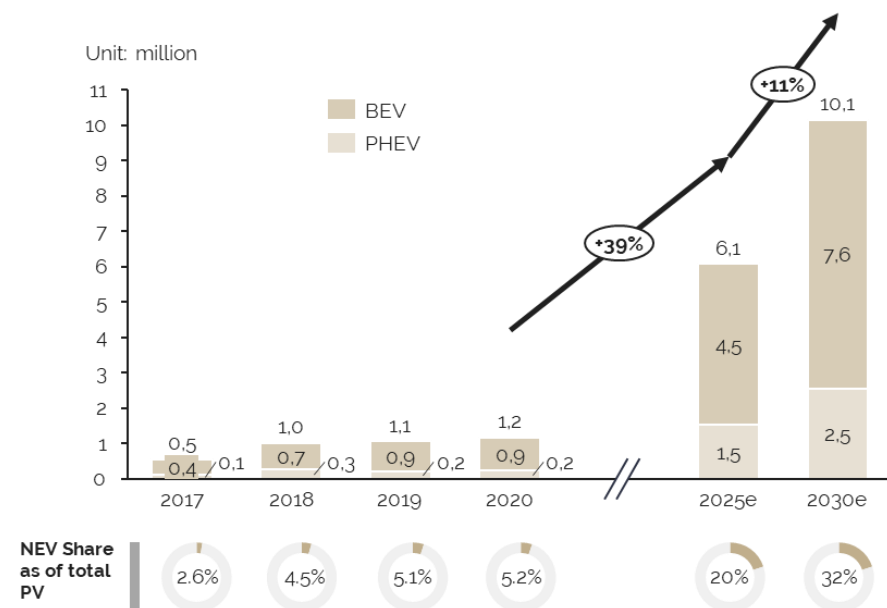


Figure 1: BEV and PHEV sales volumes in China

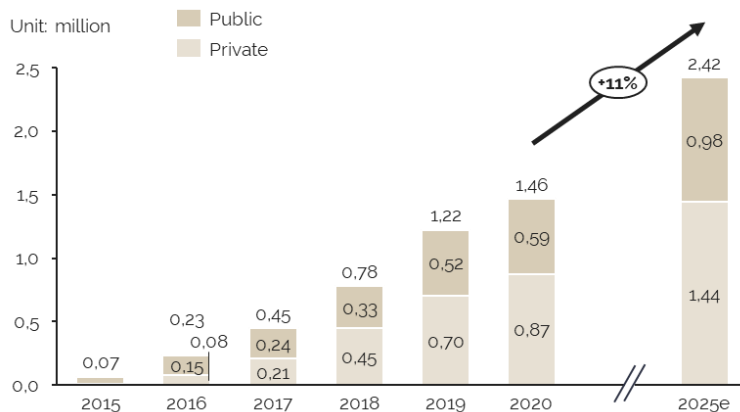
While the “20% share” target remains challenging, the opportunities are immense for auto makers and suppliers. There are already and will be more and more supportive policies across industry influential bodies in government, especially for public transport, taxi services, and logistics. Major cities including Beijing, Shanghai, Guangzhou, Shenzhen and provinces like Shaanxi, Anhui, Yunnan have announced that newly operating taxi fleets must be 100% NEVs. Therefore, we see a huge demand for NEVs in public sectors. In the private sector, the ride-hailing companies and the private drivers are also opting in favour of NEVs in many Tier-1 cities due to the “free” green license plate policy. NEVs see considerable advantages in getting a registration in these cities.

> 1.46
million

charging stations in China

China has also become the largest charging market with more than 0.59 million public charging stations in 2020. If private stations are included, the whole country currently runs more than 1.46 million

charging stations. Still, there is more to come. The Chinese government will further invest in and subsidise infrastructure upgrades and the development of the charging network across the country – both in urban and rural areas. It is estimated in 2025 the total charging stations could reach to 2.42 million units in the whole country. In Shanghai, besides the existing 326,000 charging stations, the city has taken the initiative to boost the infrastructure expansion by adding another 100,000 to 200,000 stations to the charging network over the next three years.



