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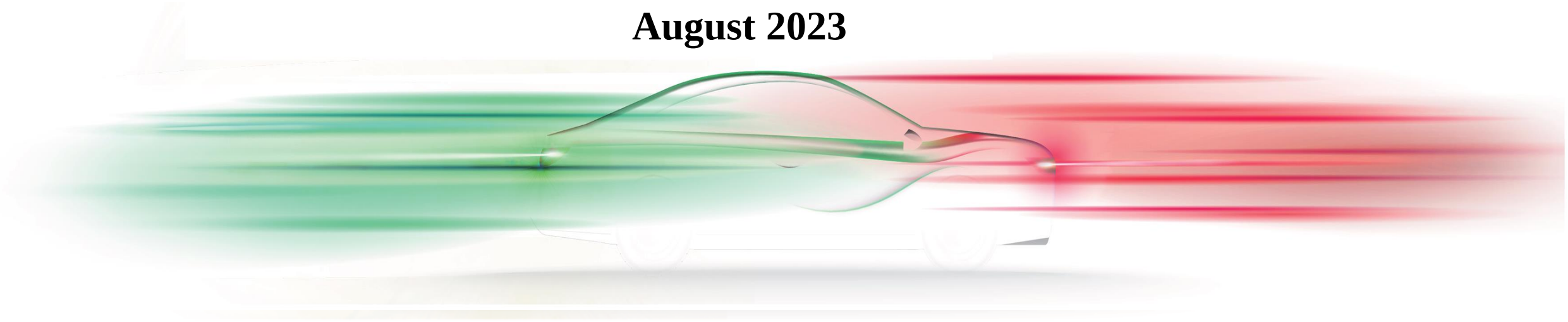
ICE - Agenzia per la promozione all'estero e l'internazionalizzazione delle imprese italiane

意大利对外贸易委员会

Ministero degli Affari Esteri
e della Cooperazione Internazionale

China Auto Market Report

August 2023



CONTENT

ITA
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CONTENT

ITALIAN TRADE AGENCY

1: Overview and Summary of the Recent Findings in the Chinese Automotive Market

1.1 Executive Summary

1.1.1 EV Manufactures

1.1.2 China’s Modification Market

1.1.3 Drive Motor Suppliers

1.1.4 Battery Suppliers

1.2 Production and Marketing Information of NEVs in China (May-June 2023)

1.2.1 May Production and Marketing Information

1.2.2 June Production and Marketing Information

1.2.3 July NEV Sales Leaderboard

1.2.4 Are We Flattening the NEV Curve?

1.1 Executive Summary

New car sales have been weakening in China since 2017 with NEV as the only growth driver in recent years. In 2023, China's automotive market continues to represent a consistent contribution ratio of new car sales globally. However, China is no longer the haven for growth in the global auto industry since 2017. The only growth opportunity in China since 2017 has been in the New Energy Vehicle segment.

Rising exports are directly linked to domestic weakness in China. Developing car markets in Europe and Asia are the focused markets for China's exports.

Used car sales are on pace for a record year in 2023 as consumers seek value for the money. However, the transactions of used cars in China remain far below the mature markets such as US and Europe.

China's aftermarket and demand for auto parts are impacted by the auto market trends

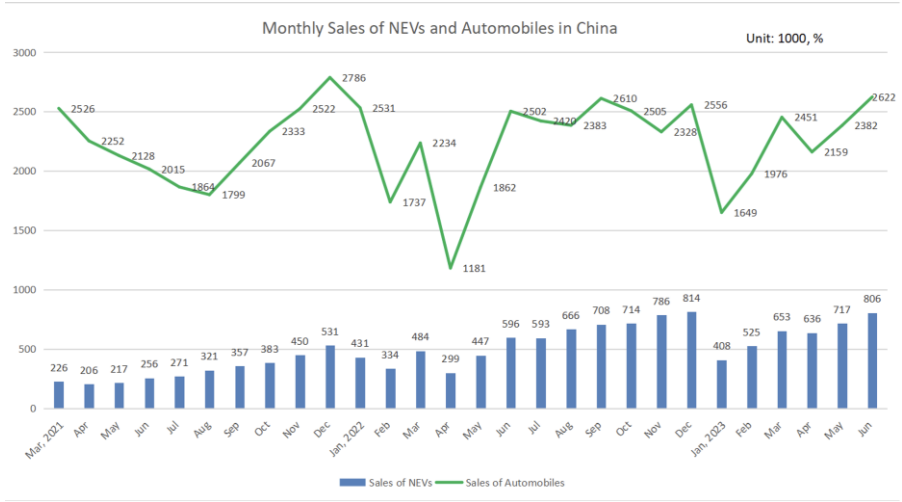
- Growing car parc and aging car population creates increasing demand for aftermarket, which is expected to enjoy more than 10% annual growth by 2025
- The demand structure for auto parts is changing due to electrification. Traditional ICE parts will take less share, such as engine, gearbox, exhaust system and cooling system
- Sluggish growth of PV market and rapid electrification erodes profit pool for parts suppliers who need "2nd growth curve" to offset the decline of traditional business

-- Bill Russo from Automobility Ltd.

In 2021, global sales of Battery-electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs) amounted to around 6.75 million units, which represents a substantial increase of 108% over the previous year. Electric vehicles made up 8.3% of the total market, compared with 4.2% in 2020, while BEVs account for 71% of total electric vehicle sales. In the second quarter of 2022, BEVs made up almost 10% of newly registered cars and this figure is continuing to grow, while vehicles with combustion engines are gradually losing market share. It is only a question of time before BEVs become established not only in industrial countries but in all the regions of the world.

Three main criteria indicate whether a BEV market is mature: firstly, the readiness of customers to buy BEVs, secondly the development status of the electricity and charging infrastructure, and thirdly the targets set by the current political leadership for the future of mobility in the country.

1.1.1 EV Manufactures



Data Source & Chart Maker: MARKLINES

Overview and Summary of the Recent Findings in the Chinese Automotive Market

China is the global leader in the Battery Electric Vehicle (BEV) market, with domestic carmakers like XPeng, Nio, Geely, and BYD experiencing remarkable growth in BEV sales in 2021. Chinese electric cars, including both BEVs and PHEVs, account for 57% of worldwide production, with 500,000 units exported in 2021. In the domestic market, electric cars made up nearly 15% of total sales that same year. China boasts a well-developed infrastructure, boasting over 2.2 million charging stations and a continually expanding network. The government in Beijing aims to achieve an 18% annual growth rate in BEVs on the roads, supported by state intervention and financial incentives for manufacturers and customers. Nevertheless, China is not exclusively committed to BEVs, as highly fuel-efficient combustion engine vehicles and fuel-cell electric cars also receive state support. Recent years have shown that the government can quickly adjust its support for different vehicle systems to influence market conditions, such as reducing support for BEVs that fail to meet specific technical standards like minimum vehicle range.

In February 2023, China's passenger car retail, wholesale, and production numbers all saw year-over-year increases. Major car manufacturers adjusted production levels to maintain balanced dealer inventories. Notably, due to factors like rising interest rates and falling resource prices, there was cautiousness in the production and sales of new energy vehicles (NEVs). March 2023 is expected to be a favorable period for production and sales, with more workdays and successful COVID-19 control measures, compared to the previous March. Many automakers plan to launch new vehicles in this month, and various regions have introduced policies to boost auto consumption. In February 2023, extended-range electric vehicle (PHEV) wholesale volumes reached 2.93 million units, a 190% year-on-year increase, constituting 20% of the total PHEV volume, signifying a notable trend. As battery technology advances, battery costs drop, fast charging improves, and consumer range anxiety diminishes, the battery electric vehicle (BEV) market is expected to remain a core trend for the future. (China Passenger Car Association (CPCA) report – March 2023)

Data Source & Chart Maker: MARKLINES

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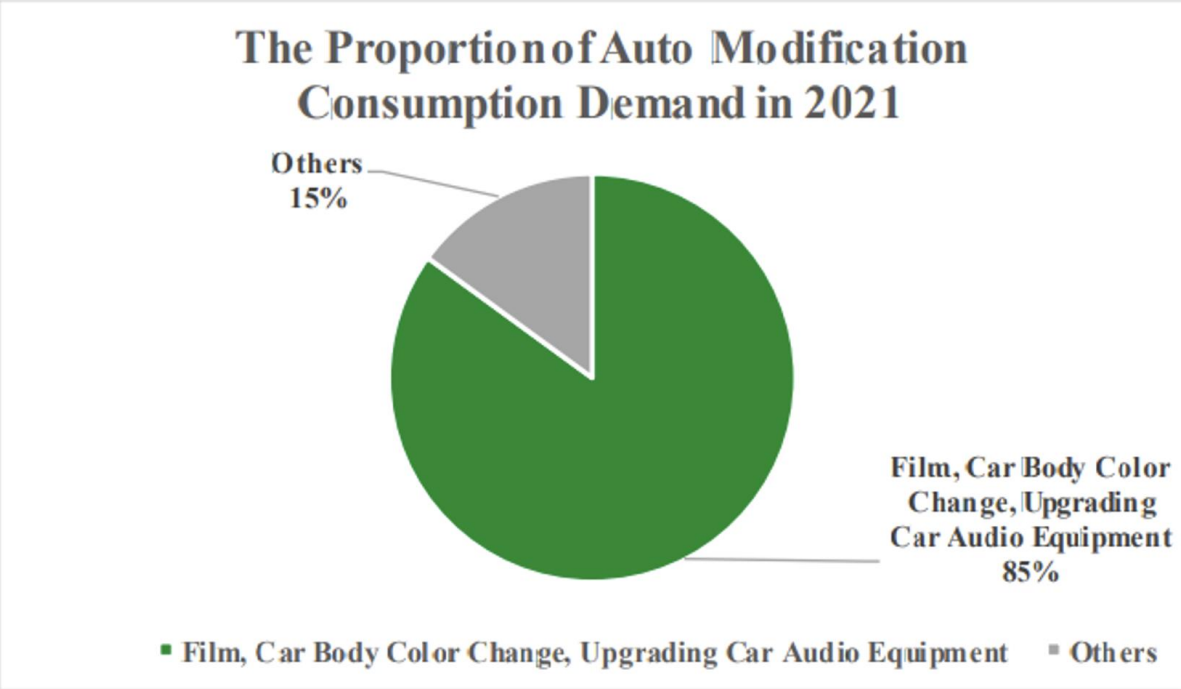
1.1.2 China’s Modification Market

Development Trend: China's Modification Market is in a Period of Opportunities



In recent years, China has issued a series of regulations and policies for auto modification, which provides a policy basis for the legalization and compliance of the development of commercial vehicle modification, vehicle body modification, off-road modified parts and other industries, indicating that the domestic auto modification policy is gradually being liberalized, which is expected to boost the sales of the automobile industry to some extent.

Data Source & Chart Maker: MARKLINES

Passenger car sales in China in 2022 were up 9.7% y/y to 23,563,000 units. Sales declined consecutively from March to May due to supply chain disruptions, plant shutdowns, and a shortage of semiconductors because of the urban lockdowns caused by the COVID pandemic. The government announced on May 31, 2022, that the vehicle purchase tax will be halved for passenger cars with engine displacements of 2.0L or less and priced under CNY 300,000 (excluding value-added tax). Since June 2023, the market has been on a recovery trend. Chinese manufacturers continued to do well, accounting for the majority of the market with 11,949,000 units, up 23.0% from the previous year, and five manufacturers exceeded sales of 1 million passenger cars. Emerging EV makers such as Hozon Auto, NIO, Li Auto, and XPeng, were also ranked within the top 15. One manufacturer performing particularly well was BYD, which declared the end of gasoline vehicle production in March 2022. BYD achieved sales of 1,853,000 units, up 153.8% from the previous year. The Yuan PLUS (called ATTO3 outside China), an EV launched in the first quarter of 2022, became a big hit with sales of 202,000 units for 20. Other major BYD models include the Song DM PHV with sales of 411,000 units and the Dolphin EV, which sold a total of 205,000 units. Among state-owned OEMs, the Chery Group and GAC Group, which saw significant increases in sales volumes, also enjoyed strong sales of NEV models.

Data Source & Chart Maker: MARKLINES

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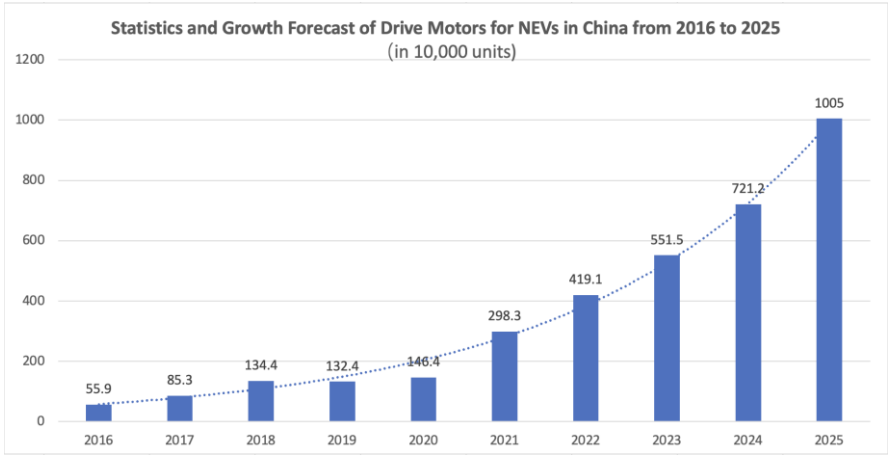
1.1.3 Drive Motor Suppliers



Currently, the Chinese government is focusing on supporting the development of NEVs, and the outlook for the drive motor industry is optimistic, with demand growing rapidly. According to the data (2015-2021), the average annual growth rate of the drive motor market has reached 31.6%. Since 2014, China's NEV market has ranked first in the world for seven consecutive years. As a result, the automotive drive motor industry, with drive motors being one of the three core components of NEVs, has experienced remarkable development. In China, top-tier motor manufacturers in the automotive drive motor industry are mainly NEV manufacturers with their own development and production capabilities, such as BYD, Tesla, VW, and NIO. The market is also served by third-party companies, including automotive parts suppliers, driving motor manufacturers, and conventional motor manufacturers. The latter group includes Nidec, BorgWarner, Jing-Jin Electric, Founder Motor and Ningbo Shuanglin, among others.

Data Source & Chart Maker: MARKLINES

2016-2025 China NEV drive motor installation statistics and growth forecast

1.1.4 Battery Suppliers

China's NEV market grew rapidly after a slump from the second half of 2019 to the first half of 2020, resulting in manufacturers experiencing higher-than-expected demand for lithium-ion (Li-ion) batteries and rapid expansion of production capacity. As new battery design technologies evolve, competition among lithium-ion battery producers will become more intense and complex. The main Li-ion battery business of Chinese NEV manufacturers is centered on Li-ion battery system assemblies, outsourcing battery cells and establishing Li-ion battery system companies in the form of independent companies or joint ventures. The growth of the Chinese NEV market and the change in its growth rate are significant, fueling the rapid growth of the lithium-ion battery market. Ten manufacturers dominate the supply of lithium-ion batteries for NEVs: Contemporary Amperex Technology (CATL), LG Energy Solution, Panasonic Automotive Energy, FinDreams Battery, EVE Energy, China Lithium Battery Technology (CALB), Gotion High-tech, Farasis Energy, SVOLT Energy Technology, and Sunwoda.

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1.2 Production and Marketing Information of NEVs in China (May-June 2023)

1.2.1 May Production and Marketing Information

Analysis of the Production and Marketing of New Energy Vehicles in May 2023

Production of New Energy Vehicles in May 2023

2023/06/10

Unit: 10000, %

	May.	Jan. — May.	MoM	YoY	YoY Jan. — May.
NEVs	71.3	300.5	11.4	53.0	45.1
NEV PCs	68.3	286.2	11.9	54.3	44.9
BEVs	48.8	206.1	7.5	43.2	33.0
PHEVs	19.5	80.1	24.6	91.5	88.2
NEV CVs	3.0	14.2	0.4	28.2	48.6
BEVs	2.9	13.8	-0.2	25.7	48.9
PHEVs	0.0	0.3	-16.9	400.0	40.0

Sales of New Energy Vehicles in May 2023

2023/06/10

Unit: 10000, %

	May.	Jan. — May.	MoM	YoY	YoY Jan. — May.
NEVs	71.7	294.0	12.6	60.2	46.8
NEV PCs	68.9	281	13.2	61.5	46.7
BEVs	49.6	201.9	11.7	51.5	34.6
PHEVs	19.4	79	17.3	94.2	90.7
NEV CVs	2.7	13.1	-1.6	34.4	47.7
BEVs	2.7	12.7	-1.9	31.8	47.6
PHEVs	0.03	0.2	-17.6	790.3	47.6

(http://en.caam.org.cn/Index/show/catid/65/id/2034.html)

Data Source & Chart Maker: CAAM

According to the statistical analysis of the China Association of Automobile Manufacturers, in May 2023, new energy vehicles continued to grow rapidly, and their market share further increased.

Recently, the National Development and Reform Commission and the National Energy Administration issued the "Implementation Opinions on Accelerating the Construction of Charging Infrastructure to Better Support the Rural and Rural Revitalization of New Energy Vehicles". The State Council executive meeting proposed to consolidate and expand the development advantages of new energy vehicles and to continue and optimize the vehicle purchase tax reduction and exemption policy for new energy vehicles, which will help to further stabilize market expectations and release the consumption potential of new energy vehicles.

In May 2023, among the main varieties of new energy vehicles, the production and sales of the three major types of vehicles all increased in different degrees, and the production and sales of the three major types of vehicles all increased rapidly year-on-year. The market share reached 30.1%.

From January to May 2023, among the main varieties of new energy vehicles, compared with the same period of last year, the production and sales of the three major types of vehicles all increased to varying degrees. The market share reached 27.7%.

(http://www.auto-stats.org.cn/ReadArticle.asp?NewsID=11158)

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Brief Analysis of Automobile Export in May 2023

Automobile Exports in May 2023

2023/06/10

Unit: 10000, %

	May.	Jan. — May.	MoM	YoY	YoY Jan. — May.
Cars	38.9	175.8	3.4	58.7	81.5
Which: NEVs	10.8	45.7	7.9	151.3	162.7
Passenger Cars (PC)	32.5	146.7	3.1	66.3	96.6
Which: NEV PCs	10.6	44.1	7.8	152.8	161.7
Commercial Vehicles (CV)	6.3	29.1	5.2	28.6	30.9
Which: NEV CVs	0.3	1.6	12.5	105.3	193.3

In May 2023, 108,000 new energy vehicles were exported, up 7.9% from the previous month and 1.5 times from the same period last year.

