Year 2024 Update

Date :

For and on behalf of
Frost & Sullivan (Beijing) Inc., Shanghai Branch Co.

Name: Terry Tse
Title: Consulting Director

Project Spring

Frost & Sullivan

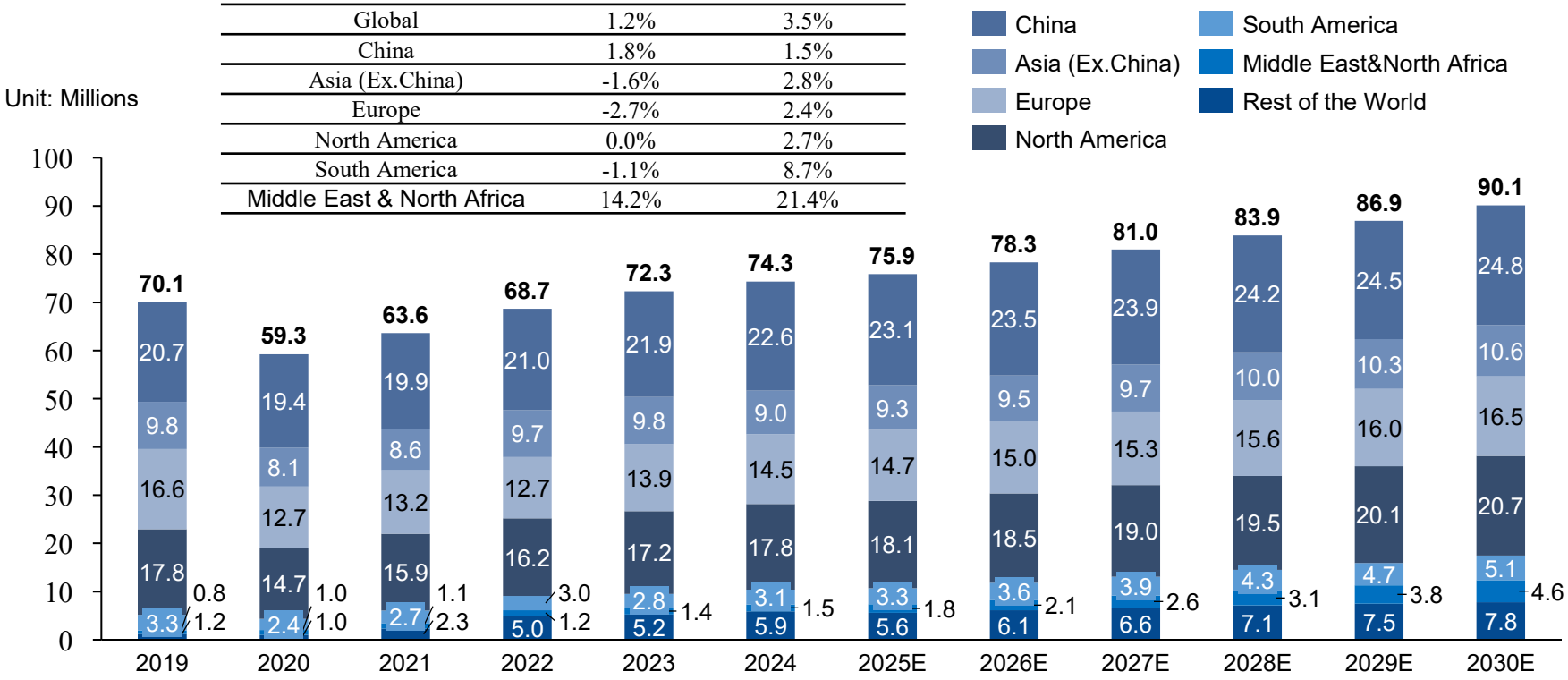
Sep, 2025

Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Regions

Passenger Vehicle Sales Volume , Global, Breakdown by Regions

CAGR	2019-2024	2025E-2030E
Global	1.2%	3.5%
China	1.8%	1.5%
Asia (Ex.China)	-1.6%	2.8%
Europe	-2.7%	2.4%
North America	0.0%	2.7%
South America	-1.1%	8.7%
Middle East & North Africa	14.2%	21.4%



Note:
1. Asia (Ex.China) includes: India, Indonesia, Japan, Kazakhstan, Malaysia, Myanmar, Pakistan, Philippines, Singapore, South Korea, Thailand, Uzbekistan and Vietnam;
2. Europe includes: Austria, Belarus, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom;
3. Middle East & North Africa include: Egypt, Israel, Kuwait, Oman, Saudi Arabia, Turkey and the United Arab Emirates;
4. North America includes: Canada, Mexico and the United States;
5. South America includes: Argentina, Brazil, Chile, Colombia and Uruguay.
6. All regions' passenger vehicle sales volume excludes export volume.

Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

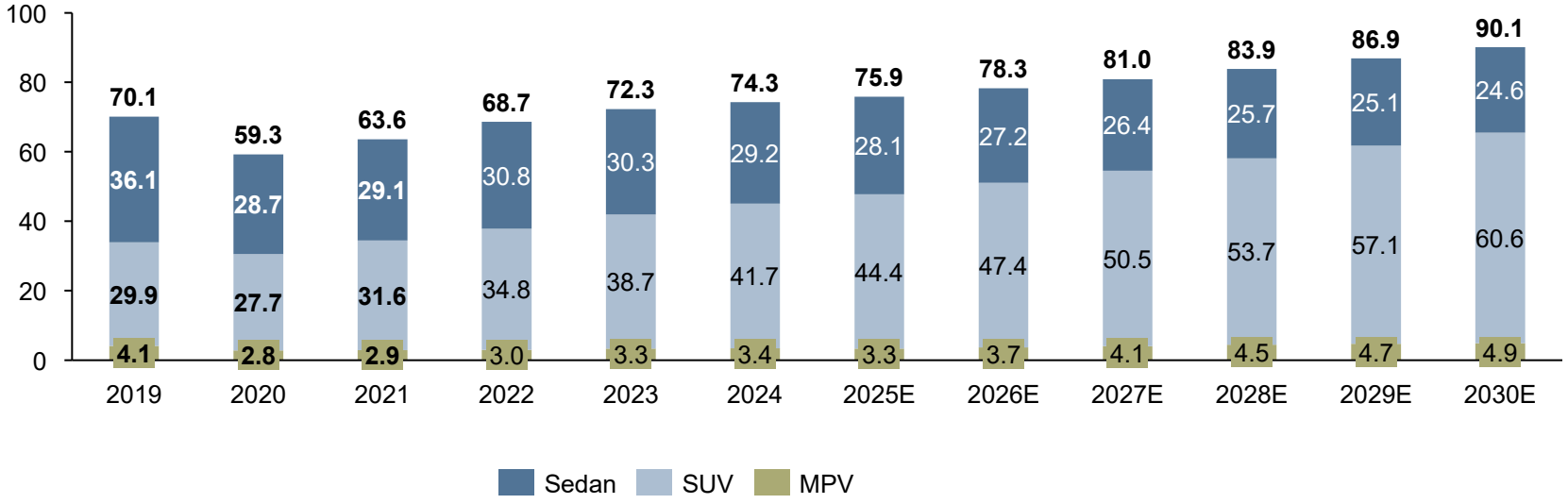
Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Vehicle Body Type