Rat race in China NEV market

Tesla, which is boosted by local production in its Shanghai plant, tops China's NEV market with sales of 147,997 in 2020. The Model 3 alone accounts for more than 11% of total NEV sales in China. In view of the Tesla Model Y's start of production in 2021, Tesla's market share is estimated to continue to grow.

147,997

Vehicles sold by Tesla in China in 2020

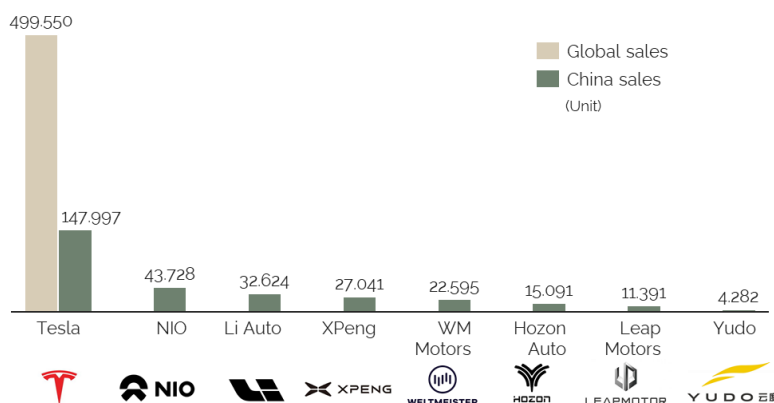


Figure 3: NEV start-ups sales in China in 2020

New EV start-ups like NIO, Li Auto, and XPeng are also reporting record-breaking annual sales, driven by more and more popular models like the NIO ES6, the Li Auto One, and the XPeng P7. The three have also acquired huge amounts of cash by issuing new shares

in the NYSE and NASDAQ stock markets. Although the sales volume is not comparable to Tesla yet, they aim to catch up with ambitious investments in next generation products and ADAS technology.

The segment share of BEV shows the shifting preferences from small cars to upper segment of bigger cars by Chinese customers. Although below A-segment BEVs have been most popular in last four years, we see increased sales volume of B-segment BEV going forward. In 2025, it is estimated of 45% A-segment and 29% B-segment BEV new cars.

More upper segment and fastback /coupe style for BEV vehicles as an increasing trend in China market

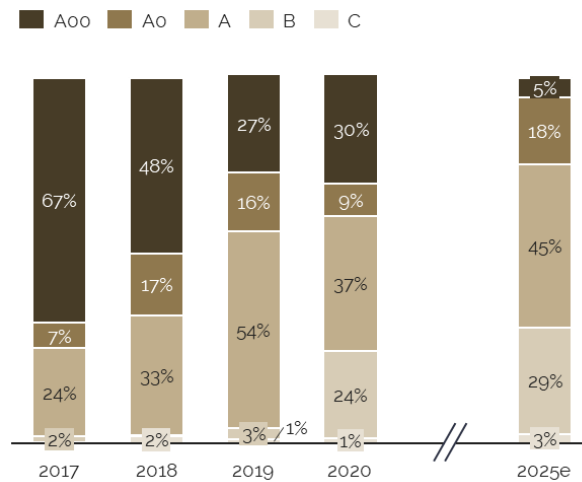


Figure 4: BEV share by segment in China

More stylish with good aerodynamic design BEV models are going to prevail in the market. We forecast the fastback and coupe style will account for more shares in sedan and SUV vehicles.

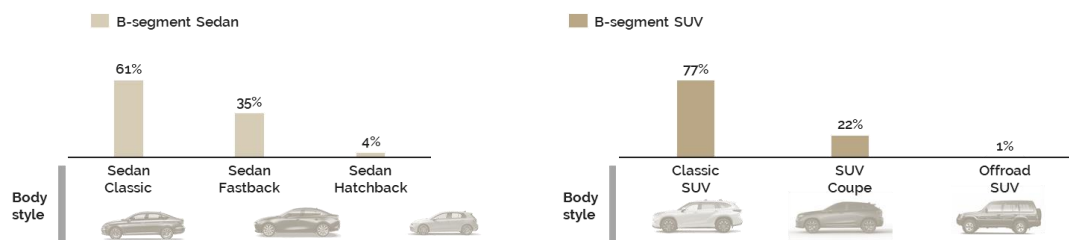


Figure 5: Share of fastback and coupe body styles in B segment cars by 2025

In B segment, the fastback body style will account for around 35% in sedans by 2025, while the coupe body style will account for around 22% in SUVs by 2025.