From January to May 2023, 457,000 new energy vehicles were exported, a year-on-year increase of 1.6 times.

In May 2023, among the top ten export enterprises, SAIC's export volume increased by 5.9% year-on-year, accounting for 21.3% of the total export volume. Compared with the same period last year, Chery's export growth rate was the most significant, with 74,000 vehicles exported, up 1.7 times year-on-year.

From January to May 2023, among the top ten export enterprises, BYD exported 69,000 vehicles, a year-on-year increase of 14.2 times. Chery exported 319,000 vehicles, a year-on-year increase of 1.8 times; The Great Wall exported 99,000 vehicles, doubling year-on-year. (Automobile, not just EV)

Data Source & Chart Maker: CAAM

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1.2.2 June Production and Marketing Information

Analysis of the Production and Marketing of New Energy Vehicles in June 2023

Production of New Energy Vehicles in June 2023

2023/07/12

Unit: 10000, %

	Jun.	Jan. — Jun.	MoM	YoY	YoY Jan. — Jun.
NEVs	78.4	378.8	9.9	32.8	42.4
NEV PCs	74.8	361.0	9.5	32.8	42.2
BEVs	51.3	257.5	5.1	16.7	29.4
PHEVs	23.4	103.5	20.4	90.4	88.7
NEV CVs	3.6	17.8	19.0	32.4	45.0
BEVs	3.5	17.3	18.6	31.3	45.0
PHEVs	0.08	0.3	160.3	140.9	55.9

Sales of New Energy Vehicles in June 2023

2023/07/12

Unit: 10000, %

	Jun.	Jan. — Jun.	MoM	YoY	YoY Jan. — Jun.
NEVs	80.6	374.7	12.5	35.2	44.1
NEV PCs	76.7	357.7	11.3	34.9	44
BEVs	53.5	255.5	8.0	19.3	31.1
PHEVs	23.2	102.2	19.6	93.2	91.3
NEV CVs	3.9	16.9	42.9	40.5	46.0
BEVs	3.8	16.4	42.4	40.5	45.9
PHEVs	0.05	0.3	69.6	34.5	45.3

(http://en.caam.org.cn/Index/show/catid/65/id/2033.html)

Data Source & Chart Maker: CAAM

According to the statistical analysis of the China Association of Automobile Manufacturers, in June 2023, new energy vehicles will continue to grow rapidly, and their market share will increase steadily.

In June 2023, among the main types of new energy vehicles, the production and sales of plug-in hybrid vehicles will hit a record high for the first time. Compared with the previous month, the production and sales of pure electric vehicles and plug-in hybrid vehicles have increased to varying degrees, while the production and sales of fuel cell vehicles have declined and sales have increased; compared with the same period last year, the production and sales of the three major types of vehicles have all increased.

From January to June 2023, among the main varieties of new energy vehicles, compared with the same period of the previous year, the production and sales of the three major categories of vehicles all showed varying degrees of growth.

(http://www.auto-stats.org.cn/ReadArticle.asp?NewsID=11165)

Data Source & Chart Maker: CAAM

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Brief Analysis of Automobile Export in June 2023

Automobile Exports in June 2023

2023/07/12

Unit: 10000, %

	Jun.	Jan. — Jun.	MoM	YoY	YoY Jan. — Jun.
Cars	38.2	214.0	-1.7	53.2	75.7
Which: NEVs	7.8	53.4	-28.4	172.6	164.1
Passenger Cars (PC)	31.2	178	-4.1	57.7	88.4
Which: NEV PCs	7.5	51.6	-28.8	175.5	163.5
Commercial Vehicles (CV)	7.0	36.1	10.7	36	31.9
Which: NEV CVs	0.2	1.9	-10.5	105.3	180.4

According to the statistical analysis of the China Association of Automobile Manufacturers, in June 2023, automobile exports will continue to grow at a high speed. A year-on-year increase of 75.7% contributed significantly to the overall growth of the market.

In June 2023, among the top ten exporters of complete vehicles, SAIC Motor exported 87,000 vehicles, a year-on-year increase of 15.1%, accounting for 22.7% of the total export volume.

From January to June 2023, among the top ten exporters of complete vehicles, BYD exported 81,000 vehicles, a year-on-year increase of 10.6 times; Chery exported 394,000 vehicles, a year-on-year increase of 1.7 times; Great Wall exported 124,000 vehicles, a year-on-year increase of 1.7 times; An increase of 97.3%.

Data Source & Chart Maker: CAAM

1.2.3 July NEV Sales Leaderboard

Several changes are noteworthy in the July NEV Models sales leaderboard. Tesla Model Y fell from the top to the number 5 position, and 4 BYD models occupy the top positions. The newly launched Seagull has risen from 10th to 4th position as BYD continues to ramp up production and fill their distribution channel. It's also apparent that the lower-priced Seagull (which starts at RMB 78,800) is cannibalizing the sales of the BYD Dolphin, which fell from 4th to 8th on the leaderboard.

Top 10 NEV Models

July Retail Sales

No.	Model		7/2023 Sales	YoY
1	BYD Song	↑	48,791	29.1%
2	BYD Qin	↑	37,129	9.4%
3	BYD Han	↑	25,179	-0.4%
4	BYD Seagull	↑	24,989	-
5	Tesla Model Y	↓	23,632	211.6%
6	BYD Yuan Plus		23,594	22.6%
7	GAC Aion S	↑	22,437	226.9%
8	BYD Dolphin	↓	21,800	6.4%
9	GAC Aion Y		17,861	42.5%
10	Hongguang Mini EV	↑	15,499	-58.3%

Source: CPCA, Automobility analysis

Top 10 NEV Group sales also includes a few interesting positional movements, with Tesla falling from 2nd to 7th position, posting their second weakest sales month of the year, as they ramp down production of Model 3 ahead of a much-needed refresh. Li Auto put up its 2nd consecutive month with sales over 30,000 units to rank 6th and NIO surpassed 20,000 units for the first time to finish 8th. Volkswagen continues to struggle, with group NEV sales falling 18.2% to finish 10th overall.

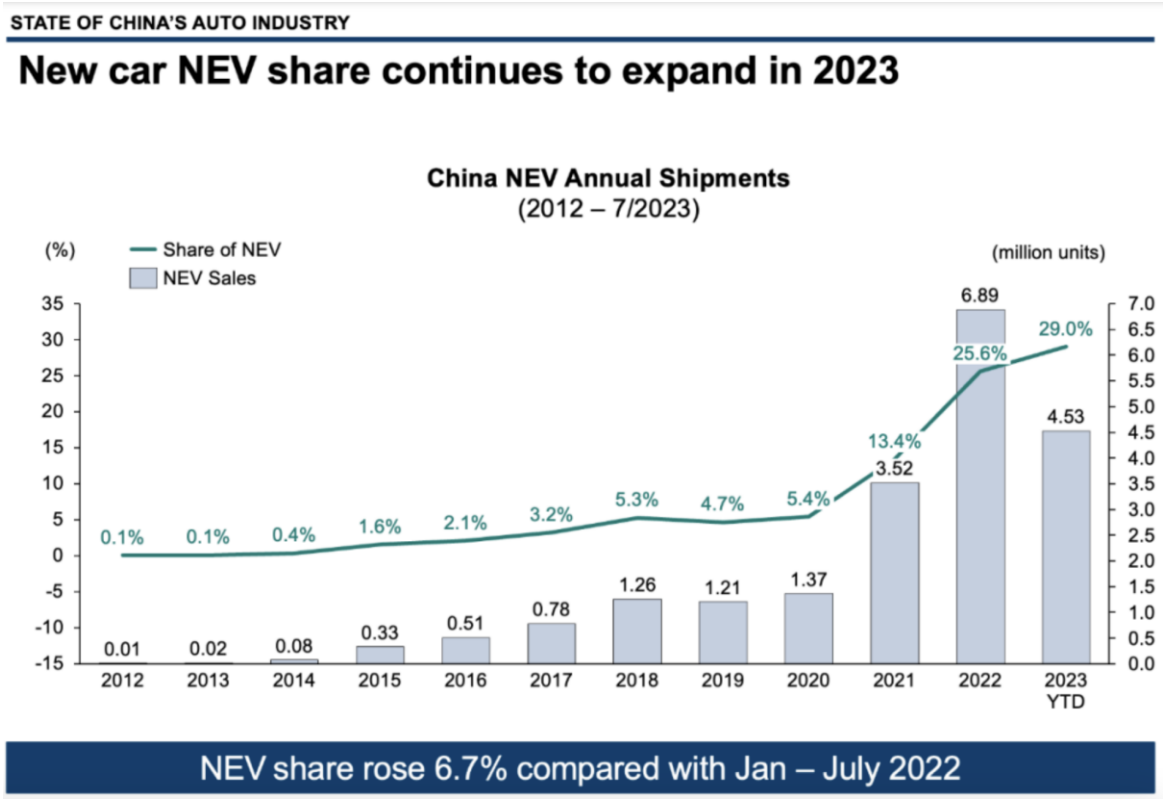
Top 10 NEV Corporate Group
July Retail Sales

No.	Group		7/2023 Sales	YoY
1	BYD		230,882	45.6%
2	GAC (Aion)	↑	45,025	79.9%
3	Geely	↑	38,734	25.9%
4	Chang'an	↑	35,209	120.2%
5	SGM –Wuling	↑	34,811	-13.8%
6	Li Auto	↓	34,134	227.5%
7	Tesla	↓	31,423	271.4%
8	Great Wall		26,505	159.9%
9	NIO	↑	20,462	103.6%
10	VW	↓	17,806	-18.2%

Source: CPCA, Automobility analysis

1.2.4 Are We Flattening the NEV Curve?

While NEVs are the only bright spot in terms of year-over-year growth, there is some evidence that we may be reaching the top of this initial growth spurt. Year-to-Date NEV growth remains solid at 41.7%, and market share through July is 29%. However, the performance was boosted by a price war which is losing steam.



Source: CPCA, Automobility analysis

While BYD continues to put up astounding sales volumes and takes 37% of NEV sales, BYD actually sold 348 fewer cars in July than in June. While this is just a small number compared with the total, its the first time BYD has experienced a month-to-month sales decline in several years. Not withstanding this, BYD still completely dominates the overall NEV sales leaderboard in 2023 through July. There was very little positional movement when compared with last month's leaderboard, with the only changes being that Great Wall and VW traded places and NIO replaced Hozon (Neta) as the 10th ranked company.

A few points to note:

- **#1 BYD outsells #2 Tesla by over 1 million units**, and #10 NIO by over 1.3 million units
- **Tesla market share fell from 9.5 to 8.7% from June to July.** They ended last year at 7.8%. The price war bought Tesla 0.9% share gain in 2023.
- The **top 5 companies command 63.5%** of the NEV market.
- The **top 10 command 80.3%** of the market.
- Over **100 other companies are dividing 19.7% of the market**. We hope that many of them soon rest in peace or find a deep-pocketed investor as they are not sustainable businesses on their own.

STATE OF CHINA'S AUTO INDUSTRY

The top 10 market leaders now command over 80% of China's NEV market over the first seven months of 2023

80.3%

63.5%

No.	Group	2023 YTD Sales	YoY	Market %
1	BYD	1,385,455	74.8%	37.2%
2	Tesla	325,528	58.0%	8.7%
3	GAC (Aion)	254,361	98.9%	6.8%
4	SGM - Wuling	211,919	-14.7%	5.7%
5	Geely	189,392	42.5%	5.1%
6	Li Auto	173,251	144.6%	4.7%
7	Chang'an	170,883	108.5%	4.6%
8	Great Wall ↑	106,688	47.3%	2.9%
9	VW ↓	98,752	-2.0%	2.6%
10	NIO ↑	75,023	23.2%	2.0%

No.	Model	2023 YTD Sales	YoY
1	BYD Song	306,930	55.9%
2	BYD Qin ↑	237,403	31.6%
3	Tesla Model Y ↓	227,564	61.0%
4	BYD Dolphin	175,201	122.5%
5	BYD Yuan Plus	164,671	122.8%
6	GAC Aion S ↑	138,036	190.8%
7	Hongguang Mini EV ↓	137,536	-39.1%
8	BYD Han	122,878	0.5%
9	GAC Aion Y	109,870	90.5%
10	Tesla Model 3	97,964	51.3%

BYD has gained NEV market share in 2023 with 5 of the top 10 selling models

Note: Retail sales in China
Source: CPCA, Automobility analysis

With the ongoing global energy transition, new energy vehicles (NEV) have become a significant direction for the development of the global automotive industry. This report focuses on the current status of global new energy vehicle industry development, the industrial layout of Chinese new energy vehicle-related companies in Europe, potential opportunities and challenges they might face, and presents relevant strategies and recommendations.

2.1 Rapid Global NEV Development Offers Future Market Opportunities

In recent years, countries around the world have introduced measures to enhance policy support for new energy vehicles. Major automotive companies have also significantly increased their research and development investments, leading to the flourishing growth of the new energy vehicle industry.

- **Developing new energy vehicles has become a consensus among nations.**

Currently, more than 130 countries and regions have put forward climate goals to achieve 'zero carbon' or 'carbon neutrality.' The transportation sector contributes to approximately one-fourth of the global total carbon dioxide emissions, ranking second only to energy generation and heating as the second-largest carbon emitting sector. Reducing carbon emissions in the transportation sector holds significant importance, making new energy vehicles a focal point in the development of automotive industries worldwide.

- **Multiple countries have established timetables for phasing out internal combustion engine vehicles, promoting the development of new energy vehicles through financial and legal means.**

Countries and regions such as Europe, the United States, and China have introduced various carbon reduction policies in the transportation sector, driving the transition towards vehicle electrification. Additionally, they are supporting the development of the new energy vehicle industry through policies related to finance, legislation, infrastructure, and international cooperation.

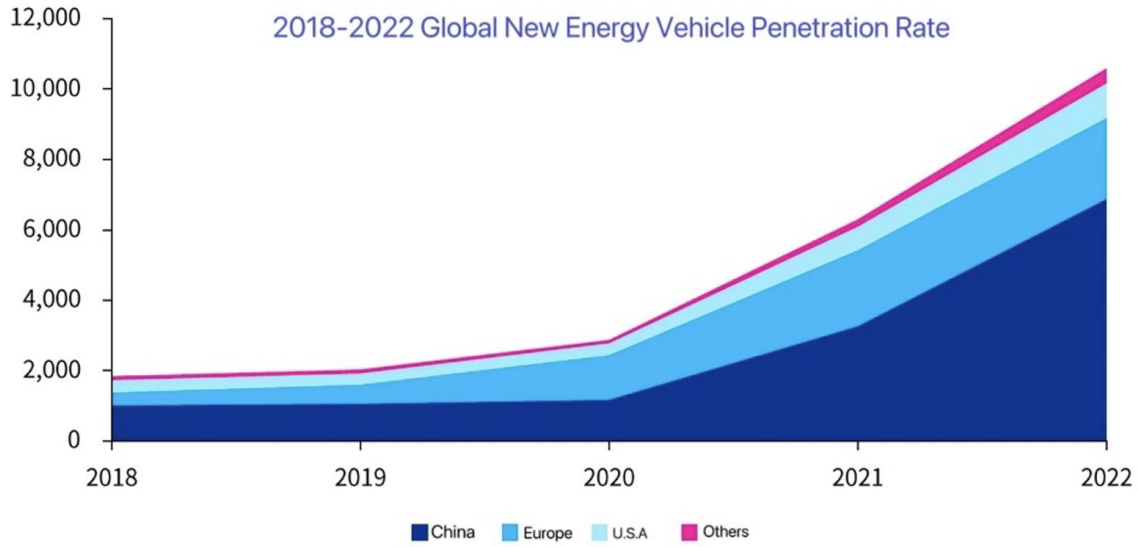
- **Advancements in technologies such as batteries, connectivity, and intelligence continue to enhance the user experience of new energy vehicles.**

The progress in battery technology holds the potential to further reduce costs, enhance performance, and improve safety for new energy vehicles. Simultaneously, the maturity of connectivity and intelligent technologies boosts up the development of new energy vehicles.

- **Global sales of new energy vehicles have surpassed a critical point, with rapid increases in market penetration.**

Global sales of new energy vehicles have risen from 2.11 million units in 2018 to 10.44 million units in 2022. During the same period, the global market penetration of new energy vehicles has increased from 2% to 13%.

Data Source & Chart Maker: KPMG



Source: Organisation Internationale des Constructeurs d'Automobiles (OICA)

- **China, Europe, and the United States are the major markets for new energy vehicles worldwide.**

  In 2022, their respective shares of global NEV sales were 64%, 22%, and 9%, collectively accounting for 95% of global NEV sales.

- **Leading the global sales charts for new energy vehicles, companies from China and the United States dominate.**

  BYD takes the lead as the world's top-selling new energy vehicle manufacturer in 2022. BYD secured the first position in global NEV sales, followed by Tesla in second place, and SAIC General Motors Group's new energy vehicle sales ranking third among vehicle manufacturers.