Global Passenger Vehicle Sales, Breakdown by Type of Vehicle

Unit：Millions

CAGR	2019-2024	2025E-2030E
Total	1.2%	3.5%
Sedan	-4.2%	-2.7%
SUV	6.9%	6.7%
MPV	-3.5%	4.3%



Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

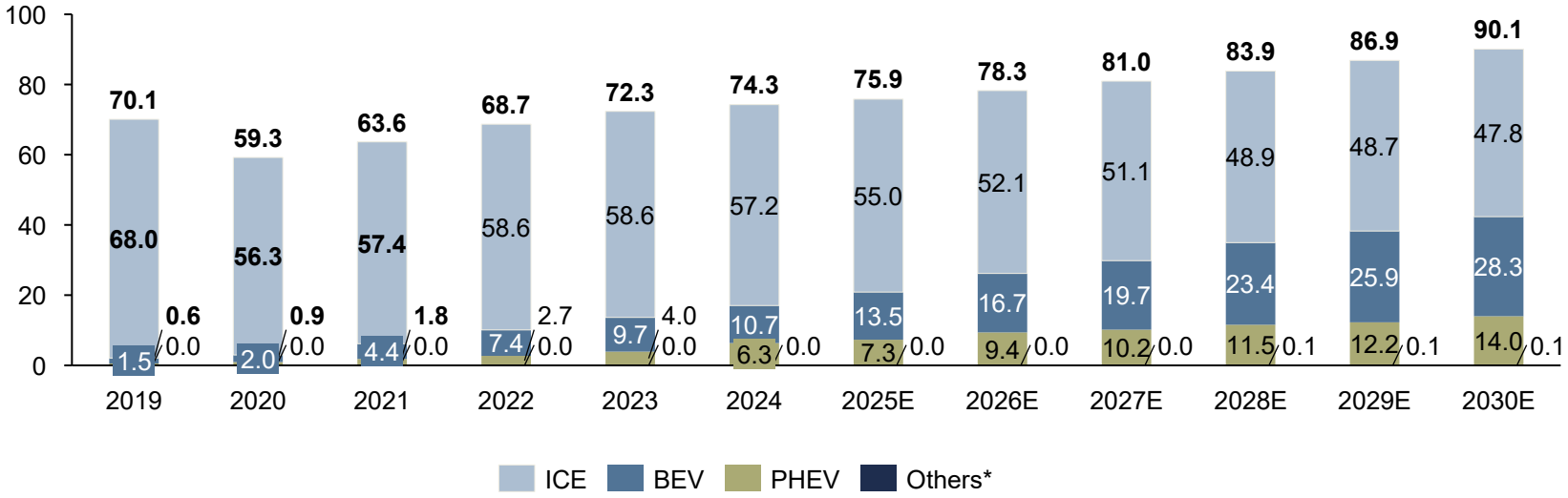
Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Power Type