China NEV start-ups

It is not the time to summarize the “winning factors” yet, as there is still a long way ahead for the China NEV new entrants. But there are some aspects that make them different, especially when competing with traditional OEMs.

- **Speed and agility**

The China NEV start-ups, especially the most successful ones so far – NIO, XPeng, Li Auto, are trying to balance and maintain speed with combined experience of automotive and internet industry.

The classic “front-loading” automotive development principle, and the fast iteration at later phase have been continuously discussed, argued, and balanced as the two kinds of experience encounter in the same company and team. Here, you could imagine the early planning phase of vehicle product definition, platform strategy, target boundary settings, and even engineering concepts are often discussed and clashed with the idea whether it can be done in a way that’s more lean, innovative or agile.

The new entrants think boldly without pre-defined compromises, e.g. in quality. The same or even more obvious applies to vehicle software and ADAS development, where new entrants showed strong strengths and advantages in agility.

- **User centric**

New NEV start-ups apply more holistic and user-centric design as well as experience in their products and services. Customers of NIO can tell you how different the whole experience can be when comparing with traditional OEMs from mobile app, community, ordering process, aftersales services, no-dealer online sales, as well as the intelligent and user-friendly UI/UX product design. NOMI, functioning as car version “Siri”, offers numerous voice control interactions. For example, it can lift the window for driver or passenger by automatically recognizing where exactly the voice comes from. But beyond “Siri”-equivalent role, with a round robot-like design and even adorable emoji on its “face”, NOMI has become one of the most iconic selling points of NIO’s cars.

As for the NEV start-ups, they have adopted a user-centric approach for the product planning, function development, validation and even customer relations management. Combined with the defined use cases, specific vehicle functions and best user-interaction practices are summarized and reflected at product level. User experience is continuously monitored and via feedback loop the analysed results play a key role in product design and optimization.

- **Entrepreneurship**

As perceived in many ways, there is a force driving for changes and innovations in the new NEV start-ups, which can be partially attributed to the entrepreneur spirit both financially and operationally. Almost all NEV start-ups have their equity incentive programs for above-mid-level managers or even all employees.

Elon Musk and William Li, as “spiritual Leader” to Tesla and NIO, their leadership and charisma easily evoke employees’ deep sense of duty and identity upon their vision, which is taken as fundamental base for the company. The employees in those companies have high enthusiasm toward innovation and initiatives. Also, with relatively small organization and governance structure, new entrants normally can make decisions more efficiently.

Implications for Global OEMs

- **Electrified future? It is now!**

With the big and ambitious NEV development plan, China is determined to foster electrification in all aspects of industry from component to vehicle. In the process toward electrified mobility, China is running fast, and so should every other single OEM in this game if they do not want to lose. Many global OEMs like VW, GM, Toyota have announced big commitment of large volumes and percentage of electrified vehicles for future. But they need act more aggressively now, not in future. OEM should now develop a concrete action plan and roadmap for the big commitment in 2025/2030.

- **Competition in new areas**

China market is literally one of the most welcoming markets towards NEV on earth now. Chinese customers are also willing to try out new products and services. The future competition will not be limited to the vehicle or driving itself but also in many new areas. Global OEMs should focus on how to build competitive advantages in e-powertrain, battery, software, vehicle integration, manufacturing, and customer experience.

- **China Experience**

For global OEMs, they could take lessons and experiences from the history of success and lost cases on the Chinese market. The different practices of China NEV start-ups, like Tesla, NIO, Xpeng, vs. FF, BYTON, Bordin cases will be valuable lessons learned to be referred to when exploring China or other regional markets.

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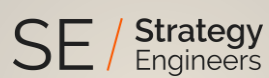
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