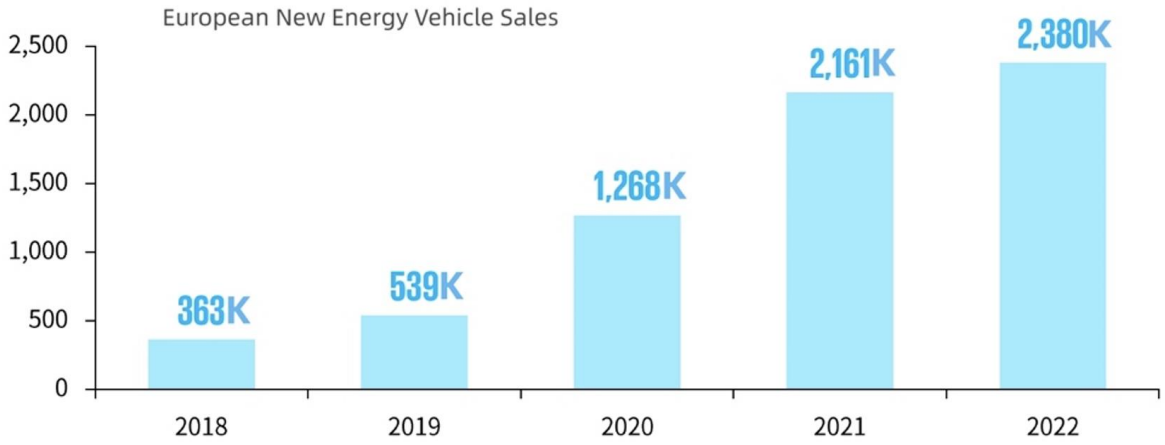
Data Source & Chart Maker: KPMG

2.2 Europe: Key Destination in China's NEV "Going Global" Strategy

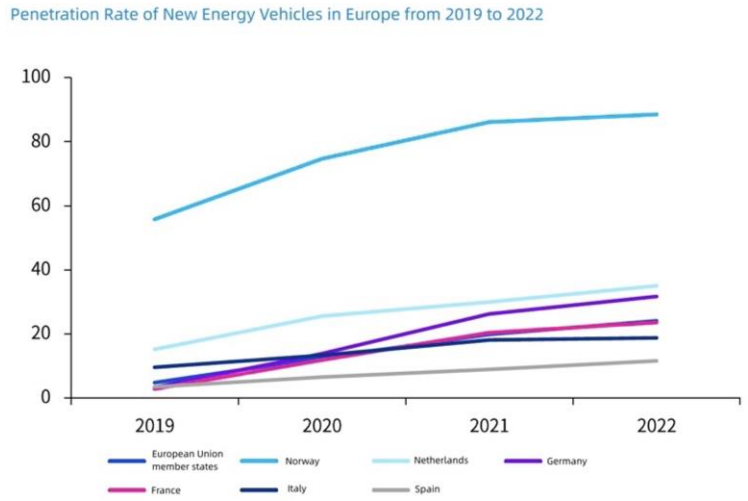
Policy Support, Infrastructure, Consumer Mindset, and Other Factors Drive Rapid Development of the European New Energy Vehicle Market. An increasing number of Chinese automotive companies are giving priority to Europe as they venture abroad.

- **The European new energy vehicle market is vast with significant growth potential.**

From 2018 to 2022, the annual average growth rate of new energy vehicle sales in Europe reached 58%, second only to China during the same period (61%), making it the world's second-fastest-growing market. According to the predictions of the European Automobile Manufacturers Association (ACEA), by 2030, three out of every five cars in Europe will be new energy vehicles, achieving a penetration rate of 60%, far surpassing the global penetration rate of 26%.



Source: Organisation Internationale des Constructeurs d'Automobiles (OICA)



Source: European Commission, KPMG Analysis

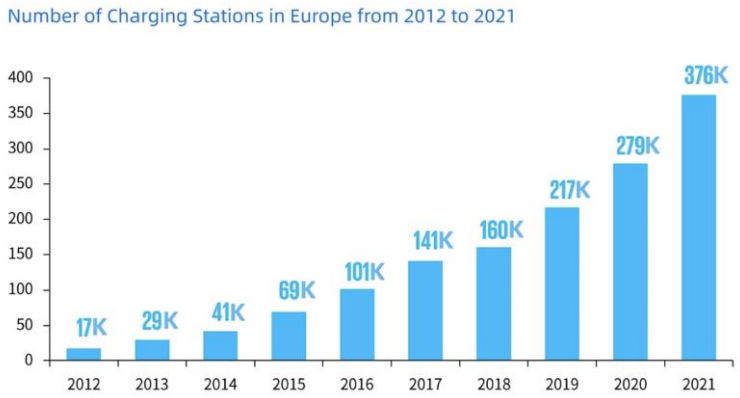
Data Source & Chart Maker: KPMG

- **The European Union has established carbon reduction targets for the automotive industry, actively promoting the development of new energy vehicles.**

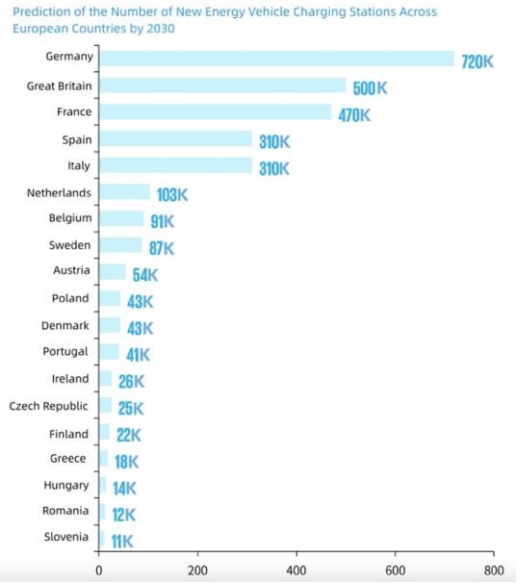
At the EU level, in April 2023, the EU passed the "2035 European Zero-Emission Sales Agreement for New Passenger Cars and Vans," signifying that the EU will be the first region to achieve complete electrification of automobiles. On a national level, the subsidy efforts for new energy vehicles vary across European countries. Various nations are also intensifying their support for new energy vehicles by reducing vehicle registration taxes, road taxes, and providing broader road rights incentives for electric vehicle usage.

- **Investment in charging and other supporting infrastructure has enhanced the convenience of using new energy vehicles.**

The number of charging stations for new energy vehicles in Europe increased from 17,000 in 2012 to 376,000 in 2021, but it still struggles to meet the rapidly growing demand for new energy vehicles. Statista projects that by 2030, Germany, the United Kingdom, and France are expected to have approximately 720,000, 500,000, and 470,000 charging stations respectively, ranking them among the top three in Europe.



Source: European Alternative Fuels Observatory, Statista, KPMG Analysis



Source: European Alternative Fuels Observatory, Statista, KPMG Analysis

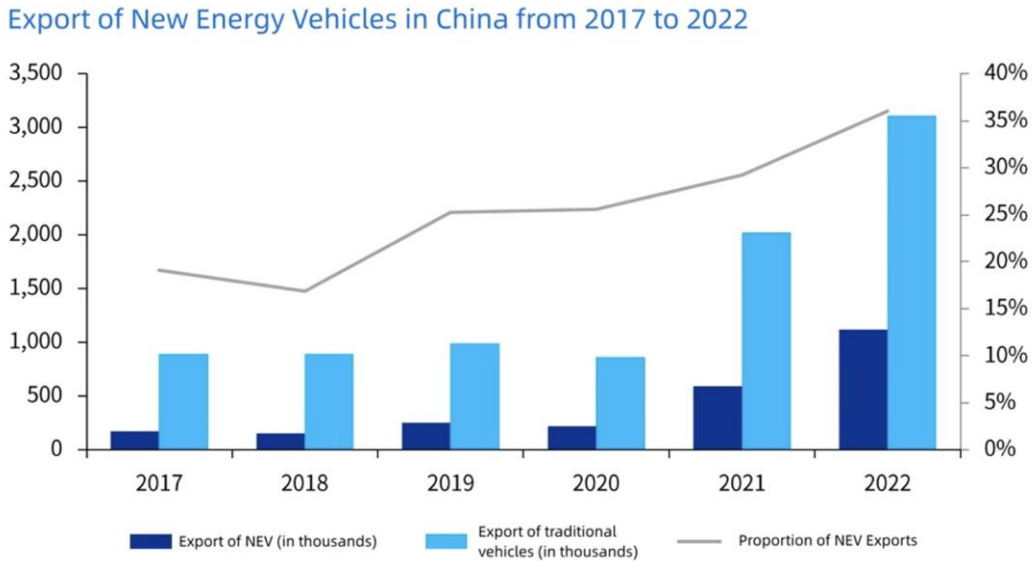
Data Source & Chart Maker: KPMG

- **European consumers exhibit a strong environmental consciousness, leading to a high acceptance of new energy vehicles.**

According to research by the European Investment Bank (EIB), half of the surveyed EU respondents stated a preference for hybrid or fully electric vehicles when making car purchases, surpassing the proportion opting for traditional fuel-powered vehicles (24%).

- **China's new energy vehicle exports are further bolstered, with nearly half of its total new energy vehicle exports directed to Europe.**

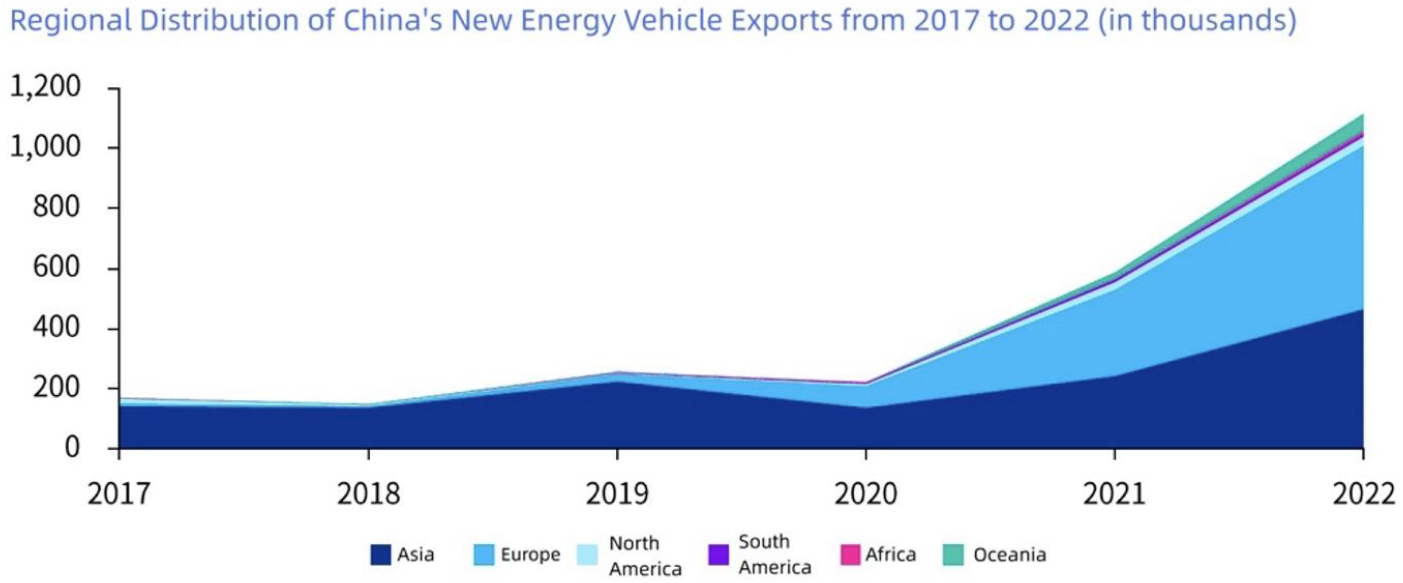
The share of Chinese new energy vehicle exports as a portion of overall vehicle exports has risen from 19% in 2017 to 36% in 2022.



Source: China Passenger Car Association, KPMG Analysis

Data Source & Chart Maker: KPMG

In the first quarter of this year, China‘s electric vehicle exports surged by 122.3% year-on-year, simultaneously contributing a 5.1-percentage-point increase to the proportion of China’s total vehicle exports. According to data compiled by the China Association of Automobile Manufacturers (CAAM) concerning new energy vehicle exports, in 2021, China‘s exports of new energy vehicles to Europe surpassed those to its traditional Asian export markets, accounting for 48% of new energy vehicle exports. Europe emerged as the top destination for China’s new energy vehicle exports, and in 2022, China continued to lead other regions in new energy vehicle exports to Europe.



Source: China Passenger Car Association, KPMG Analysis

Data Source & Chart Maker: KPMG

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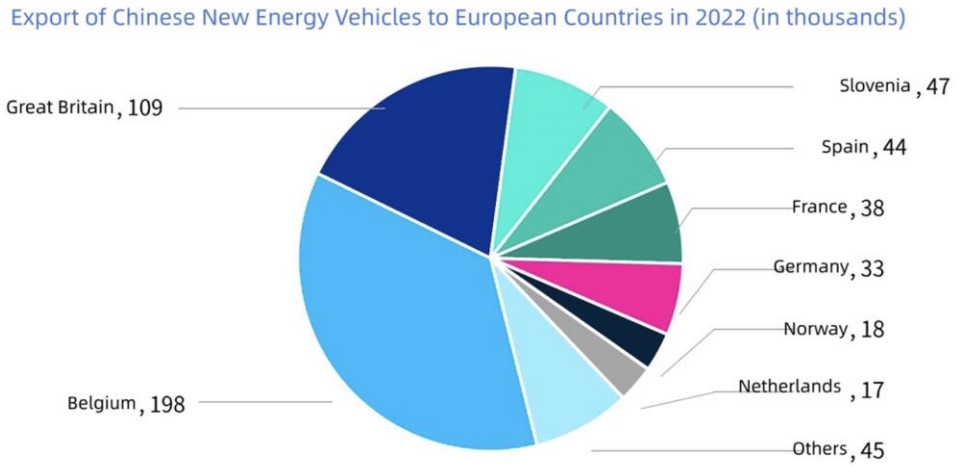
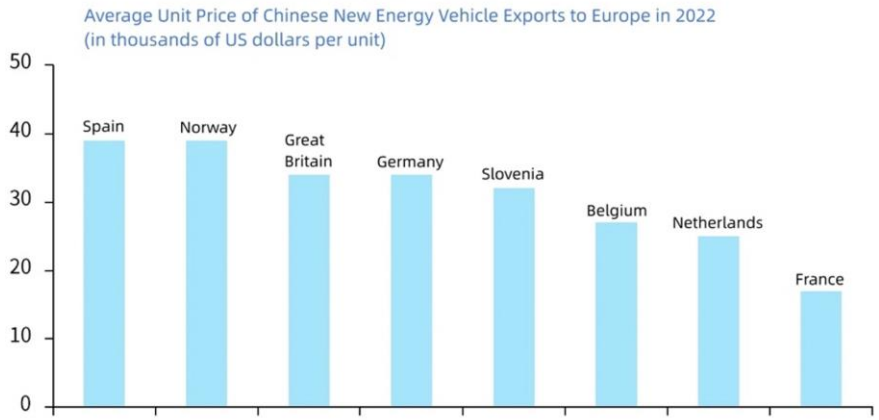
Belgium became the largest recipient of China's new energy vehicle exports to Europe, as numerous Chinese automakers choose Belgium as a gateway to transport vehicles to other European countries. While Norway imports fewer new energy vehicles from China, its friendly policies, open market environment, well-established charging infrastructure, and convenient port conditions make it a pivotal gateway for Chinese automakers venturing into the European market.



Source: China Passenger Car Association, KPMG Analysis



Source: China Passenger Car Association, KPMG Analysis

In 2022, the average export price of Chinese new energy vehicles to Europe was $30,000 per unit, higher than the global average export price of $22,000. Among them, the highest average export prices were recorded for shipments to Spain and Norway, reaching $39,000.

Data Source & Chart Maker: KPMG

2.3 Chinese Firms Boost Greenfield Investments in Europe's Auto Sector

In 2022, Chinese greenfield investments in Europe reached €4.5 billion, representing a remarkable 55% year-on-year increase. This surge marked the first time in a decade that greenfield investments surpassed M&A activity. The significant growth was mainly driven by the booming automotive sector, which accounted for 53% of Chinese investments in Europe, marking a substantial 33-percentage-point increase from 2021. The automotive industry's expansion in Europe was particularly led by upstream players in the electric vehicle industry chain, such as power battery manufacturers, who established manufacturing facilities and increased production capacity in well-established European automotive hubs.

In addition to greenfield investments, mergers and acquisitions have long been a crucial avenue for China's investments in Europe. Within the new energy vehicle industry chain, from 2019 to February 2023, a total of 14 Chinese mergers and acquisitions took place in Europe. These transactions were primarily concentrated in the upstream and midstream segments of the industry chain. Among them, the upstream acquisitions were mainly centered around lithium mines and batteries, totaling 10 deals, while the midstream transactions accounted for 4 deals, involving aspects related to complete vehicles and components.

Data Source & Chart Maker: KPMG

All six upstream deals related to lithium mines involved controlling platforms based in the United Kingdom. Germany, known for its advanced automotive industry, had three transactions involving lithium batteries, components, and complete vehicles. Two deals took place in Hungary, both of which pertained to the acquisition of equity in GreenMotion Urban Transport (Europe) Limited by BYD. Additionally, there was one transaction each in Italy, Belgium, and Denmark. In terms of transaction amounts, the largest deal was Ganfeng Lithium's acquisition of a 51% stake in Bacanora Lithium Limited for £190 million in 2022. Bacanora Lithium's flagship asset is the Sonora Lithium Project in Mexico, one of the largest lithium resources projects globally.

2.4 Enhancing China's NEV Presence in European Industry Chain

Currently, China's new energy vehicle industry has established a comprehensive presence across the entire industry chain through investments in Europe. Leveraging its accumulated advantages in power battery technology, Chinese companies have predominantly focused on mergers and acquisitions as well as greenfield investments in the power battery industry chain, forming the cornerstone of their investment strategies in the European market.

2.4.1 Power Batteries: Accelerated Greenfield Investments by Chinese Companies in Europe

Europe is a significant incremental market for global new energy vehicles. Since 2021, the pace of Chinese power battery companies establishing manufacturing facilities in Europe has notably accelerated. Six major domestic battery enterprises, including CATL (Contemporary Amperex Technology Co., Ltd.), have already established or planned to set up factories in Europe. These endeavors aim to channel their products and technologies into overseas markets.

Data Source & Chart Maker: KPMG

On March 16, 2023, the European Commission unveiled the "European Critical Raw Materials Act" to secure the EU's access to vital, sustainable raw materials like rare earth elements, lithium, cobalt, nickel, and silicon. By 2030, the EU aims to produce 10% domestically, process 40%, and recover 15% of these materials each year. Moreover, they plan to limit annual consumption from any single third-party country to 65% of their demand during processing. Companies in the new energy vehicle sector targeting the European market must invest in localized raw material production for future endeavors.

2.4.2 Automakers: Expanding in Europe for Quality Enhancement and Cost Control Across the Industry Chain

Considering Europe's prominent position in the global automotive industry and its strategic significance as a vital overseas market for Chinese new energy vehicles, a majority of Chinese automotive companies have established research and development centers in Europe. This enables them to better understand local market demands and establish connections with local suppliers, distributors, and other stakeholders.

Furthermore, some Chinese automakers are expanding their presence in Europe through investment and manufacturing facility establishment. Since 2017, companies like BYD, Geely, and NIO have embarked on ventures to construct new energy bus and passenger car plants in countries such as Hungary and the United Kingdom. For instance, in July 2022, NIO announced the construction of its first overseas factory in Biatorbágy, Pest County, Hungary. Once completed, this facility will serve as NIO's manufacturing, service, and research and development center in Europe.