Global Passenger Vehicle Sales Volume, by Power Type

Unit：Millions

CAGR	2019-2024	2025E-2030E
Total	1.2%	3.5%
ICE	-3.4%	-2.8%
BEV	48.2%	14.8%
PHEV	62.6%	15.9%

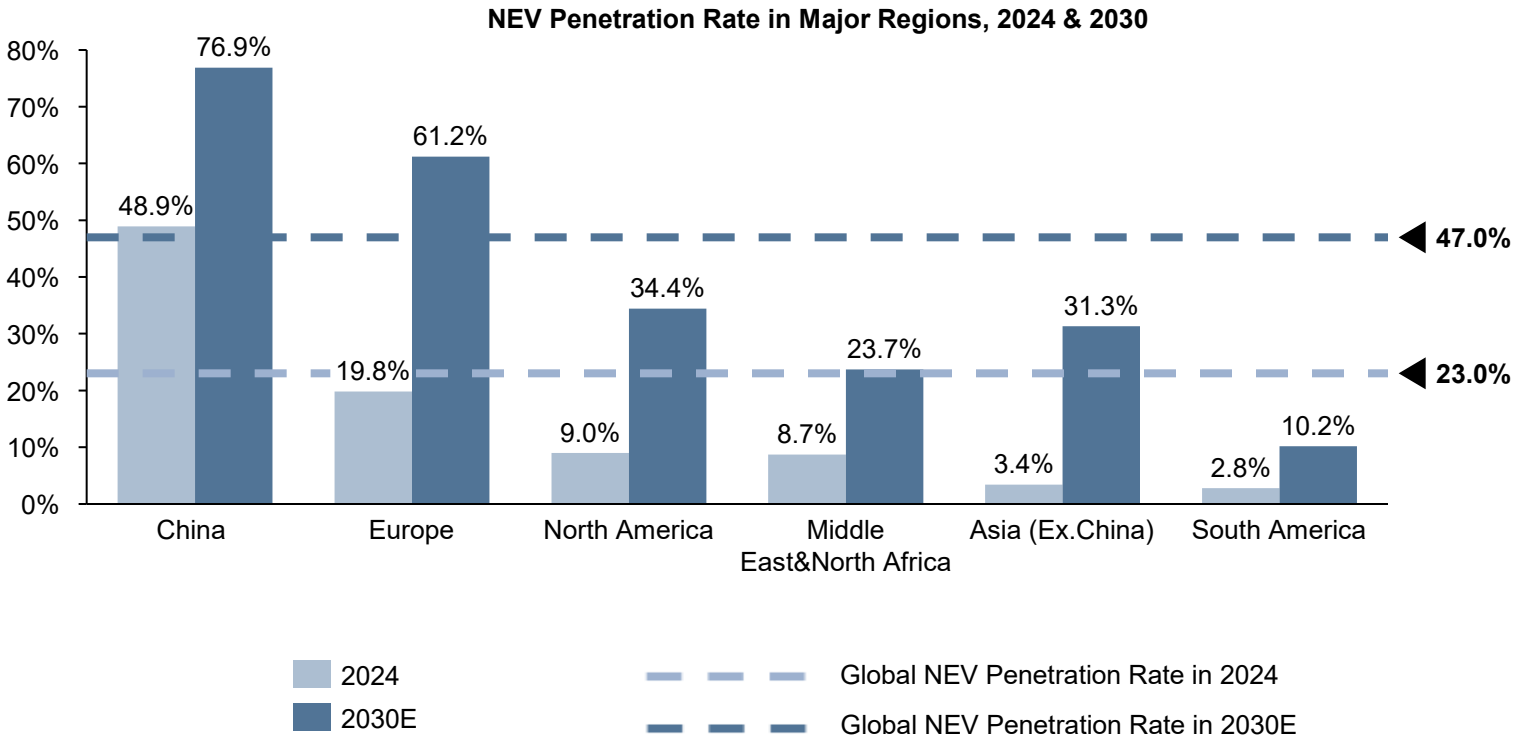


Note:
1. For statistical purpose, PHEV includes REEV; 2. Others mainly include fuel cell vehicles.

Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (1/3)



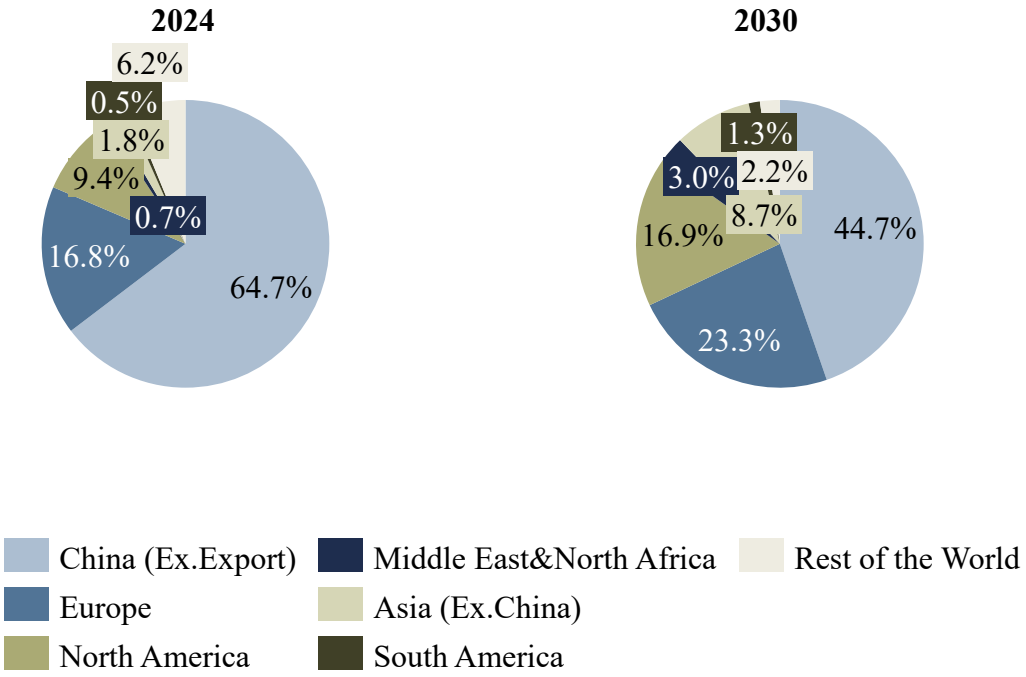
Note: All regions' passenger vehicle sales volume excludes export volume.

Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (1/3)