Data Source & Chart Maker: KPMG

2.4.3 Sales and Aftermarket: Perfected Services are the Key to Success in Europe

The downstream of the industry chain mainly encompasses complete vehicle sales of new energy cars, charging and swapping facilities, and automotive aftermarket services. To better cater to local European consumers, along with the entry of Chinese new energy vehicles into the European market, there are accompanying marketing and after-sales service networks. Presently, Chinese automotive companies primarily adopt a combination of strategies, including company-owned stores and agency/dealership models. For instance, companies like Lynk & Co and NIO, while focusing on company-owned stores, are also actively exploring the popular subscription model in Europe.

2.5 Advantages of Chinese NEVs in the European Market

- **China's new energy vehicle industry boasts a comprehensive supply chain and holds advantages in key areas like power batteries.**

A fully integrated and efficient supply chain is a core advantage of Chinese manufacturing, and this extends to the new energy vehicle sector. According to data from SNE Research, in 2022, Chinese companies accounted for 60% of the global installed capacity of power batteries, marking a 12-percentage-point increase from 2021. Among the top ten battery manufacturers worldwide, five are based in China, with CATL leading the way, increasing its market share from 33% in 2021 to 37%.

Data Source & Chart Maker: KPMG

- **China's rapid development in the digital economy provides a strong background for enhancing the digitalization and intelligence of new energy vehicle enterprises.**

With a vast user base, China's digital economy has grown rapidly. Chinese automotive companies are leveraging technologies such as vehicle connectivity, autonomous driving, artificial intelligence, and big data to enhance vehicle intelligence, driving safety, and user experiences. This advancement is propelling the acceleration of intelligent vehicle-to-vehicle communication in new energy vehicles, better catering to the demands of high-end European consumers.

- **China's new energy vehicle industry benefits from economies of scale and boasts a diverse lineup of models, catering to various consumer demands.**

As the world's largest producer of new energy vehicles, China has secured the top spot in terms of production, sales, and ownership for eight consecutive years. This size advantage is evident. In 2022, China offered consumers a selection of 136 new energy vehicle models, including 110 pure electric vehicle models, leading the world. Compared to manufacturers like Tesla, BMW, and Mercedes-Benz, Chinese new energy vehicles cover a wider price range in Europe, accommodating a broader range of consumer demographics and preferences.

3: 2023 China Automotive Industry Trends Outlook

3.1 Globalization: Global Automotive Growth Persists Amid Geopolitical Tensions

3.2 Sustainable Development: Automakers Worldwide Pursue Global ESG Circular Ecosystem

3.3 Policy and Investment: "New Energy, Tech, and Business Models" Remain Key Policy and Investment Focus

3.4 Value Landscape Restructuring: Emerging Values Pool to Yield 80% Market Share for Innovators

3.5 Cornerstone of Success: Total Cost of Ownership (TCO) Remains Core Advantage, with Over 20% Reduction Potential in 7 Years

3.6 Consumer Tribes: Consumer Segmentation Grows, AI Boosts Marketing, Market to Reach Trillions

3.7 Technological Transformation: Material, Energy, and Tech-Driven Innovations Reshaping Industry Competitive Landscape

3.8 Competitive Landscape: Chinese Auto Industry Dominated by Leading Firms, Smaller Players in Segmented Segments

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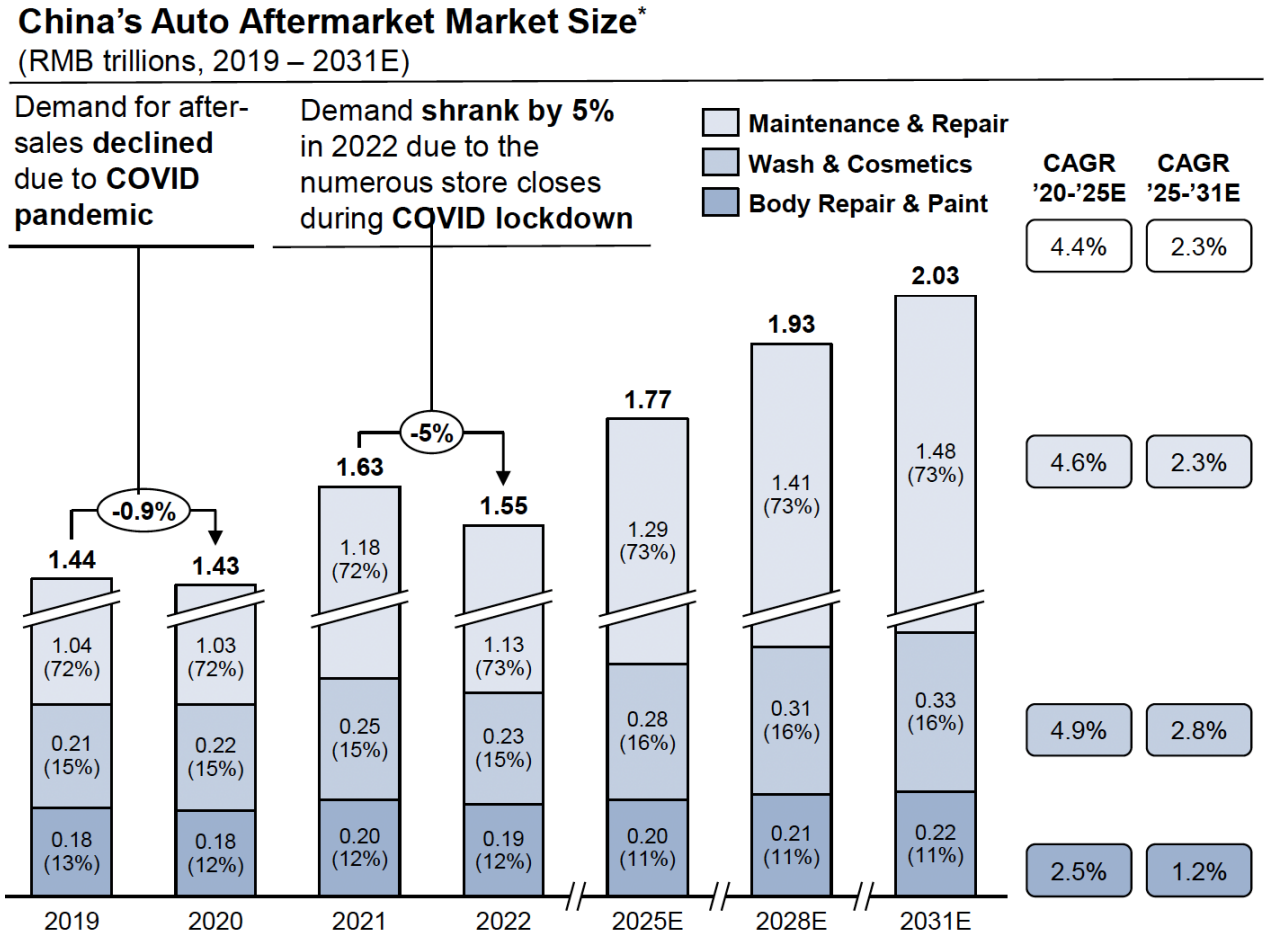
China's auto aftermarket is expected to reach RMB 2tn in 2030, with focus growth on maintenance and repair segment.



Channels including OEM licensed network, independent aftermarket. Value includes parts and labour.
Source: Desktop research, Automobility analysis

- China's automobile aftermarket scale will continue to grow steadily with heavy weight on **maintenance and repair** segment
- As **the penetration of EV increases**, ICE car parc is expected to reach its peak in 2027 and will further **lead to a slowdown in the growth rate** of the automotive aftermarket –ICE related services are diminishing
- New aftermarket demands will emerge and bring structural adjustment to maintenance and repair as **NEV services increases rapidly**, but it only takes less than 3% in the overall market share

-- Bill Russo from Automobility Ltd.

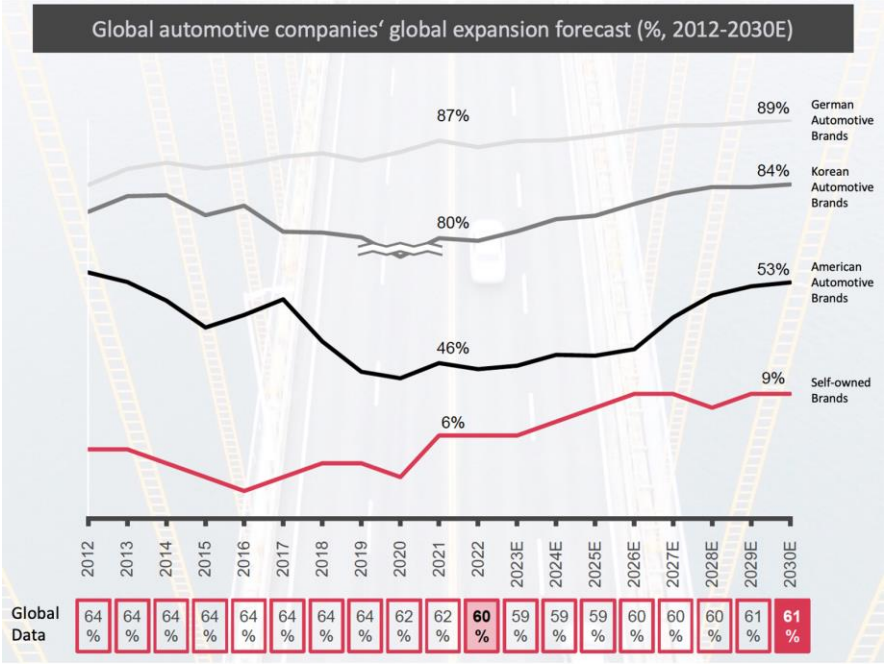
Looking ahead to 2030, the entire automotive industry will likely exhibit a competitive landscape dominated by 3 to 5 large and strong leading car companies, with several small and medium-sized enterprises focusing on specific niche markets and user segments.

3.1 Globalization: Global Automotive Growth Persists Amid Geopolitical Tensions

Geopolitical shifts are intensifying, bringing significant uncertainty to global economic cooperation, especially for China's new energy automotive sector, which is in a phase of active market expansion. Navigating the process of hedging regional conflict risks while fully capitalizing on the historic opportunities presented by the transformation of the energy landscape is a formidable challenge facing China's major automotive enterprises.

Major global regions and countries have essentially reached a consensus on the strategic pathways for new energy vehicle development. Comprehensive efforts are being made in various aspects such as capital markets, corporate investments, and national industrial policies to propel the advancement of new energy vehicles. China has accumulated a strong advantage in the new energy vehicle industry chain and ecosystem, establishing itself as a significant player in the globalization of the automotive industry.

China requires a vast automotive consumer market beyond its borders, and it is poised to deliver tangible benefits to global consumers through the rapid accumulation of technological resources. This drive is underpinned by a robust intrinsic demand that transcends geopolitical considerations.

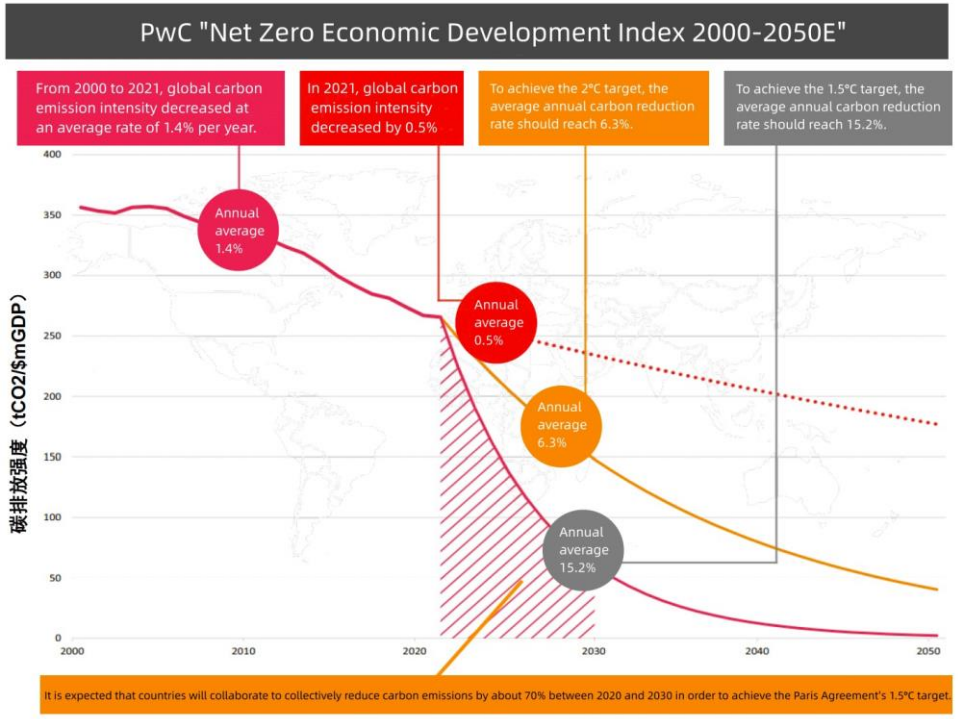


Source: Desktop research, IHS, strategy&

Data Source & Chart Maker: strategy&

3.2 Sustainable Development: Automakers Worldwide Pursue Global ESG Circular Ecosystem

The concept of sustainable development has become a fundamental consensus among governments, businesses, and the public in countries like China and other leading developing nations, as well as major developed economies. In an optimistic scenario from 2020 to 2030, countries globally are poised to collaborate fully to achieve an annual average reduction of around 15% in carbon emissions, ensuring the successful realization of the Paris Agreement's goal to limit temperature rise to below 1.5°C.



Source: strategy&

Data Source & Chart Maker: strategy&

All stakeholders within the ecosystem are joining forces in the realm of ESG, collectively driving sustainable development and maximizing societal value. Specifically, in the context of automotive enterprises, ESG development is expected to follow these trends in the future:

- ESG regulations and disclosure mechanisms will become widely adopted, with capital favoring vehicle companies that demonstrate excellent ESG performance over the long term.
- Global automotive companies will gradually align with ESG frameworks and standards, while still adhering to region-specific ESG development criteria in certain countries. Achieving ESG compliance will become a crucial passport for international expansion of automotive enterprises.
- ESG will become a fixed module in automotive companies' strategic planning, gradually integrating into corporate culture and values. ESG will hold a key role alongside functions like human resources, finance, and legal departments within these companies.
- Automotive companies will fully implement digitalization in their ESG strategies, achieving comprehensive digitized management of carbon tracking, verification, and trading. This will be used for corporate management and operational carbon management, with connections to societal and individual carbon credit systems.
- ESG performance of automotive companies will stand as a critical consumer purchasing factor alongside product performance and brand value. Companies with strong ESG performance will receive more positive public feedback and higher conversion rates in terms of sales.

Data Source & Chart Maker: strategy&

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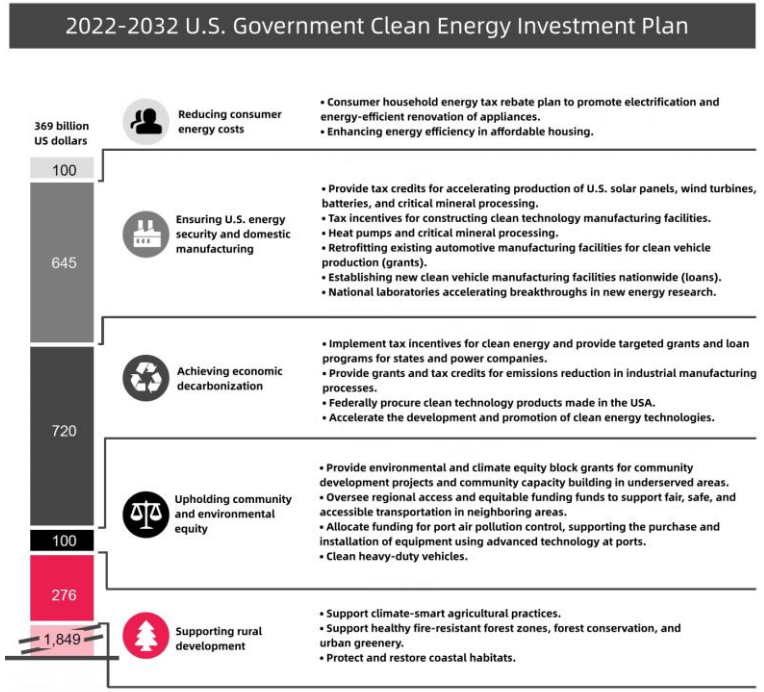
3.3 Policy and Investment: "New Energy, Tech, and Business Models" Remain Key Policy and Investment Focus

Post-pandemic era: Governments around the world are gradually shifting their focus towards economic development and boosting market confidence. Emerging technologies and novel business models, as crucial drivers of economic growth, will become the primary targets for government fund subsidies. Additionally, new energy, being a pivotal means for countries to achieve their dual-carbon goals, will also require subsidies and guidance from national, regional, and local governments. We anticipate that government investments and subsidies aimed at fostering the development of new energy, new technologies, and new business models will persist in the coming years.

Cumulative new energy investment in key countries exceeds $1 trillion US dollars

Country	Billions of US dollars
Canada	6.6
United States of America	369
European Union	635.4
France	164.4
Russia	4.7
Japan	15.3
Thailand	58.7
Australia	13
United Arab Emirates	164.4

Source: China Merchants Securities, U.S. Senate, strategy&



Data Source & Chart Maker: strategy&

3.4 Value Landscape Restructuring: Emerging Values Pool to Yield 80% Market Share for Innovators

In the upcoming years, as the penetration rate of new energy vehicles increases, software services such as intelligent driving and smart cabins undergo further upgrades, financial service demands rise, and more cross-industry competitors enter the field, the automotive industry's value pool will undergo restructuring. New value pools will emerge and expand rapidly. It is projected that around 80% of incremental value will be held by innovative pioneers in the automotive sector, with traditional players sharing the remaining 20% of the incremental value:

- Under the impetus of the New Four Modernizations, emerging value pools such as financial services, in-car and software services, energy supplementation services, mobility services, and battery recycling are growing rapidly, with their strategic importance to automotive companies increasing steadily.
- Traditional automotive value pools like car production, sales, components, and after-sales services still hold substantial scale. However, in terms of growth magnitude and profitability, emerging value pools possess extensive untapped potential.
- As more new players and cross-industry competitors enter the scene, the rapidly expanding emerging value pools are also confronted with intense competition. Dominant new ecological competitors will seize around 80% of the shares in these emerging value pools, potentially giving rise to several trillion-dollar-scale automotive companies or consortia.
- Traditional automotive companies should align with the trends in value pool development, assess their foundational capabilities and attractiveness to new value pools, pinpoint their positions, accelerate innovation, and shift their core competitive strengths towards the realm of new value pools. This approach aims to secure a larger market share in the competitive landscape of these new value pools.

Data Source & Chart Maker: strategy&

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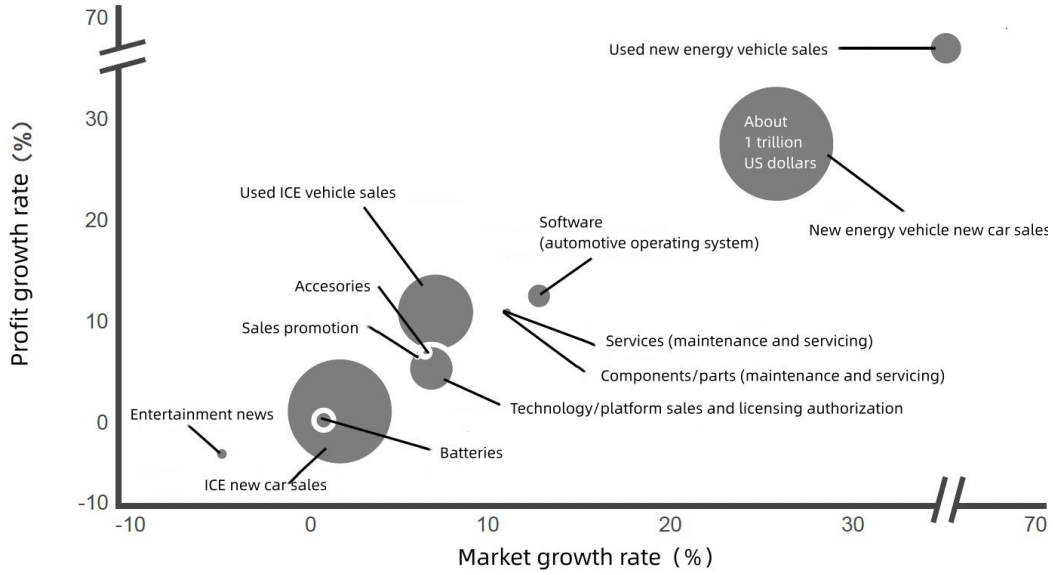
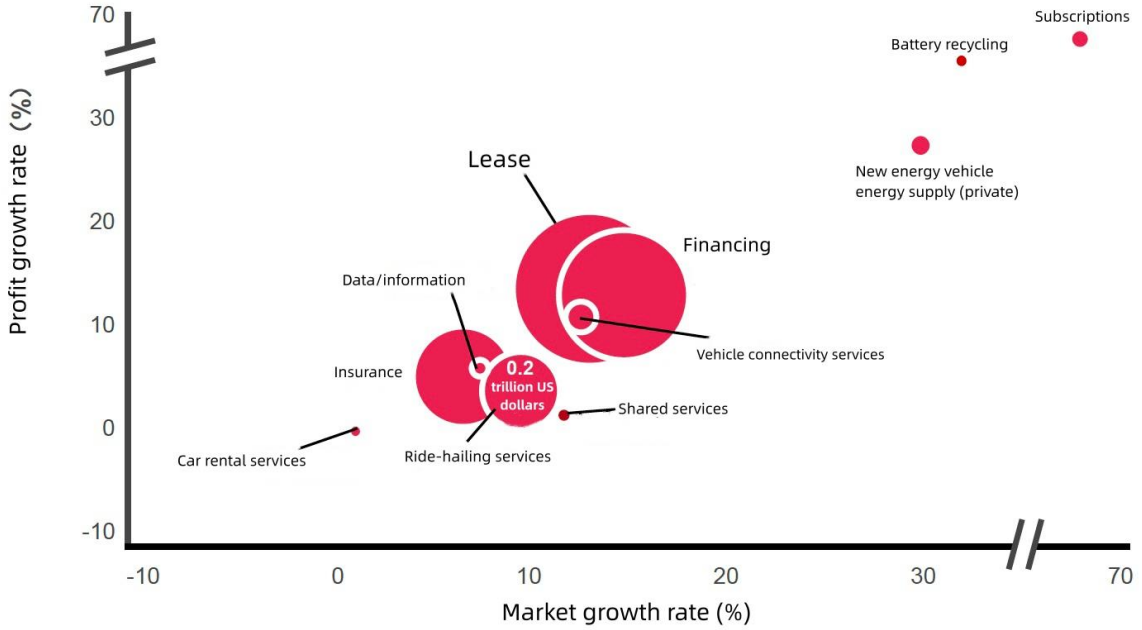
Comparison of Traditional and Emerging Value Pools in the Automotive Industry Market Size and Growth Rate Forecast (2022-2030E)

Traditional Value Pools



Emerging Value Pools



Source: strategy&

Data Source & Chart Maker: strategy&

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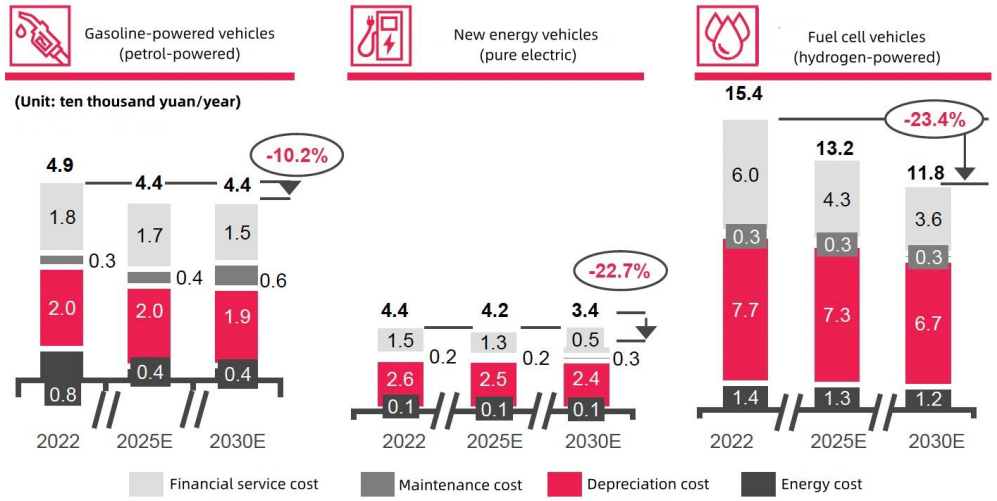
3.5 Cornerstone of Success: Total Cost of Ownership (TCO) Remains Core Advantage, with Over 20% Reduction Potential in 7 Years

The homogenized competition within the new energy vehicle industry is set to intensify, making differentiation increasingly difficult and demanding higher costs. Consequently, automotive companies need to proactively achieve cost reduction through technological innovation across various stages of the value chain, while also enhancing premium offerings through differentiation. Simultaneously, they must strive to lower costs through operational optimization and scalability. Cost and efficiency optimization will continue to be the long-term focus for automotive companies in the next 5 to 10 years. Companies that can consistently establish a Total Cost of Ownership (TCO) advantage are more likely to withstand economic cyclical challenges and stand resilient.

The essence of competition in the automotive industry lies in efficiency and cost. Companies possessing efficiency and cost advantages enjoy higher profit adjustment leeway, greater product pricing flexibility, and are better equipped to address risks associated with declining consumer confidence. By 2030, the maximum reduction in Total Cost of Ownership for commercial vehicles could reach around 20%. Passenger vehicle TCO will also undergo further optimization, such as the example of battery packs accounting for over 50% of the Bill of Material (BOM) cost in electric passenger cars. By 2030, potential cost reductions in battery packs could be around 18%.

Data Source & Chart Maker: strategy&

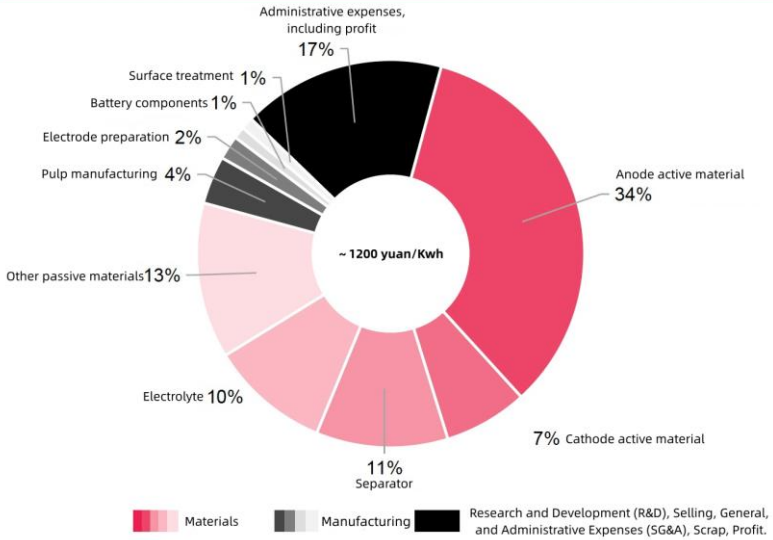
Automotive Total Cost of Ownership (TCO) Forecast in 2035



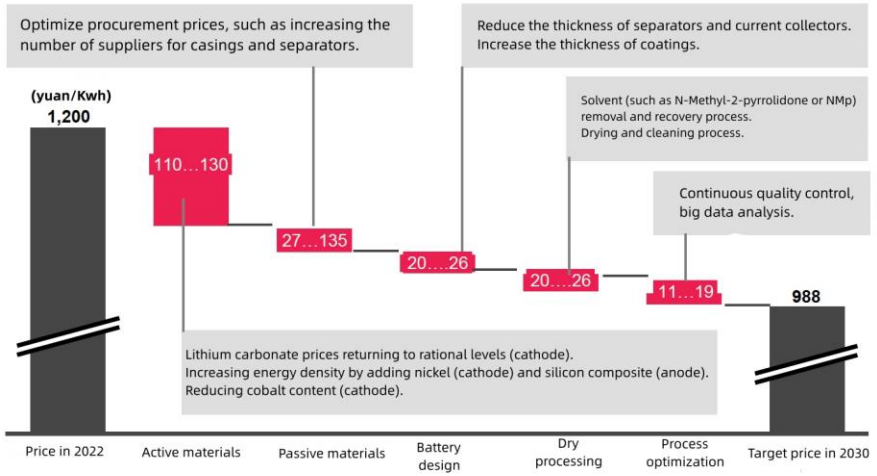
Source: strategy&

Battery Cost Optimization Prediction (2022-2030E)

Battery price breakdown



Battery Price Optimization Trend Prediction (2022-2030E)



Source: Desktop research, strategy&

Data Source & Chart Maker: strategy&

3.6 Consumer Tribes: Consumer Segmentation Grows, AI Boosts Marketing, Market to Reach Trillions

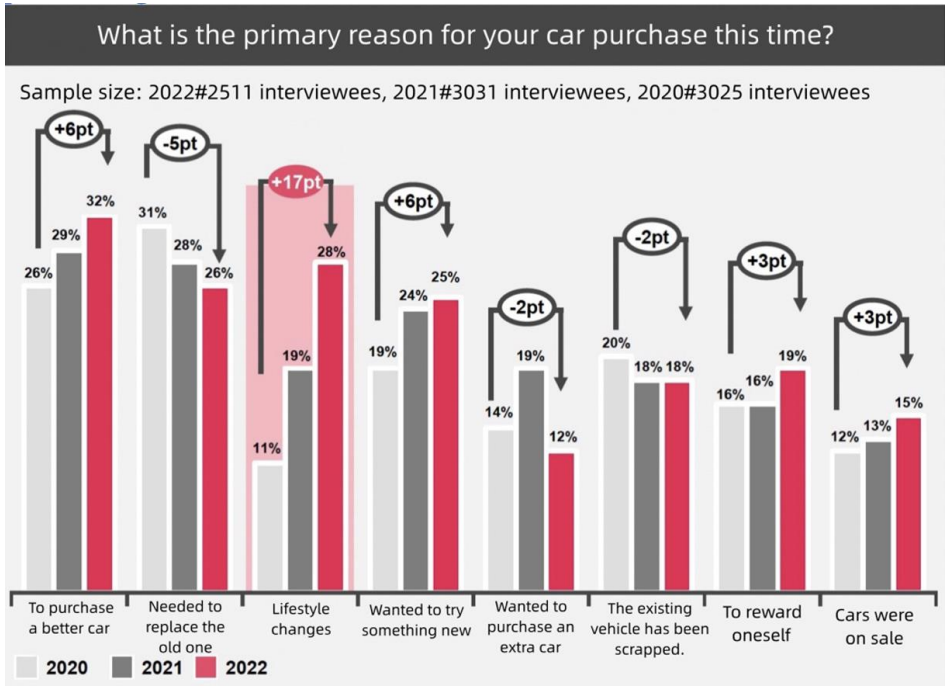
Customized and Precise Marketing for Automotive Companies:

- **Personalized Marketing Content:** Craft personalized marketing content based on consumer product preferences, service preferences, and interests.
- **Personalized Marketing Channels:** Choose the best marketing touchpoints by considering consumers' frequent online and offline interactions.
- **Personalized Marketing Models**: Design tailored marketing models by accounting for consumer segment differences, channel preferences, and value stratification.
- **Personalized Marketing Timing:** Segment consumers at various marketing stages and choose the appropriate timing for marketing engagements.

3.6.1 Rising Importance of Lifestyle Marketing:

In the era of segmented consumption, consumers' motivations for purchasing vehicles have evolved beyond just products and brands; they now revolve around the embodiment of lifestyle traits and values that align with specific consumer segments. For automotive companies, marketing content goes beyond traditional brand values and product performance. It integrates the driving

stories of brand enthusiasts and the values they reflect, thus igniting the interests and latent value demands of target segments. This transformation of lifestyle alignment into purchasing motivation enhances the connection between consumers and the brand.



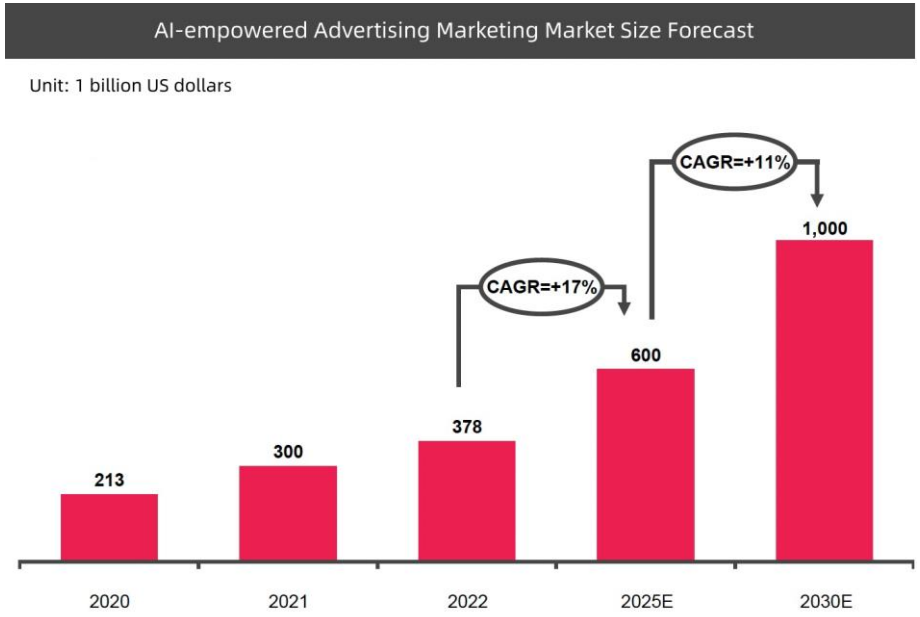
Source: CarGurus, Gfk, desktop research, strategy&

3.6.2 Personalized Marketing Empowered by Generative AI Becomes Mainstream:

Automotive companies are leveraging generative AI to enable personalized marketing. By delving deep into the core values, culture, and consumption habits of various consumer segments, these companies design marketing content that resonates with the consumption trends of specific segments. They then deploy marketing communications within preferred channels and communities,

Data Source & Chart Maker: strategy&

at the right moments, to guide consumption and facilitate sales conversion among different consumer segments. As generative AI matures into a commercially viable and continuously advancing technology, it becomes a pivotal technological support for personalized marketing strategies in the automotive industry.



Source: GroupM, desktop research, strategy&

3.6.3 Community Management Emerges as the Core Battleground:

Across the automotive industry, there's a widespread push toward community management to cater to the demands of segmented consumers. Offline owner events are becoming more diverse, covering a broader range of car owners' extended lifestyle scenarios. Simultaneously, the quality of community information within online car owner apps is continuously improving, resulting

in the gradual division of traffic and user engagement from mass-oriented portal information apps. This trend reflects the growing importance of community engagement as a core battleground for automotive companies.

3.7 Technological Transformation: Material, Energy, and Tech-Driven Innovations Reshaping Industry Competitive Landscape

The Four New Forces, which include advanced autonomous driving, mobile mobility, intelligent connectivity, and new energy vehicles, are driving technological advancements. In China, the commercial scaling of Level 4 and above autonomous driving is expected to begin around 2030, with the market projected to exceed $115 billion USD by 2035. Robo-taxis are anticipated to be the dominant segment, launching initially in major Chinese cities and gradually expanding to smaller cities. Moreover, Robo-trucks are transitioning from closed environments to more open scenarios.

New technologies are becoming increasingly intertwined with the automotive industry. Notably, there's a move towards adopting permanent magnet synchronous motors that don't require rare earth materials. Additionally, hydrogen fuel cell vehicles are expected to gain a larger market share in both passenger and commercial applications. The commercial adoption of solid-state batteries, known for their higher energy density, is approaching. Innovations like integrated die casting are becoming more widely used in manufacturing processes. From a product and business model perspective, the adoption of the V2x mode, which turns electric vehicles into mobile energy storage units, is projected to increase. Europe's strong regulations and consumer acceptance may accelerate the growth of the V2X market.

Data Source & Chart Maker: strategy&

The commercialization of new technologies is reshaping the automotive industry. Key technologies like 5G, AI, blockchain, and AR/VR are set to be more widely adopted, leading to significant changes in the competitive landscape. Improved 5G communication coverage and advancements in AR/VR technology are creating opportunities for merging the metaverse with automotive products, offering new experiences. AI technologies, exemplified by ChatGPT, are poised to bring greater intelligence to in-vehicle assistants. With the increasing volume of vehicular data and growing concerns about data security and compliance, the use of blockchain for storing vehicular data is also expected to expand further.

3.8 Competitive Landscape: Chinese Auto Industry Dominated by Leading Firms, Smaller Players in Segmented Segments

- **Future auto market: increased consumer and capital market rationality**

  The market will no longer favor the "PowerPoint (PPT) car-making" approach and will approach concept-stage automotive companies with greater caution, shifting towards creating high-quality assets that yield stable long-term returns. Numerous mid-to-lower-tier automotive companies with limited revenue-generating capabilities and unclear business models will gradually be phased out by the market.