Global NEV Passenger Vehicle Sales, Breakdown by Regions, 2024 & 2030

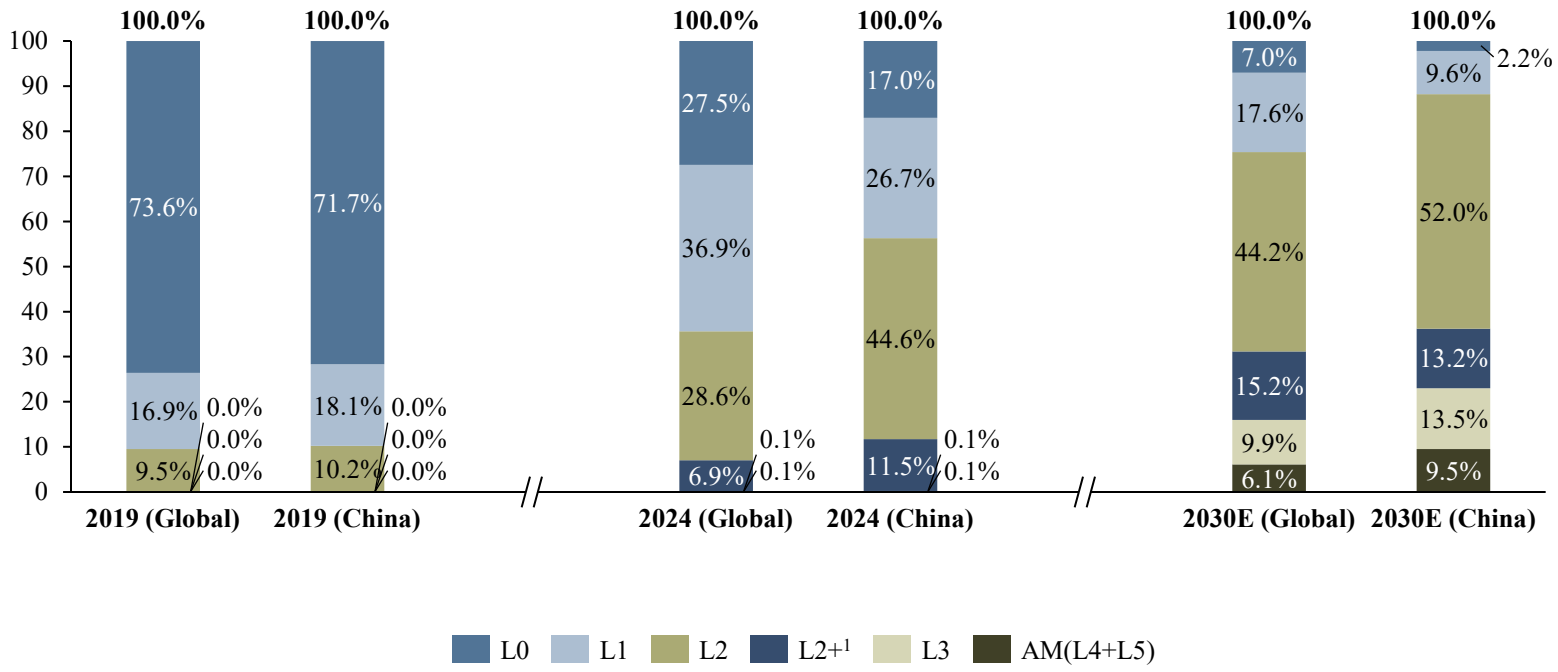


Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (2/3)

Global and China Autonomous Driving Vehicle Penetration Rate



Note:
1. L2+ includes Highway Navigate on Autopilot (HNOA) and Urban Navigate on Autopilot (UNOA).

Source：Frost & Sullivan

Overview of Global Automotive Market

Competitive Landscape of Global Passenger Vehicle Market (1/2)

Top 20 Automotive Groups in terms of Global Passenger Vehicle Sales in 2019

Ranking	Group	Ranking	Group
1	Volkswagen (A)	11	Daimler (K)
2	Toyota (B)	12	BMW (L)
3	RNM Alliance (C)	**13**	**Geely (M)**
4	Hyundai-Kia (D)	**14**	**SAIC (N)**
5	GM (E)	15	Mazda (O)
6	Honda (F)	16	Subaru (P)
7	Ford (G)	**17**	**GWM (Q)**
8	FCA (H)	**18**	**CHANGAN (R)**
9	PSA (I)	**19**	**Chery**
10	Suzuki (J)	20	Tata (S)

Top 20 Automotive Groups in terms of Global Passenger Vehicle Sales In 2024

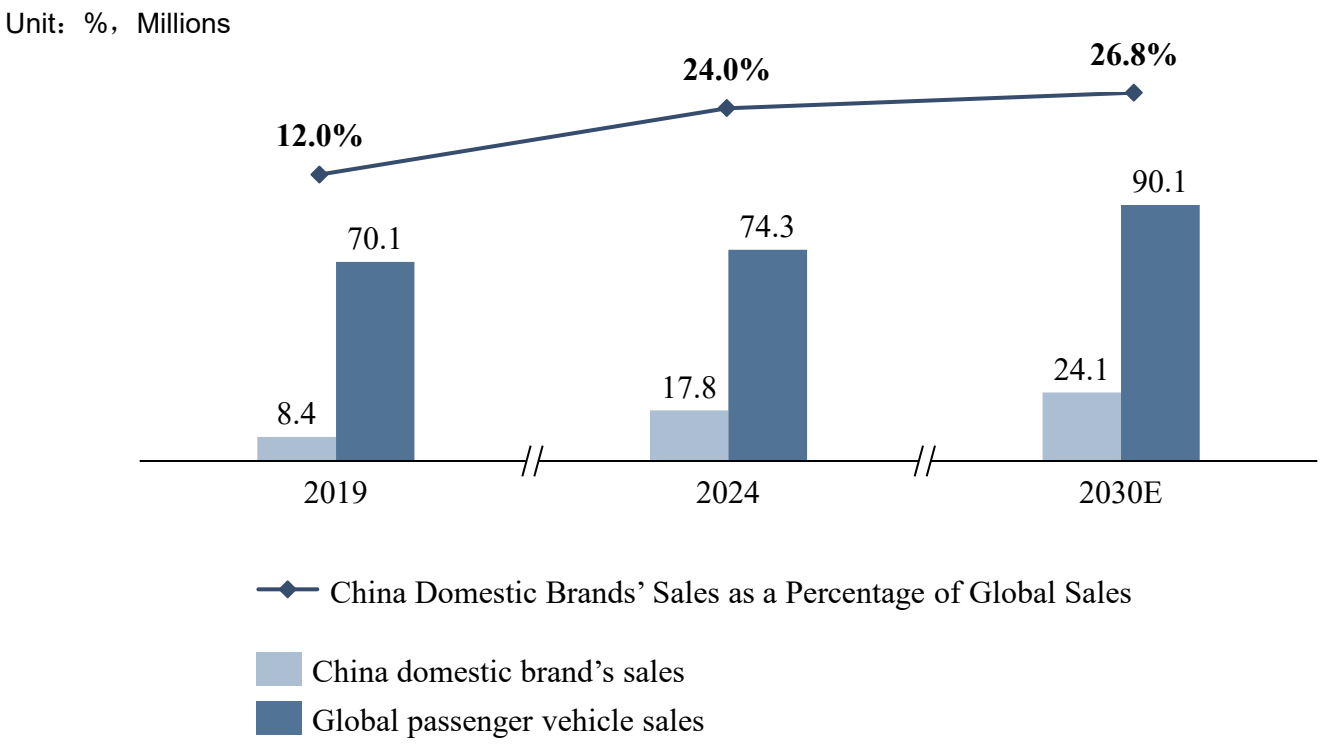
Ranking	Group	Ranking	Group
1	Toyota (B)	**11**	**Chery**
2	Volkswagen (A)	12	BMW (L)
3	Hyundai-Kia (D)	13	Suzuki (J)
4	RNM Alliance (C)	**14**	**SAIC (N)**
5	Stellantis (T)	15	Mercedes-Benz (K)
6	**BYD (U)**	16	**CHANGAN (R)**
7	GM (E)	**17**	Tesla (V)
8	Ford (G)	18	Mazda (O)
9	Honda (F)	**19**	**GWM (Q)**
10	**Geely (M)**	20	Subaru (P)

Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Competitive Landscape of Global Passenger Vehicle Market (2/2)

China Domestic Brands' Sales as a Percentage of Global Sales



Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Future Trends of NEV Market

Future trends of the NEV market in PRC

The NEV penetration rate in China's passenger vehicle market is projected to rise from 35.9% in 2023 to 76.9% by 2030, indicating robust growth momentum with significant untapped potential. From a regional perspective, tier 3/4 cities are emerging as the next growth frontier, driven by rising disposable incomes and the expansion of charging infrastructure into lower-tier markets. Meanwhile, autonomous driving technologies are rapidly penetrating the mid- to high-end market segment. Thanks to continuous improvements in NEV performance and intelligent features, consumer acceptance of NEVs is steadily increasing. As a result, China's NEV market demand is shifting from policy-driven to market-driven, further accelerating the widespread adoption of NEVs.