- **TCO is still the core competitiveness of products**

  Leading auto giants excel in cost efficiency and will shine in the competitive future by leveraging unbeatable Total Cost of Ownership (TCO) appeal. Their large customer base helps solidify market share by engaging existing customers, strengthening brand portfolio and product lines for market dominance.

Data Source & Chart Maker: strategy&

4: Appendix

4.1 Automotive Market & Tech Reports

4.1.1 China Passenger Car Association (CPCA) report - August 2023

Analysis of China's passenger car sales in July and outlook for August

4.1.2 2023 China Auto Forum: SDV (Software Defined Vehicle)

Z-ONE, Neusoft Reach, Huawei, Baidu, iFLYTEK

4.2 Automotive News

4.3 Main Chinese EV Battery Manufacturers

4.4 Top Chinese NEV Producers

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4.1 Automotive Market & Tech Reports

4.1.1 China Passenger Car Association (CPCA) report - August 2023
Analysis of China's passenger car sales in July and outlook for August

The China Passenger Car Association (CPCA) announced the production and sales volumes of passenger cars (including sedans, SUVs, MPVs but not minivans) for July 2023.

Retail

July retail sales volumes of passenger cars totaled 1.775 million units, reflecting a year-over-year (y/y) decrease of 2.3%.

New Energy Vehicles (NEVs)

In July, wholesale volumes of new energy passenger cars totaled 737,000 units, up 30.7% y/y.

China passenger car production and sales volumes in July 2023

Retail

July retail sales volumes of passenger cars totaled 1.775 million units, reflecting a year-over-year (y/y) decrease of 2.3%. Year-to-date (YTD) retail sales volume totaled 11.299 million units, up 1.9% y/y.

In July, luxury car retail sales volume was 240,000 units, down 22% y/y. YTD retail sales volume increased 11% y/y.

Retail sales volumes of local brands totaled 940,000 units, up 15% y/y. Local brands had a market share of 53.2% of the total, up 5.8% y/y. In terms of wholesale sales, local brands occupied a market share of 58.1%, up 8.3% y/y.

Retail sales volumes of mainstream joint venture brands totaled 590,000 units in July, down 28% y/y. Specifically, German brands had a retail share of 20.8%, down 0.8% y/y; Japanese brands had a share of 15.8%, down 5% y/y; American brands had a share of 7.7%, up 0.7% y/y.

Wholesale

In July, wholesale volumes totaled 2.065 million units, down 3.2% y/y. Specifically, wholesale volumes of local OEMs totaled 1.19 million units, up 22% y/y; wholesale volumes of mainstream joint venture OEMs totaled 590,000 units, down 34% y/y; wholesale volumes of luxury vehicles totaled 280,000 units, down 13% y/y.

Production

Passenger car production totaled 2.101 million units in July, reflecting a y/y decrease of 2.6%. Specifically, production of luxury brands fell 5% y/y; production of joint venture brands fell 36% y/y; and production of local brands rose 24% y/y.

New Energy Vehicles (NEVs)

In July, wholesale volumes of new energy passenger cars totaled 737,000 units, up 30.7% y/y. Specifically, battery electric vehicle (BEV) volumes totaled 496,000 units, up 15.3% y/y; plug-in hybrid electric vehicle (PHEV) volumes totaled 242,000 units, up 80.0% y/y; ICE-powered (ICE: internal combustion engine) hybrid passenger vehicle volumes totaled 64,000 units, down 22% y/y.

In the BEV market, wholesale volumes of A00-class electric vehicles (micro, wheelbase 2-2.2 meters) totaled 85,000 units, down 35% y/y and accounting for 17% (down 13% y/y) of the total BEV volume; wholesale volumes of A0-class small vehicles (wheelbase 2.2-2.3 meters) totaled 156,000 units, accounting for 32% (up 10% y/y) of the total BEV volume; wholesale volumes of A-class compact vehicles (wheelbase 2.3-2.45 meters) totaled 95,000 units, accounting for 19% of the total BEV volume; wholesale volumes of B-class midsize vehicles (wheelbase 2.45-2.6 meters) totaled 145,000 units, up 69% y/y and accounting for 29% of the total BEV volume. Wholesale volumes of all classes of electric vehicles were relatively differentiated.

In July, there were 16 passenger models (19 in the same period last year) with a wholesale volume exceeding 20,000 units. These models are: BYD's Song (51,258 units), BYD's Qin (44,695 units), Tesla's Model Y (43,961 units), SAIC VW's Lavida (33,027 units), BYD's Dolphin (31,950 units), BYD's Yuan (31,456 units), BYD's Seagull (28,001 units), Dongfeng Nissan's Sylphy (27,562 units), Changan Auto's CS75 (25,345 units), BYD's Han (25,237 units), FAW VW's Sagitar (24,394 units), GAC Aion's Aion S (22,437 units), FAW Toyota's Corolla (21,286 units), Haval's H6 (21,265 units), Chery's Tiggo 8 (20,440 units), and Tesla's Model 3 (20,324 units), among which NEVs occupy the top three in terms of wholesale volume, with a clear dominance.

As for exports, 88,000 New Energy passenger cars were exported in July, up 80% y/y, among which 92% were BEVs and 50% were A0- and A00-class BEVs. Specifically, the export volumes were 32,862 units for Tesla China, 18,169 units for BYD, 17,724 units for SAIC Motor Passenger Vehicle, 6,674 units for SAIC-GM-Wuling, 6,119 units for Dongfeng eGT, 2,391 units for Great Wall Motor, 2,280 units for Geely, 974 units for Skyworth Auto, 285 units for Chery, 282 units for Dongfeng Yu-An, 171 units for SAIC Maxus, 146 units for

Changan Ford, and 127 units for Dongfeng Peugeot Citroen Automobile. Local brands such as SAIC Motor had a high export volume to Europe, and BYD's export volume to Southeast Asia surged.

For emerging EV makers, retail shares totaled 13.1% in July, down 1.6% y/y. NIO, Li Auto, and Leapmotor maintained strong m/m (month-over-month) and y/y performance.

In terms of NEV wholesale volumes, Volkswagen sold 21,920 units this month, holding a large share of 59% in mainstream joint venture brands.

Market Analysis and Outlook

In July 2023, China's auto market weakened slightly after enjoying peak performance in June, yet remaining relatively bullish. With China-6b emission standards coming into effect in the month, promotions in the market decreased a little, and their driving effect on the market diminished. On the other hand, national guiding policies for the auto industry were frequently introduced and had a good effect on boosting consumer confidence.

In August 2023, there will be 23 working days, flat from the same period last year. As some automakers have an ample capacity for conventional ICE vehicles and a long high-temperature vacation, the auto market will enter a rest period. The current high oil prices will contribute to increasing the number of NEVs. The previous overexuberance of the property market led to great debt pressure on residents, while the recent cooling of the market benefited the auto market by promoting the recovery of the purchasing power of the latter.

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The recent issuance of an amendment to the "Parallel Management Measures for Average Fuel Consumption of Passenger Vehicle Enterprises and Points for NEVs" by the Ministry of Industry and Information Technology of China has empowered the NEV market with a sustainable strong development momentum in the next two years. As nationwide promotional subsidies for ICE vehicles have been stepped up since March and China-6b emission standards came into effect in the second half of the year, the prices of ICE vehicles are bound to return to normal. Also, trade-in demand has become the key to supporting the growth of ICE vehicles. The ratio of trade-ins to sales volumes was 45% in 2022 and is expected to reach 48% this year.

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Top 10 Chinese Passenger Car Makers by Retail Sales

-	Maker	July 2023 (1,000 units)	y/y
1	BYD	231	45.2%
2	FAW-VW	152	-1.0%
3	Changan Auto	118	1.5%
4	Geely	118	7.5%
5	SAIC VW	100	-16.7%
6	SAIC-GM	83	-9.8%
7	GAC Toyota	71	-13.1%
8	Great Wall Motor	71	-6.4%
9	SAIC-GM-Wuling	68	-19.9%
10	Chery	65	-2.5%

Source: CPCA, MARKLINES

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4.1.2 2023 China Auto Forum: SDV (Software Defined Vehicle) Z-ONE, Neusoft Reach, Huawei, Baidu, iFLYTEK

Summary

The China Auto Forum, under the theme "New Era, New Mission, New Driving Force. Helping Build a Modern Industrial System" was held in Jiading District, Shanghai, from July 5 to 7, 2023. The Forum set the agenda around the difficult issues, weaknesses, and challenges in the development of China's automotive industry, with one closed-door summit, one convention forum, and 16 thematic sessions.

Of these, thematic session 13, "Gathering strength and co-creation to accelerate the construction of a new ecology of software defined vehicles", was held on July 7, where Baidu, Neusoft Reach, Huawei and other suppliers explained new trends in SDVs (software defined vehicles). This report summarizes presentations given by representatives of SAIC Motor Z-ONE Software Company (Z-ONE), Neusoft Reach Automotive Technology (Shanghai) Co., Ltd. (Neusoft Reach), Huawei Technologies Co., Ltd. (Huawei), Baidu Inc. (Baidu), and iFLYTEK Co., Ltd. (iFLYTEK).

SAIC Motor Z-ONE Software Company (Z-ONE): How to Build a Digital Experience for the New Era of Intelligent Cars

Z-ONE was formerly known as SAIC Motor Z-ONE Software Branch (SAIC Z-ONE Branch), which was established in 2020. In 2021, Z-ONE was established as a subsidiary of SAIC with investment from the SAIC Group, and all assets and personnel of SAIC Z-ONE Branch were transferred to the new company. At this year's forum, Mr. En FANG, Head of the Digital Experience Platform of Z-ONE, gave a presentation titled "How to Build a Digital Experience for the New Era of Intelligent Cars" and introduced the Z-ONE Galaxy Stack Solution 3.0. He described the creation of a digital experience for intelligent cars in the new era.

Mr. En FANG, Head of the Digital Experience Platform, Z-ONE
(Source: China Auto Forum)

Z-ONE Galaxy Full Stack Solution 3.0 to be mass-produced and installed in IM Motor vehicles by 2025

First, Mr. FANG introduced the Z-ONE Galaxy Full Stack Solution 3.0, the technology pillar on which the digital experience of intelligent cars in the new era is built. This solution consists of the following elements:

(1) Centralized electronic architecture

The Z-ONE Galaxy Full Stack Solution 3.0 uses a "central computation + local control" architecture design. Compared to previous designs, the number of domain control units (DCUs) was halved, data bandwidth was increased by a factor of 5, wire harness length was reduced by 30%, and OTA (over-the-air) speed was increased by 70%. According to the plan, the system will first be installed in the SAIC Group's IM brand vehicles in 2025, aiming for mass production.

(2) Cloud control terminal (cloud platform, network, smart terminal) integrated SOA software platform

The SOA (Service-Oriented Architecture) software platform realizes the separation of software and hardware for automotive functions through standard middleware and functional middleware and while making the hardware capabilities of the finished vehicle independent, opens the platform to the outside through a standardized interface (API). In addition, the SOA developer platform provides a technical foundation based on software DevOps. It will serve as a co-creation platform for automaker developers and geek developers. In addition, the SOA digital mall supports the display, sale, purchase and payment of digital products, etc., realizing the commercialization of the SOA software platform.

(3) Z-ONE Galaxy computing platform ZXD

The Z-ONE Galaxy Computing Platform ZXD is a high-performance integrated in-vehicle computer that enables effective fusion of intelligent cockpit and automated driving domains, effective data processing, real-time computing, and reliable security measures. The ZXD's hardware configuration with flexible expansion capabilities allows various combinations of standardized and modularized hardware. In addition, the ZXD comes pre-installed with ZOS, a smart car operating system that reduces the difficulty of software and algorithm development and shortens development cycles.

(4) Data factory and cloud platform

The data factory can process intelligent car data centrally. It has four major foundational platforms: data management, data labeling, AI data training, and cloud simulation and supports smart car data closed-loop services. The smart cloud platform is a global communication hub and adopts hybrid cloud deployment. Based on microservice architecture and streaming data computing, it will support access for millions of vehicles.

Z-ONE's approach to the intelligent car digital experience of the new era

Next, Mr. FANG introduced Z-ONEs approach to the digital experience of intelligent cars in the new era. Z-ONE considers it necessary to report the following characteristics.

(1) Redefining the basic experience.

Z-ONE believes that the intelligent car of the future will be similar to a home appliance, a "user-centered super smart terminal" that must ensure fluency, stability, and consistency. Fluency refers to the rapidity with which the system responds. Stability refers to system stability, ensuring online real-time vehicle service. Consistency refers to conformity to user habits of household appliances, and there is no "learning cost" when the user is asked to use the in-vehicle device.

(2) Redefining “cabin/driving fusion”

Z-ONE believes that the intelligent car of the future will be an era of "cabin/driving fusion" (fusion of smart cockpit and autonomous driving). Z-ONE's "cabin-driving fusion" refers to ease of driving, ease of use, and high cost performance. Ease of driving refers to how functions, experiences, and performance are enhanced and demonstrated in an environment where driving safety is ensured. Ease of use refers to whether the interaction is smooth, whether the interaction with the cockpit meets the needs of each user, and whether it can be customized. High cost performance refers to the ability to generate high cost performance through deep integration and reuse of hardware sensors. At the same time, through data analysis, find features that users really like, reduce costs and improve efficiency.

(3) Human-machine co-driving

Z-ONE hopes to realize human-machine-co-driving through multi-display interlocking and immersive navigation. Multi-display interlocking refers to realizing interlocking without discomfort on multiple displays of the intelligent cockpit. Immersive navigation refers primarily to the ability to identify location from audio. Z-ONE researched and developed its own set of audio algorithms and audio channels to construct 3D vector acoustics, resulting in a voice-guided direction recognition function. For example, if a car approaches from the right rear of the vehicle, the vehicle will give voice guidance on the right side from far away to nearby. The driver can obtain information without actually seeing the vehicle approaching from the right side, providing an immersive driving experience. This function has already been mass-produced in the SAIC Group’s Rising Auto F7.

(4) Ecosystem

Z-ONE hopes to build an "ecosystem" that deeply integrates car cockpits and smartphones. Presently, the SAIC Group, together with OPPO (Guangdong Oppo Mobile Telecommunications Corp., Ltd.), a major smartphone manufacturer, has realized the integration of an ecosystem that cuts across the smartphone and automotive industries, and is launching 30 types of functions that apply the fusion of "cars and mobile phones." These include keyless entry, multi-display push notifications, one-tap sharing, and one-tap navigation.

Neusoft Reach Automotive Technology (Shanghai) Co., Ltd. (Neusoft Reach): Practicing "software first" with open integrated development

Neusoft Reach, founded in October 2015, is a joint venture between Neusoft Group, Alpine Electronics (China) Co., Ltd. and others, and is a supplier of products and services related to basic software, SOA middleware, and autonomous driving for the automotive industry. Mr. Bin CAO of Neusoft Reach Automotive Technology (Shanghai) Co., Ltd. stated that the traditional development methods are facing difficulties because software development costs are increasing day by day amid the trend toward SDVs. To this end, Neusoft Reach has launched a "software first" concept and announced NeuSAR, a basic automotive software platform.

Mr. Bin CAO of Neusoft Reach Automotive Technology (Shanghai) Co., Ltd. (Neusoft Reach)
(Source: China Auto Forum)

Development difficulties in SDVs

Mr. CAO noted that with the development of the automotive industry, the need for diversification and faster iteration of automotive functions continues to grow. The scale of software development is increasing day by day. The conventional approach was to build the hardware first and then develop the software. Today, however, such an approach is difficult to implement. Specifically, the following two points are evident:

(1) As software becomes more complex, development manpower increases, and internal costs rise. Fixing a single bug may involve software developers from different departments. In addition, current software is highly coupled, so much time is spent compiling a system. If a small bug is found after the compilation is completed, the compilation will be run again from the beginning. The above situation cannot be solved by simple measures, such as the injection of human resources or overtime work.

(2) Since the company is still searching for a revenue model for its software, it is unable to effectively share the increasing software development costs evenly. By 2022, the software revenue of emerging Chinese auto brands did not exceed 1% to 3% of sales. Even more noteworthy for automakers is the cost of components, where the cost of software development is passed on to each component. However, at present, the rate of duplication of software across different models is low. Since software is developed independently for each vehicle model, software costs for each vehicle can only be passed on to the same vehicle model. It is clear that the current gross margin on parts cannot cover the ever-increasing software development costs.

Neusoft Reach has developed a "software-first" concept to solve such problems. This is the IT industry's imitation of the construction industry's modular prefabricated building approach, in which software is pre-built and then applied to the appropriate hardware.

NeuSAR 4.0

NeuSAR has already upgraded to version 4.0. In addition to supporting standard components that conform to AUTOSAR (including Classic AUTOSAR and Adaptive AUTOSAR), the basic part also conforms to the NeuSAR SF service framework and message bus functions for finished vehicles. NeuSAR SF is a standard cross-domain SOA middleware and is also compatible with the ASF (AUTOSEMO Service Framework) standard. It provides communication functions and basic services that can be consistently used in various situations. It extends the development view from the domain control unit layer to the finished vehicle layer to realize the key components of and the complete vehicle SOA. The vehicle message bus function enables cross-domain communication between multiple vehicles and provides flexible combinations of messages between processes, controllers, individual chips and vehicle clouds. Applications developed on the basis of the vehicle message bus enable transmission and reception by various control units.

NeuSAR realizes the separation of applications in the integration process and contributes to the "software first" concept of the finished car layer. The conventional development method was to develop control software, middleware, etc. corresponding to each application model, each controller, and each chip to meet different needs. In contrast, the new development model places the communication mode at the lower level of the message bus. This allows different developers to integrate software as they develop cross-domain applications without having to compile and conduct integration tests in the same place.

NeuSAR basic software platform (Source: Neusoft Reach)

Huawei Technologies Co., Ltd. (Huawei): Accelerating the development of smart electrified vehicles with the shift to E/E architecture as a service

Mr. Hongyu ZHAO, Deputy General Manager of Huawei's Intelligent Vehicle Control Area, Intelligent Vehicle Solutions Business Unit (BU) gave a presentation titled "Accelerating the Development of Smart Electrified Vehicles with the Shift to E/E Architecture as a Service". According to Huawei, vehicle electrification is proceeding rapidly, with NEV (New Energy Vehicles: battery electric vehicles, plug-in hybrids, and fuel cell vehicles) penetration at 27% in 2022 and reaching 30% in 2023. In contrast, NEV intelligentization lags far behind electrification. For example, the penetration rate in the autonomous driving area is about 4%, and the penetration rate in smart cockpits is 10%. Huawei believes that the service-oriented E/E architecture will accelerate intelligentization.