Future trends of overseas NEV market

The overseas NEV penetration rate has shown consistent growth, rising from 2.1% in 2019 to 11.6% in 2023, with projections reaching 36.0% by 2030, driven by increased consumer environmental awareness, regional economic growth, and supportive policies. This growth in NEV sales is driving charging infrastructure development across overseas markets, creating a positive feedback loop for further market penetration. As consumer expectations for safety, convenience, and intelligence evolve, NEVs' intelligent features are gaining broader acceptance among overseas consumers. In this context, Chinese OEMs can leverage their intelligent driving advantages to establish technological differentiation from traditional overseas OEMs, which is expected to enhance their market share in overseas NEV markets.

Source: Frost & Sullivan

Appendix A (2024 update)

- Chery is the second largest China domestic brand passenger vehicle company in China, and the 11th largest global OEMs, in terms of global sales volume of passenger vehicles in 2024.
- Chery ranked No.1 among top 20 global OEMs in terms of the year-on-year growth rate of passenger vehicle sales volume in 2024.
- Chery is the only one among top 20 global OEMs to achieve a sales volume increase over 25.0% for both NEVs and ICE vehicles and both China and overseas markets in 2024.
- Tiggo 8 ranked No. 1 and No. 3 in the global and China markets, respectively, among ICE vehicle models of the Chinese domestic brand passenger vehicles companies by sales volume of ICE vehicles in 2024.
- In 2024, the export volume of EXEED brand vehicles in the overseas markets ranked No. 1 among high-end Chinese domestic brands.
- Chery ranked No.1 among the top 20 global OEMs in terms of the year-on-year growth rate of NEV sales volume in 2024.
- In 2024, China's overall penetration rate of L2 and above ADAS was 56.3%.
- In 2024, global overall penetration rate of L2 and above intelligent driving solutions was 35.7%.
- Tiggo 7 was the best-selling passenger vehicle among Chinese brand passenger vehicles in terms of export volume in 2024.

Source: Frost & Sullivan

Project Spring Industry Report

Frost & Sullivan

Feb, 2025

Agenda

Scope

- **The project scope is defined as follows:**

Research Period	• Historical Year: 2019-2023 • Base Year: 2023 • Forecast Year: 2024E-2030E
Geographic Scope	• Global • China
Industry Scope	• Overview of Global and China Macro Economy • Overview of Global Passenger Vehicle Market • Overview of China Passenger Vehicle Market • Overview of China Domestic Brands in Overseas Passenger Vehicle Market

Limitations

Source of Information

- Interviews with industry experts and competitors will be conducted on a best-effort basis to collect information in aiding in-depth analysis for this report.
- Frost & Sullivan will not be responsible for any information gaps where Interviewees have refused to disclose confidential data or figures.

Official Statistical sources

Industry Expert Interview

Market indicators for modeling

- The study took 2023 as the base year and 2024E-2030E as the forecast period. However, as the point of this study being 2024, some of the figures of 2024 may not be available at the moment from public statistical sources. Frost & Sullivan will use the latest information available (e.g. 2023) or make projections based on historical trends.
- Under circumstances where information is not available, Frost & Sullivan in-house analysis will be leveraged using appropriate models and indicators to arrive at an estimate.
- Source of information will be stated in the right hand corner at the bottom on each slide for easy reference.

Agenda

Overview of Global and China Macro Economy

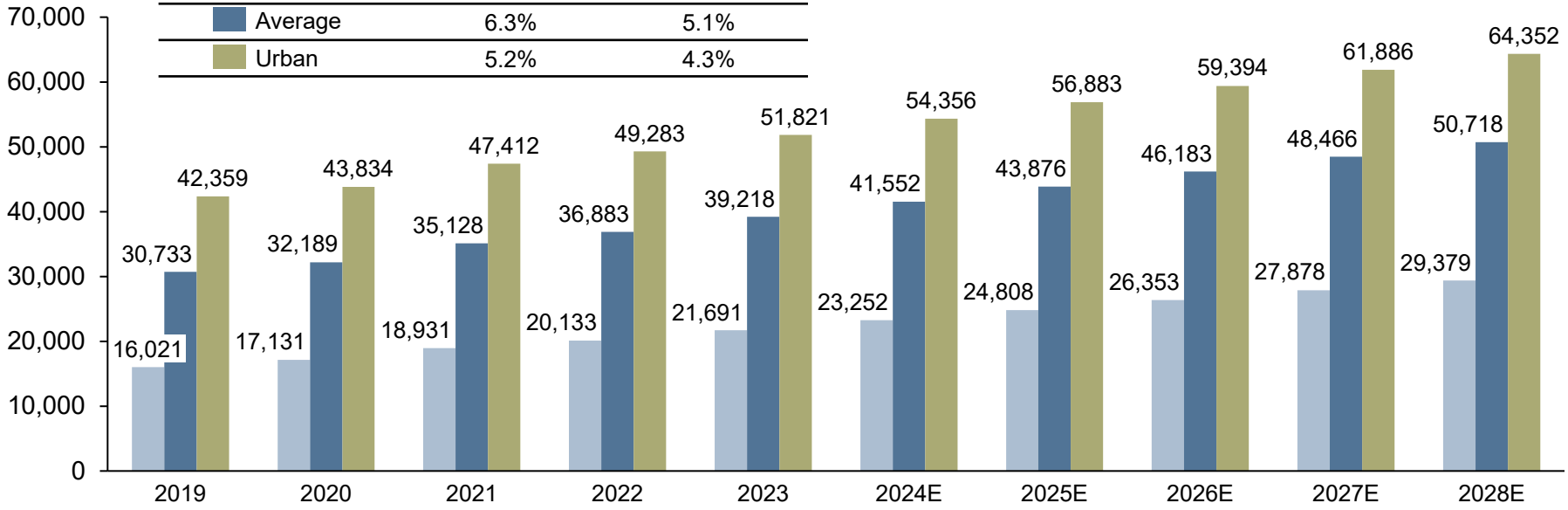
China's Disposable Income per Capita

- Together with the continuous growth in economy and urbanization, the average income level of China's households has also increased continuously in recent years. In 2023, the per capita annual disposable income of households has increased to RMB 39,218 in 2023 from RMB 30,733 in 2019 with a CAGR of 6.3%.
- By 2028, the per capita disposable income is expected to increase to RMB 50,718 with a CAGR of 5.1% from 2024 to 2028. Although the gap in absolute per capita disposable income is widening, the growth rate in rural areas will remain higher than that in urban areas. The reason why the compound annual growth rate from 2024 to 2028 is lower than that in the past five years is the long-term impact of the pandemic on the economy and the slowdown in domestic GDP growth rate.