Mr. Hongyu ZHAO, Deputy General Manager of Intelligent Vehicle Control Area, Intelligent Vehicle Solutions Business Unit (BU) of Huawei
(Source: China Auto Forum)

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Advantages and challenges of E/E architecture

Mr. ZHAO pointed out that in the current SDV trend, there are three main ways to realize E/E architecture service: the STS (Security Token Service) model, semi-service, and full service.

Huawei believes that only by making the E/E architecture a full service (the third way) can intelligentization be effectively accelerated. He pointed out that the E/E architecture needs to adapt quickly to the Southbound API in order to become a full service. Hardware changes should not require changes to the entire software system, and the separation of software and hardware should allow reuse and iteration of applications. At the same time, in terms of security, he said that it is necessary to realize a different and finely divided security for each user type. Building a full-service E/E architecture will face challenges on three fronts: performance, cooperation with multiple parties, and security.

System type	Features
STS model	Traditional single ECU development model. There is no separation of software and hardware, and if there is a change in hardware, the entire system must be changed.
Semi-service	Separation of software and hardware is achieved. Even if there is a change in the hardware, it does not change the upper layer application. However, since the application is tightly coupled to the functional modules, the application cannot be reused immediately or iterated continuously.
Full service	Separation of software and hardware is achieved. Even if there is a change in the hardware, it does not change the upper layer application. At the same time, it achieves vertical separation of applications and independent services. Applications can be reused immediately or iterated on a continuous basis.

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How to make E/E architecture full service

Huawei proposed a pinpoint solution to the challenge.

Countermeasure	Contents
(1) The foundation of the E/E architecture is a highly reliable, high-performance, software-defined TSN (Telecommunication Supporting Networks) data communication network	- A high reliability (99.9999%) Ethernet protocol stack guarantees transmission reliability. There is no limit to the message transmission rate, and it can avoid loss of location data, network instability and congestion. - A high-performance protocol stack scheduling engine ensures that software communication delays (30μs) are known in advance. - The software-defined service communication engine supports on-demand allocation of 30KPPS (kilo packets per second) service data communication resources. - Achieved weight reduction of OS data. System operating noise is guaranteed to be less than 10% (with no task).
(2) Building a new E/E architecture work platform	- Instead of human operations in the traditional workflow, it is necessary to build a completely new E/E architecture work platform that can perform architecture design, module development, and simulation verification, as well as enable collaboration among multiple companies.
(3) Services are opened according to the security level. Process safety and control are ensured.	- Channel safety: HTTPS (Hypertext Transfer Protocol Secure) is used for the vehicle's cloud communication to guarantee the security of network transmission outside the vehicle. Magic Ring is used for in-vehicle communication to guarantee the security of in-vehicle network transmission. - Security certification: File Signature prevents unauthorized access and unauthorized calls to the application. - Access control: API Auth (based on Huawei's presentation) is used between domains to prevent unauthorized calls across domains. IAM (Identity and Access Management) is used within the domain to prevent unauthorized calls within the domain. - Threat protection: Traffic control prevents and controls traffic-borne attacks. - Security Audit: Audit programs such as security logs, monitoring and alarms for tracking and recovery based on objective evidence.

Finally, Mr. ZHAO introduced Huawei xMotion, an example of Huawei's cross-domain partnership. Huawei xMotion is a native application of the Huawei iDVP intelligent vehicle digital platform, enabling the vehicle to move in three directions: longitudinally, laterally, and vertically, through cross-domain central coordinated control of propulsion, braking, steering, and suspension. The 6DoF (six degrees of freedom) vehicle body adjustment improves driving safety and comfort. For example, conventional automobiles sometimes slip when traveling on icy and snowy roads, resulting in slow acceleration. Huawei xMotion, on the other hand, comprehensively considers factors such as tire rotation speed, acceleration, and motor speed, and performs intelligent torque control to further enhance vehicle safety and stability.

Baidu MapAuto 6.5, Baidu's human-machine shared driving map

Baidu believes that the need for maps in driving has undergone a qualitative change in the era of vehicle intelligence. In the "human-driven" era, traditional automotive maps primarily provided a navigation function. With the advent of the age of intelligent cars, the driving process is gradually changing from "human driving" to "shared driving between humans and machines" (automated driving systems). Baidu has released Baidu MapAuto 6.5 to address the emerging need for human-machine shared driving.

Baidu MapAuto 6.5 can smoothly switch between "human operation" and "shared operation between human and machine". It has three features: full-capacity data services, full 3D lane-level rendering, and all-scenario human-machine driving system sharing.

Appendix

(1) Omnidirectional data service

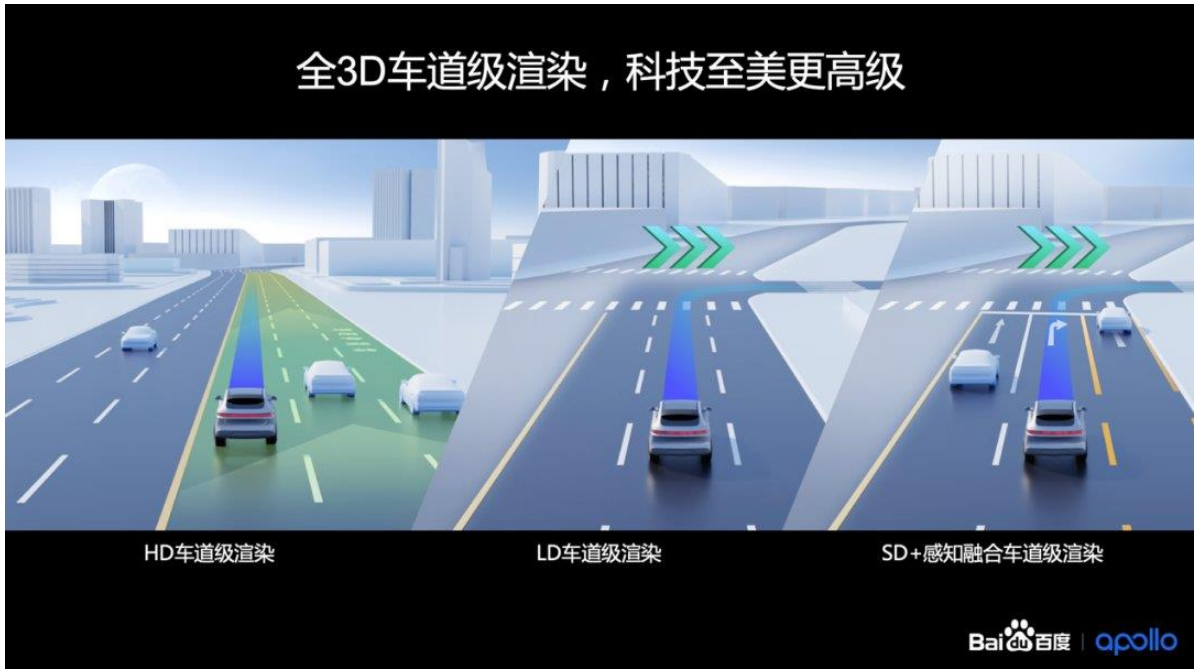
Data services are the fundamental capabilities of maps. Baidu MapAuto 6.5 currently offers three types of data products: SD, LD, and HD. Details are as follows.

Content	Details	Layers included in the map
SD (Standard) data	It is the basic product of Baidu Navigation Maps, featuring full coverage and up-to-the-minute updates. Currently, the system has already been installed in a total of 10 million vehicles of more than 100 models.	1. POI (Point of Interest) layer 2. Road layer 3. Background layer
LD (Lane Definition) data	LD map products are for intelligent driving in cities. Data is updated daily. It is currently in mass production.	1. Lane-level topology and attributes 2. Complex scene geometry layer (geometry of complex scenes such as intersections and railroad crossings) 3. Experience layer (Contains data layer of many vehicle driving histories. From this layer, one can see the locations where many vehicles merge, change lanes, and accelerate. This layer makes intelligent driving the same as the driving level of an "experienced driver".) 4. Dynamic layer (includes dynamic information such as roadway construction)
HD (High Definition) data	Emphasizes the intelligent driving experience and updates on a monthly basis. Currently, many customers are already mass producing HD highway map products. The urban road products are expected to go into mass production in the third quarter of 2023.	1. Road layer 2. Lane layer 3. Location measurement layer 4. Experience layer 5. Dynamic information

It is important to emphasize that all three of the above data products support Baidu's multi-source data input (including a closed loop of data consisting of vehicle, vehicle terminal, and road surface data collected by Baidu's integrated maps) and a Foundation Model with billions of parameters.

(2) Full 3D lane-level rendering

According to Baidu, Baidu MapAuto 6.5 will enable full 3D lane-level rendering in China, providing a realistic navigation experience. All SD, LD and HD versions of the mapping products support this feature. The figure on the right shows the 3D rendering effects of the SD, LD, and HD versions, from left to right.



Full 3D lane-level rendering
(Source: Baidu)

(3) Full-scene human and machine shared driving system

Baidu MapAuto 6.5 has the ability to display navigation-assisted driving function activation, lane change, lane change cancellation, and navigation termination. At the same time, users can smoothly switch between lane-level navigation (human driving) and intelligent navigation assistance, providing a smooth and natural driving experience from start to finish.

iFLYTEK Co., Ltd. (iFLYTEK): Artificial intelligence enhances smart cockpit experience

In the trend toward intelligent automobiles, auto companies want to build their own brand identities, allowing users to interactively experience the product features of each brand. iFLYTEK Co., Ltd. (iFLYTEK) believes that the comprehension capabilities of large language models will make human-computer interaction more convenient and natural.

Mr. Sinan LU, Depuity General Manager of Smart Cockpit, iFLYTEK Smart Car Business Unit (BU), a supplier of intelligent voice and human-computer interaction services, gave a presentation titled "Artificial Intelligence Enhances the Smart Cockpit Experience". The presentation focused on the company's new large language model, SparkDesk.

Mr. Sinan LU, Deputy General Manager of Smart Cockpit, Smart Car Business Unit (BU) of iFLYTEK
(Source: China Auto Forum)

SparkDesk large language model (LLM)

iFLYTEK released the SparkDesk large language model in May 2023.

The SparkDesk large language model supports multi-styles, multi-tasking, and long-text generation. SparkDesk helps ensure that the car thoroughly understands all meanings and the context of the subject. This is not limited to understanding the content of several interactions with

the automobile. SparkDesk also allows in-vehicle systems to interact with users in an anthropomorphic way. For example, it plays a variety of roles and has language comprehension skills that transcend the type of language.

It is also possible to add general and specialized knowledge, such as the wisdom of daily life, automobile maintenance, and knowledge of automobile use, to existing systems, and to have the systems provide quality answers to users' questions. In addition to answering questions, large language models can also answer many other questions, such as logical reasoning, mathematical computation, and code generation.

In addition to this, iFLYTEK plans to have SparkDesk surpass ChatGPT in Chinese and be equal to ChatGPT in English by October 24, 2023. In addition, the company plans to launch its Starfire smart cockpit products by the end of 2023. In addition to receiving various services of large language models in the interactive layer, it will be possible to use functions such as a large language model platform for the automotive industry and direct calling of individual applications.

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4.2 Automotive News

China's vehicle production and sales volumes decrease 2.2% and 1.4% y/y in July, respectively

On August 10, the China Association of Automobile Manufacturers (CAAM) announced China's vehicle production and sales results for July 2023.

In July, given the high base for the same period last year and the traditional off-season in the auto market, the pace of production and sales slowed down and brought about a relatively lackluster overall market performance, with production and sales volumes both declining on year-over-year (y/y) and month-over-month (m/m) bases. Specifically, the production and sales volumes of passenger vehicles (PVs) both declined y/y and m/m, while those of commercial vehicles (CVs) both grew by double digits y/y due to last year's low base. The export volumes of New Energy Vehicles (NEVs) and vehicles remained good.

In late July, 13 Chinese government agencies including the National Development and Reform Commission jointly issued the "Several Measures to Promote Automobile Consumption", where 10 specific measures to stabilize and expand auto consumption were proposed. With the implementation of a new wave of auto consumption promotion policies, the potential for auto consumption is expected to be further released, which will contribute to the auto industry achieving the goal of stabilizing growth for the year.

In July, vehicle production and sales volumes totaled 2.401 million units and 2.387 million units, down 2.2% and 1.4% y/y, respectively. Year-to-date (YTD) production and sales volumes were 15.65 million units and 15.626 million units, up 7.4% and 7.9% y/y, respectively.

For PVs, production and sales volumes in July totaled 2.115 million units and 2.10 million units, down 4.3% y/y and 3.4% y/y, respectively. YTD production and sales volumes totaled 13.397 million units and 13.368 million units, up 6% and 6.7% y/y, respectively.

For CVs, production and sales volumes in July totaled 286,000 units and 287,000 units, up 17% and 16.8% y/y, respectively. YTD production and sales volumes were 2.253 million units and 2.258 million units, up 16.9% and 15.9%, respectively.

For NEVs, production and sales volumes in July totaled 805,000 units and 780,000 units, up 30.6% and 31.6% y/y, respectively. Specifically, BEV (battery electric vehicle) production and sales volumes totaled 555,000 units and 541,000 units, up 17.5% and 18.2% y/y, respectively; PHV (plug-in hybrid vehicle) production and sales volumes totaled 250,000 units and 239,000 units, up 73.3% and 77% y/y, respectively; FCV (fuel cell vehicle) production and sales volumes totaled 200 units and 300 units, down 17.2% y/y and up 13.1% y/y, respectively.

YTD NEV production and sales volumes totaled 4.591 million units and 4.526 million units, up 40% and 41.7% y/y, respectively. Specifically, BEV production and sales volumes totaled 3.301 million units and 3.26 million units, up 28.3% and 29.5% y/y, respectively; PHV production and sales volumes totaled 1.287 million units and 1.263 million units, up 83.3% and 87.4% y/y, respectively; FCV production and sales volumes both totaled 3,000 units, up 30.2% and 64.1% y/y, respectively.

In July, vehicle exports totaled 392,000 units, up 35.1% y/y. Specifically, PV exports totaled 326,000 units, up 34.9% y/y; CV exports totaled 66,000 units, up 36.2% y/y; NEV exports totaled 101,000 units, up 87% y/y. YTD vehicle exports totaled 2.533 million units, up 67.9% y/y. Specifically, PV exports totaled 2.105 million units, up 77.5% y/y; CV exports totaled 427,000 units, up 32.5% y/y; NEV exports totaled 636,000 units, up 150% y/y.

Appendix

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Vehicle sales data (flash report for July 2023)

	July 2023			Jan – Jul 2023		
	Sales vol. (1,000 units)	Share (%)	y/y (%)	Sales vol. (1,000 units)	Share (%)	y/y (%)
Sedan	923	38.7	-10.9	5,928	37.9	-0.6
MPV	85	3.6	4.9	569	3.6	22.5
SUV	1,072	44.9	4.4	6,726	43.0	13.7
Mini Van	20	0.8	-35.5	145	0.9	-21.2
PV Total	2,100	88.0	-3.4	13,368	85.5	6.7
CV Total	287	12.0	16.8	2,258	14.5	15.9
Grand Total	2,387	100.0	-1.4	15,626	100.0	7.9

Source: from the CAAM, multiple reports, and MarkLines Data Center

Vehicle production data (flash report for July 2023)

	July 2023			Jan – Jul 2023		
	Production vol. (1,000 units)	Share (%)	y/y (%)	Production vol. (1,000 units)	Share (%)	y/y (%)
Sedan	908	37.8	-13.0	5,953	38.0	-0.3
MPV	85	3.5	0.0	558	3.6	19.6
SUV	1,102	45.9	4.5	6,743	43.1	12.0
Mini Van	20	0.8	-23.1	143	0.9	-21.5
PV Total	2,115	88.1	-4.3	13,397	85.6	6.0
CV Total	286	11.9	17.0	2,553	14.4	16.9
Grand Total	2,401	100.0	-2.2	15,650	100.0	7.4

Source: from the CAAM, multiple reports, and MarkLines Data Center

Appendix

NEV Sales vol. (flash report for July 2023)

	July 2023			Jan – Jul 2023		
	Sales vol. (1,000 units)	Share (%)	y/y (%)	Sales vol. (1,000 units)	Share (%)	y/y (%)
BEV	541	69.4	18.2	3,260	72.0	29.5
PHV	239	30.6	77.0	1,263	27.9	87.4
FCV	0.3	0.04	13.1	3	0.07	64.1
Grand Total	780	100.0	31.6	4,526	100.0	41.7

Source: from the CAAM and multiple reports

NEV Production vol. (flash report for July 2023)

	July 2023			Jan – Jul 2023		
	Production vol. (1,000 units)	Share (%)	y/y (%)	Production vol. (1,000 units)	Share (%)	y/y (%)
BEV	555	68.9	17.5	3,301	71.9	28.3
PHV	250	31.1	73.3	1,287	28.0	83.3
FCV	0.2	0.02	-17.2	3	0.07	30.2
Grand Total	805	100.0	30.6	4,591	100.0	40.0

Source: from the CAAM and multiple reports

<Aug 14, 2023>

ITA
ITALIAN TRADE AGENCY

Rising Auto releases battery, motor, and electronic controller technology system and launches battery swapping network

On August 14, Rising Auto, an SAIC Motor sub-brand, officially released its battery, motor, and electronic controller technology system and officially commissioned its first cooperative battery swapping station in Beijing.

Rising Auto pioneered the CTP (Cell To Pack, i.e., module-less battery pack) double-layer horizontal battery cell arrangement, where the battery cells are placed in groups of two in the battery compartment, and the contact area between the battery cells is reduced by 70% to avoid the domino effect of thermal runaway and enable enhanced safety, a longer service life, and higher integration for the battery. No thermal runaway has occurred in over 150,000 automotive Rubik's Cube batteries with this technology worldwide. Also, the automaker took the initiative to participate in the authoritative UL 2580 certification, proving that its battery system will not catch fire in 60 minutes in the event of battery cell thermal runaway.

Batteries adopting the horizontal battery cell arrangement are co-developed by SAIC Motor and CATL, notably extending the cycle life of the battery cells in conjunction with the NCM523 electrochemical system for horizontal battery cells. The industry-unique flexible constraint structural adhesive greatly reduces the loss of active lithium and effectively extends the service life of the battery cells.
Jieneng Zhidian, a joint venture among SAIC Motor, Sinopec, PetroChina, CATL, and Shanghai International Automobile City Group, will accelerate the commissioning of battery swapping networks across China with Rising Auto. After the commissioning of the first battery swapping station in Beijing, Rising Auto will cover over 10 Chinese cities with over 50 battery swapping stations by the end of 2023.