Disposable Income per Capita, Breakdown by Areas, China, 2019-2028E

Unit: RMB

CAGR	2019-2023	2024E-2028E
Rural	7.9%	6.0%
Average	6.3%	5.1%
Urban	5.2%	4.3%



Source: National Bureau of Statistics, Frost & Sullivan

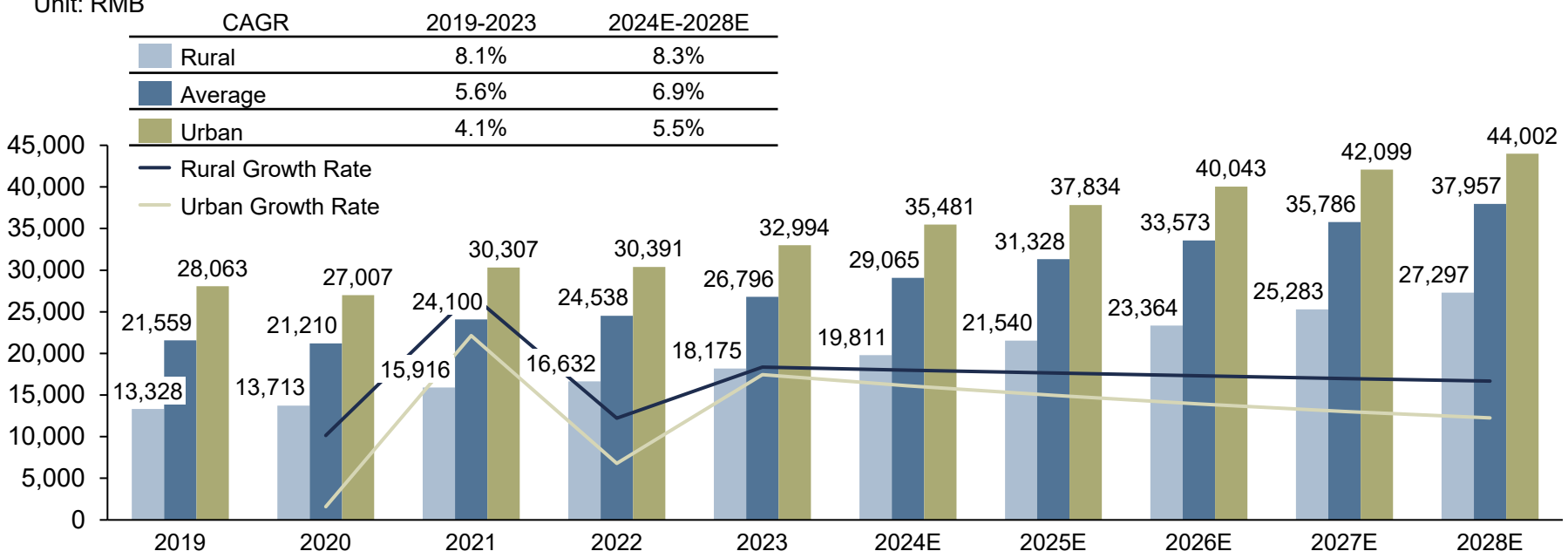
Overview of Global and China Macro Economy

China's Consumption Expenditure per Capita

- Due to the impact of COVID-19, the consumption expenditure per capita in China has declined 1.6% in 2020, while with the increase of residents' income and the improvement of the consumption environment, residents' consumption returned to grow since 2021. The consumption expenditure per capita has increased from RMB 21,559 in 2019 to RMB 26,796 in 2023, with a CAGR of 5.6%, and is expected to increase to RMB 37,957 in 2028.
- The spending power of China's rural population experienced robust growth in recent years, evidencing a persistently higher growth rate than that of China's urban population, and this trend is expected to continue in the future. Between 2024-2028, consumption expenditure per capita in rural areas will continue to maintain a relatively high growth rate of 8.3%. With the continued economic growth and increasing spending power, the rural market plays and will continue to play a vital role in China's overall economic development, driving increasing demand in the future.

Consumption Expenditure per Capita and Growth Rate, China, 2019-2028E

Unit: RMB



Source: National Bureau of Statistics, Frost & Sullivan

Agenda

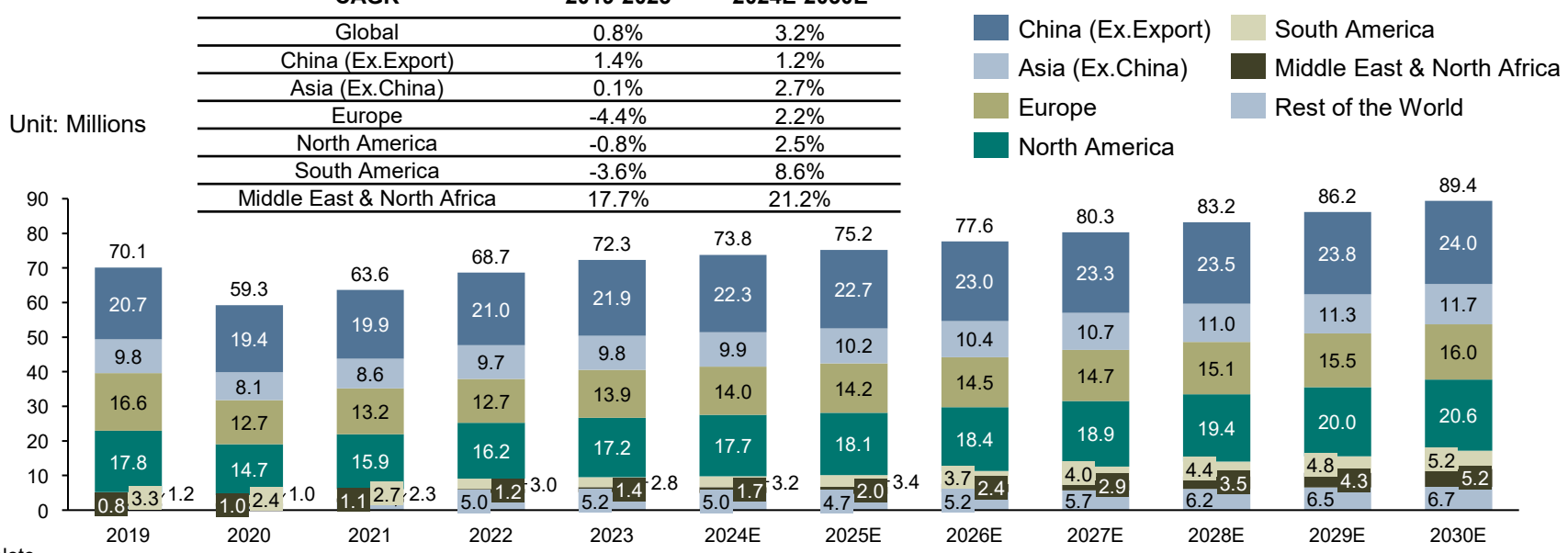
Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Regions (1/2)

- After a century of development, the global passenger vehicle industry has now reached a phase of relative maturity. The total global passenger vehicle sales achieved 72.3 million units in 2023 and is expected to grow at a CAGR of 3.2% from 2024 to 2030, reaching 89.4 million units in 2030, and hit a landmark of 100 million units by 2035. The global automotive industry is undergoing a significant transformation in light of continuous advancement of technologies, such as electrification and intelligentization, as well as increasing awareness on environmental protection.

Passenger Vehicle Sales Volume , Global, Breakdown by Regions

CAGR	2019-2023	2024E-2030E
Global	0.8%	3.2%
China (Ex.Export)	1.4%	1.2%
Asia (Ex.China)	0.1%	2.7%
Europe	-4.4%	2.2%
North America	-0.8%	2.5%
South America	-3.6%	8.6%
Middle East & North Africa	17.7%	21.2%



Note:

1. Asia (Ex.China) includes: India, Indonesia, Japan, Kazakhstan, Malaysia, Myanmar, Pakistan, Philippines, Singapore, South Korea, Thailand, Uzbekistan and Vietnam;
2. Europe includes: Austria, Belarus, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom;
3. Middle East & North Africa include: Egypt, Israel, Kuwait, Oman, Saudi Arabia, Turkey and the United Arab Emirates;
4. North America includes: Canada, Mexico and the United States;
5. South America includes: Argentina, Brazil, Chile, Colombia and Uruguay.

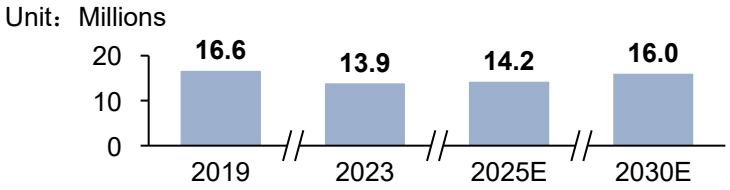
Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

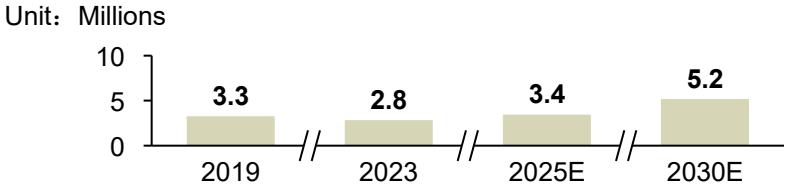
Global Passenger Vehicle Sales Volume, by Regions (2/2)

- Currently, the global passenger vehicle market is characterized by imbalanced regional development given the differences in the stage of economic development. China, North America, and Europe market accounted for 30.3%, 23.8%, and 19.2% of the global passenger vehicle sales respectively in 2023. And these markets with higher shares are projected to experience relatively flat future growth rates, yet their massive market size are expected to show a strong base effect, contributing an average increase of over 1 million units each year. The increase in the volume of passenger vehicles in the mature markets and the structural transformation brought by electrification and intelligentization are expected to drive the growth of the global passenger vehicle market.
- In contrast, emerging markets such as South America, Middle East and North Africa, and Asia (excluding China) are expected to have relatively higher CAGR from 2024 to 2030, at 8.6%, 21.2%, and 2.7% respectively. This growth is primarily driven by the underdeveloped automotive industry and low penetration rates. For example, the passenger vehicle sales in Southeast Asia is projected to grow at a CAGR of 5.3% from 2024 to 2030.These emerging regions have witnessed a surge in demand for passenger vehicles owing to the driving forces of the rapid economic growth in countries such as Brazil, Chile, Egypt, Turkey, Russia, India and Southeast Asian nations, leading to an expansion of the middle class and a subsequent increase in disposable incomes. Additionally, as global automotive technology continues to advance and international OEMs expand their localization strategies in these emerging markets, the cost of automobile production is gradually decreasing.