<Aug 17, 2023>

ITA
ITALIAN TRADE AGENCY

CATL launches Shenxing Superfast Charging Battery capable of running 400km on a 10-minute charge

Contemporary Amperex Technology Co., Ltd. (CATL) announced the launch of the Shenxing Superfast Charging Battery, the world's first lithium iron phosphate (LFP) battery with 4C superfast charging. The battery is capable of delivering a range of over 700km on a single full charge as well as 400km of driving range with a 10-minute charge. It enables a 0–80% charge in 30 minutes at temperatures as low as -10°C. Innovations have been achieved in battery material, structure, and system. It employs the super electronic network cathode technology and fully nano-crystallized LFP cathode material to create a super electronic network, which facilitates the extraction of lithium ions and the rapid response to charging signals. For graphite innovation, CATL's fast ion ring technology is used to modify the properties of the graphite surface, which creates an expressway for current conduction. Furthermore, a multi-gradient layered electrode design has been developed to strike a perfect balance between fast charging and long range. CATL has developed a brand-new superconducting electrolyte formula, which effectively reduces the viscosity of the electrolyte, resulting in improved conductivity and enhanced desolvation ability of the lithium ions. In addition, CATL has improved the ultra-thin SEI film to reduce resistance of lithium-ion movement. CATL has also improved the high porosity and low tortuosity pores of the isolation membrane, thus improving the transmission rate of lithium ions. Mass production of the Shenxing battery will be achieved by the end of this year, and electric vehicles equipped with it will be available on the market in the first quarter of next year.

<Aug 18, 2023>

Zhejiang Province issues list of “10 actions” for spreading NEVs in rural areas

On August 14, the Zhejiang Provincial Development and Reform Commission (ZPDRC) and the Energy Administration of Zhejiang Province issued the “List of ‘10 Actions’ for Spreading New Energy Vehicles in Rural Areas in Zhejiang Province” (the List), which includes 10 actions such as promotion of future charging infrastructure in rural areas, renovation of charging infrastructure in cities and towns, and construction of charging infrastructure along highways.

The List proposes that the number of public charging facilities in rural areas shall reach 20,000 by the end of 2024. From 2023 to 2025, no less than 500 old urban communities shall be renovated. By 2025, over 2,200 and over 1,200 charging parking spaces shall be built in expressway service areas and along ordinary highways, respectively, and charging parking spaces shall account for 20% of minibus parking spaces in expressway service areas with relevant conditions.

The List also proposes multiple initiatives such as accelerating the R&D and application of such technologies as high-power charging, wireless charging, V2G (Vehicle-to-Grid), and cooperative control of photovoltaic power generation, energy storage, and charging, as well as establishing a standard system for charging infrastructure.

<Aug 21, 2023>

Chongqing issues special plan for construction of charging and battery swapping infrastructure (2023-2025)

On August 11, the Chongqing Economic and Information Commission (CEIC) issued the “Special Plan for the Construction of Charging and Battery Swapping Infrastructure in the Central Urban Area of Chongqing (2023-2025)” (the Plan).

The Plan proposes building 1,340 public fast charging stations, 298,000 private charging stands, and 106 special fast charging stations for urban logistics distribution in Yuzhong District, Dadukou District, Jiangbei District, Nan’an District, Shapingba District, Jiulongpo District, Beibei District, Yubei District, and Ba’nan District.

In addition, Chongqing will build public fast charging stations with a large area and good conditions into charging (or battery swapping)-energy storage-parking integration stations, with 84 new battery swapping stations and 100 charging (or battery swapping)-energy storage-parking integration stations planned.

The Plan also proposes integrating and optimizing facility resources and sharing the resources on an off-peak basis by taking advantage of the different charging periods for all kinds of vehicles, thereby improving the utilization efficiency of various facilities, reducing the distance to available charging stands, and alleviating charging pressure.

<Aug 21, 2023>

ITA
ITALIAN TRADE AGENCY

MIIT releases 68th list of "Catalog of New Energy Models Exempt from Vehicle Purchase Tax"

On August 16, the Ministry of Industry and Information Technology of China (MIIT) released the "Catalog of New Energy Models Exempt from Vehicle Purchase Tax (68th list)".

The selected battery electric models consist of 42 passenger vehicles (including Yudo Auto's Yuntu, GAC Aion's Aion S, and Hozon Auto's Neta AYA), 18 buses, 26 trucks, and 116 specialty vehicles.

The selected plug-in hybrid models consist of 22 passenger vehicles (including Voyah's Free and Haval's Raptor), 5 trucks, and 15 specialty vehicles.

The selected fuel cell models consist of 2 buses, 4 trucks, and 12 specialty vehicles.

The MIIT also released a notification of one renamed automaker. Specifically, Shandong Lichi New Energy Vehicle Co., Ltd. has been renamed Shandong Leichi New Energy Vehicle Co., Ltd.

<Aug 22, 2023>

ITA
ITALIAN TRADE AGENCY

MIIT releases 52nd list of NEVs eligible for preferential tax policy treatment

On August 16, the Ministry of Industry and Information Technology of China (MIIT) released the 52nd list of New Energy Vehicles (NEVs) that meet the national energy-saving standards and are eligible for tax reductions or exemptions. There are 228 models on the list in total, among which 4 are energy-saving models and 224 are New Energy models.

The models on the list include energy-saving passenger vehicles, heavy-duty commercial vehicles, plug-in hybrid passenger vehicles, battery electric commercial vehicles, plug-in hybrid commercial vehicles, and fuel cell commercial vehicles manufactured by automakers such as Dongfeng Motor, Great Wall Motor, and GAC Motor.

<Aug 22, 2023>

ITA
ITALIAN TRADE AGENCY

Nio establishes world's first V2G photovoltaic self-cycling energy replenishment system

On August 20, Nio announced that the world's first V2G photovoltaic self-cycling energy replenishment system that it co-developed with multiple institutions such as Astronergy, a photovoltaic manufacturing company, was completed in the Qilian Mountain National Park. The system consists of a photovoltaic power station, V2G bidirectional charging stands, and battery electric vehicles (BEVs).

The photovoltaic power station generates about 67,000kWh of electricity on average per year, covering 100% of the electricity demand of BEVs in the protected area. Excess electricity can cover over 50% of other electricity use in the area, with an estimated carbon emission reduction of about 53 tons per year.

V2G stands for Vehicle-to-Grid, a.k.a. bidirectional inverter charging. The technology enables electric vehicles to serve as mobile electricity storage stations for the protected area and to deliver electricity stored inside to the power grid through the back discharge function of V2G bidirectional charging stands for nighttime or emergency power supply in the area.

<Aug 24, 2023>

ITA
ITALIAN TRADE AGENCY

CPCA expects August passenger car retail sales volumes to total 1.85 million units

On August 24, the China Passenger Car Association (CPCA) announced that in August, retail sales volumes of passenger cars (including sedans, SUVs, and MPVs, excluding minivans) are expected to total 1.85 million units, down 1.3% year-over-year (y/y); retail sales volumes of New Energy Vehicles (NEVs) are expected to total about 700,000 units, up 31.5% y/y.

According to the CPCA, the low number of vehicles damaged by the local heavy downpour in early August had a limited impact on the auto market. Support for the market remained stable as dealers continued previous promotions and major automakers initiated a new round of promotions in the month. Thanks to the 818 Automobile Purchase Festival, and the Chengdu Motor Show 2023 event held at the end of August, the market remained hot during the month.

For the NEV market, the fact that sales volumes of new products launched in Q2 2023 have been rising and that the number of new vehicles to be launched in the second half of the year exceeds that in the first half will provide strong support in August and even the second half at the product supply level.

<Aug 29, 2023>

ITA
ITALIAN TRADE AGENCY

First NEV full-liquid-cooled ultra-fast charging station in Guangxi completed and commissioned

According to multiple press releases dated August 24, the first full-liquid-cooled ultra-fast charging station in Guangxi, which is capable of providing New Energy Vehicles (NEVs) with a range of 300km on a 5-minute charge, was recently officially completed. Adopting Huawei in-house developed full-liquid-cooled ultra-fast charging technologies and devices, and co-built by China Longyuan Power Group Corp., Ltd. and Guangxi Power Grid Co., Ltd., the charging station effectively solves the problem of temperature rise during long-time high-power charging and provides a quieter, more stable, and safer charging environment. With a maximum output power of 600kW and a maximum output current of 600A, the charging devices can charge NEVs at a rate as high as 1km per second.

In addition, the People's Government of Guangxi Zhuang Autonomous Region (GZAR) issued the "Implementation Plan of Guangxi for Accelerating the Construction of Charging Infrastructure to Better Support the Spread of NEVs in Rural Areas and Rural Revitalization" on August 20, which specifies such measures as fully accelerating the construction of charging infrastructure and continuously improving charging networks. So far, 144,000 charging facilities, including 65,000 public charging facilities and 59 battery swapping stations, have been built in the GZAR.

<Aug 29, 2023>

4.3 Main Chinese EV Battery Manufacturers

CATL (宁德时代)

Contemporary Amperex Technology Co., Ltd.

Location: No. 6, Changfu Road, Economic Development Zone, Xiapu County, Ningde City, Fujian Province

Website: www.catl.com/en/enterpriseinfoEnglish

Contemporary Amperex Technology Co., Ltd. (CATL), established in 2011, is a leading global NEV lithium-ion battery company in China. In 2021, CATL had a domestic Chinese market share of about 50% and a global market share of 32.6%. With the shift in demand in China from Li-ion batteries for heavy-duty route buses to the passenger car market, CATL ternary Li-ion batteries have experienced significant growth. CATL's customer base is broad, with almost all major passenger car manufacturers choosing its batteries. Tesla and most of the emerging Chinese EV automakers have also chosen CATL batteries. Currently, CATL is rapidly advancing its overseas investment projects, and the project in Thuringia, Germany. According to media reports, the company plans to build a lithium-ion battery plant in North America.

ITALIAN TRADE AGENCY

CALB中创新航

CALB (中创新航)

China Lithium Battery Technology Co., Ltd.

Location: No.1, Jiangdong Avenue, Jintan District, Changzhou City, Jiangsu Province

Website: en.calb-tech.com

In 2017, CALB began to focus on the ternary lithium-ion battery field as demand for ternary lithium-ion batteries in the NEV market increased. CALB's products are mainly ternary lithium-ion batteries, and its main products are ternary lithium-ion batteries for passenger cars. The customers of CALB products are mainly GAC Motor and Changan Automobile; recently the products have also been installed in Leapmotor and GAC Motor vehicles. CALB's manufacturing sites are mainly located in Luoyang, Henan Province, and recently the A6 project in Fujian Province and the project in Changzhou, Jiangsu Province are experiencing rapid development. In addition, CALB has recently made major investments in Chengdu, Sichuan Province and Wuhan, Hubei Province. It is also making huge investments in its manufacturing sites in Southwest and Central China, considering the conversion of its current production capacity for conventional vehicles to production for NEVs.

EVE Energy (亿纬锂能)

EVE Energy Co., Ltd.

Location: NO.38, Huifeng 7th Road, Zhongkai Hi-Tech Zone, HuiZhou City, Guangdong Province

Website: www.evebattery.com/en

EVE Energy Co., Ltd. (EVE Energy) was established in 2001, starting with small Li-ion batteries, and is now also engaged in R&D, manufacturing, and sales of Li-ion batteries for NEVs. The products of EVE Energy range from lithium-ion iron phosphate batteries to ternary lithium-ion batteries. EVE Energy's main customers have shifted from commercial vehicle manufacturers to passenger car manufacturers. EVE Energy has been revitalized in recent years and is considering a transition from commercial vehicles to passenger cars. Over the next few years, capacity expansion is expected to accelerate, with the company forming a cooperative development with Guangdong manufacturers.

SVOLT (蜂巢能源)

SVOLT Energy Technology Co., Ltd.

Location: 8899, Xincheng Avenue, Jintan District, Changzhou City, Jiangsu Province

Website: www.svolt.cn/enwap

SVOLT Energy Technology Co., Ltd. (SVOLT) is the lithium-ion battery business unit spun off from Great Wall Motor in February 2018 and is an NEV lithium-ion battery company established in Changzhou, Jiangsu Province. The main product structure of SVOLT is mainly ternary lithium-ion batteries, and the L600 thin battery announced in Oct 2021. SVOLT's products are currently installed mainly in Great Wall Motor vehicles. Due to a lack of battery resources, SVOLT has relatively few partnerships with other companies, and currently supplies batteries to companies such as Leapmotor and Dongfeng Passenger Vehicle to some extent, but the supply is not very large. SVOLT's production capacity expanded explosively in 2021, with capacity projects in Huzhou, Zhejiang Province; Zuining, Sichuan Province; Maanshan, Anhui Province; and Lingshui, Nanjing entering the production start-up phase. The Saarland battery plant in Germany is also in the production start-up phase.

Sunwoda (欣旺达)

Sunwoda Electric Vehicle Battery Co., Ltd.

Location: No.2, Yihe Rd, Shilong Community, Shiyan Street, Baoan District, Shenzhen City, Guangdong Province

Website: en.sunwoda.com

Sunwoda Electric Vehicle Battery Co., Ltd. (Sunwoda) was established in 1997 and is engaged in the development, manufacturing, and sales of entire lithium-ion battery modules. Sunwoda's products belong to the consumer products category, and the company is now gradually expanding its product line to automotive applications. The company's lithium-ion batteries account for a low percentage of the automotive market. Sunwoda has recently begun supplying lower-cost lithium iron phosphate batteries for vehicles. Sunwoda’s main customers are currently Dongfeng Liuzhou Automobile and Geely Automobile.

FinDreams Technology (弗迪科技)

FinDreams Battery Co., Ltd.

Location: BYD Auto Base, Shatang Community, Maluan Street, Pingshan District, Shenzhen City, Guangdong Province

Website： www.bydglobal.com/cn

FinDreams Battery Co., Ltd. was previously BYD's lithium-ion battery division. It spun off in 2021 to meet the rising demand for NEV automotive batteries. Initially, BYD's batteries were primarily for their buses and in-house vehicle production, but later shifted to ternary lithium-ion batteries after 2018. Recently, BYD changed its strategy, supplying state-owned companies like FAW, GAC, Changan, and Dongfeng due to increasing demand and CATL's capacity limitations. BYD expanded its battery manufacturing to Shenzhen, Qinghai, and Xi'an. FinDreams Battery initiated projects in Chongqing and established partnerships with Changan Automobile. To address East China's battery demand, BYD is planning a new manufacturing site in Bengbu, Anhui.

国轩高科
GUOXUAN HIGH-TECH

Gotion (国轩高科)

Gotion High-tech Co., Ltd.

Location: No. 566, Huayuan Avenue, Baohe District, Hefei City, Anhui Province

Website: en.gotion.com.cn

Gotion High-tech Co., Ltd. (Gotion High-tech) was established in 1995, and its business in the field of lithium-ion batteries for NEVs is mainly comprised of lithium-ion battery packs, individual lithium-ion battery cells, and lithium-ion battery cathode materials. Gotion High-tech's batteries are mainly lithium iron phosphate, which in the early years were mainly deployed in buses. More recently, the deployment has been focused on mid- to low-end passenger cars, with lithium-ion iron phosphate batteries always accounting for about 95% of the total. From this, it can be seen that Gotion High-tech has formed a specific industry centered on lithium iron phosphate.

ITALIAN TRADE AGENCY

Farasis Energy (孚能科技)

Farasis Energy Gan Zhou Co. Ltd.

Location: Jinling West Road,Economic Development Zone,Ganzhou Jiangxi Province

Website: en.farasis.com or www.farasis-energy.com/en

Farasis is one of the leading soft pouch type ternary lithium-ion battery companies. It was the first company in China to achieve mass production of soft pouch ternary lithium-ion batteries and is engaged in the manufacturing of soft pouch type ternary lithium-ion batteries. The company’s products are being supported by Mercedes Benz and others. Farasis mainly supplies GAC Motor and has partnerships and projects with companies including GAC, BAIC BJEV, and FAW. The development of GAC Motor also drives the development of Farasis' batteries. Along with the strategic investment from Mercedes Benz (many orders from Beijing Benz). Farasis' production projects started mainly in Ganzhou, Jiangxi Province. The Ganzhou site is also an important base for Farasis. Farasis built many manufacturing sites in Zhenjiang, Jiangsu Province in recent years, and in conjunction with its project partnership with Mercedes Benz in Saxony, Germany. The partnership project between Farasis and Geely is also located in Ganzhou (Although underway).

4.4 Top Chinese NEV Producers

BYD Group (比亚迪集团)

BYD Company Ltd.

Location: Sehnzhen City

Website: www.bydglobal.com

XPENG (小鹏)

Guangzhou Xiaopeng Automotive Technology Co., Ltd.

Location: Guangzhou City

Website: www.heyxpeng.com

Lixiang (理想)

LI AUTO

Location: Beijing City

Website: www.lixiang.com

NIO (蔚来)

Shanghai Nio Automotive Co., Ltd.

Location: Shanghai City

Website: www.nio.com

WM Motor (威马)

Weltmeister

Location: Shanghai City

Website: www.wmmotor.ph

Nezha Automobile (哪吒汽车)

Hozon New Energy Auto Co., Ltd.

Location: Jiaxing City

Website: www.hozonauto.com

Geely Auto Group (吉利汽车)

Zhejiang Geely Holding Group Co., Ltd.

Location: Hangzhou City

Website: www.global.geely.com

ARCFOX (极狐汽车)

Beijing Automotive Group Co., Ltd. (BAIC)

Location: Beijing City

Website: en.arcfox.com.cn/brandsl.html

Leapmotor (零跑汽车)

Zhejiang Leapmotor Technology Co., Ltd.

Location: Hangzhou City

Website: www.leapmotor.com

GAC Aion (广汽埃安)

GAC Aion New Energy Automobile Co., Ltd.

Location: Guangzhou City

Website: www.aion.com.cn

WEY

Great Wall Motor Co., Ltd.

Location: Baoding City

Website: www.global.wey.com

HiPhi (高合汽车)

Human Horizons Technology Co. Ltd

Location: Shanghai City

Website: global.hiphi.com

Rising Auto (飞凡汽车)

Rising Auto Electrical Co., Ltd

Location: Shanghai City

Website: www.risingauto.com

ITALIAN TRADE AGENCY

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