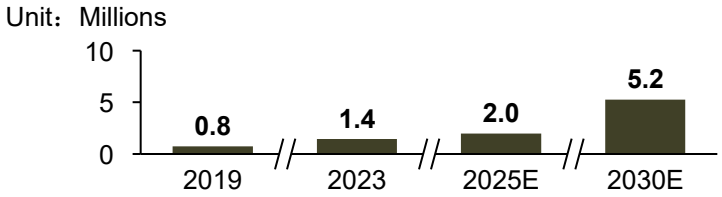
Europe Passenger Vehicle Sales



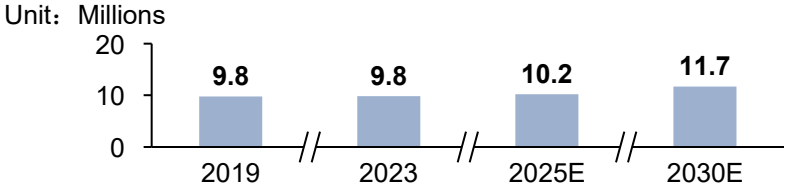
South America Passenger Vehicle Sales



Middle East & North Africa Passenger Vehicle Sales



Asia (Ex.China) Passenger Vehicle Sales



Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

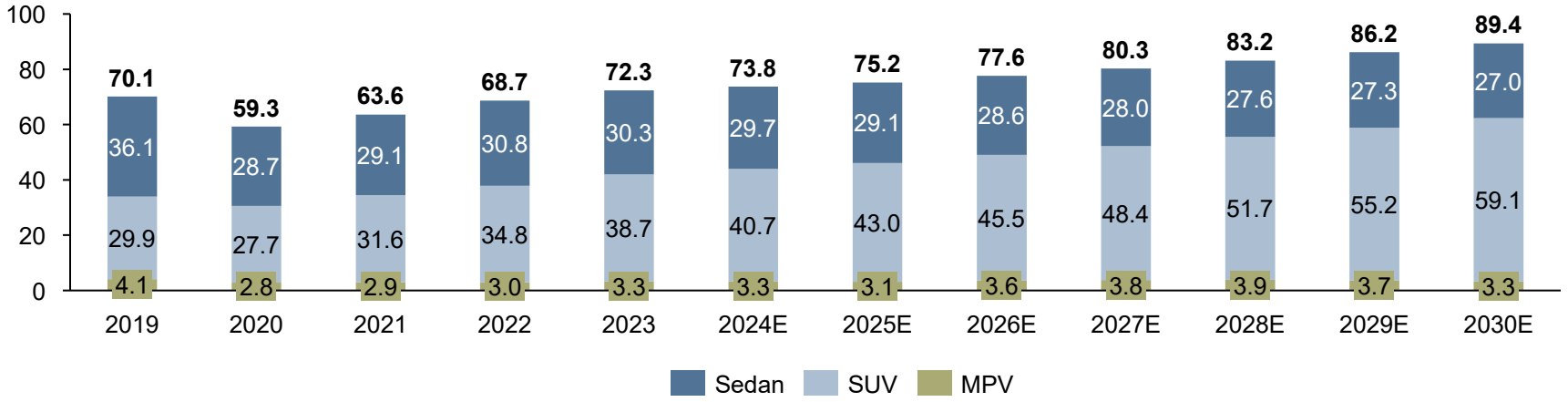
Global Passenger Vehicle Sales Volume, by Vehicle Body Type (1/2)

- In terms of vehicle types, sedans and SUVs are two major types of passenger vehicles in the market, with MPVs plays a relatively smaller part. Sedans have traditionally dominated the global passenger vehicle market. They have a more compact body design, making them ideal for daily commuting and urban driving. This offers consumers an economical and convenient driving experience. However, from 2019 to 2023, the share of SUVs in global passenger vehicle sales has risen from 42.7% to 53.5%, while the share of sedan has declined from 51.5% to 41.9% during the same period.

Global Passenger Vehicle Sales, Breakdown by Type of Vehicle

CAGR	2019-2023	2024E-2030E
Total	0.8%	3.2%
Sedan	-4.3%	-1.6%
SUV	6.6%	6.4%
MPV	-5.1%	-0.2%

Unit：Millions



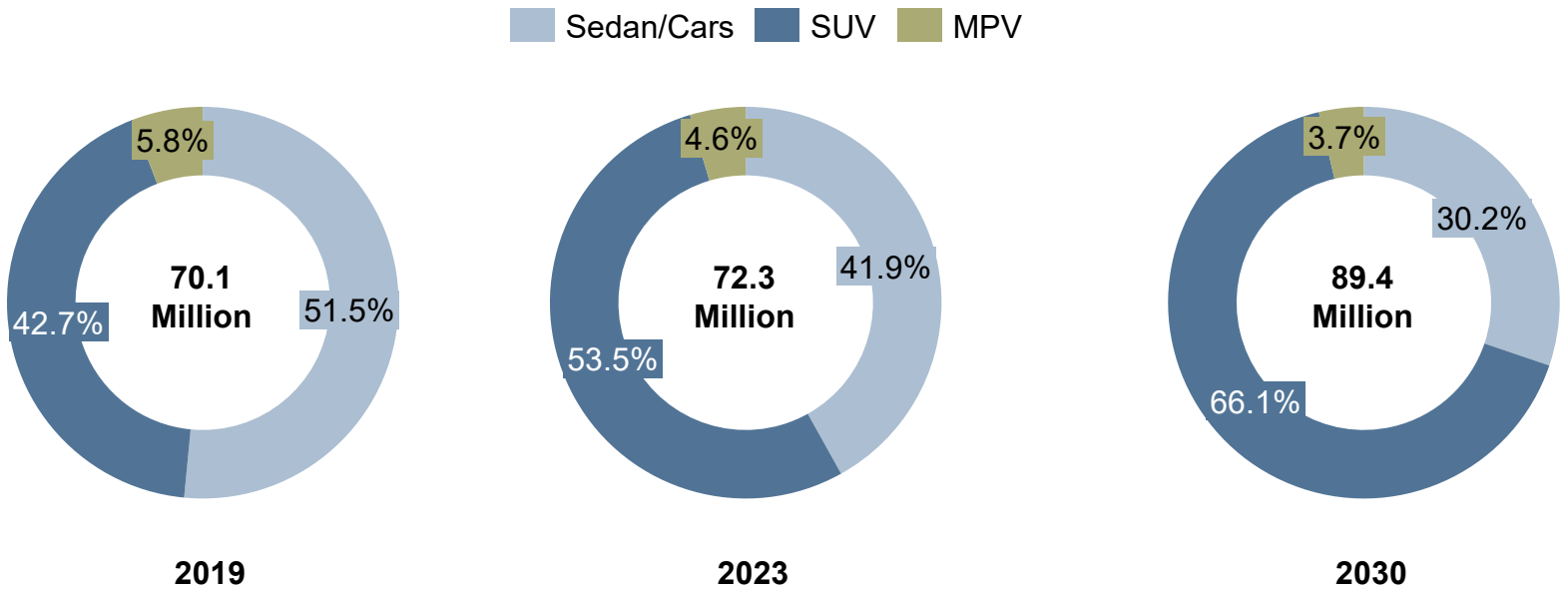
Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Vehicle Body Type (2/2)

- The inherent versatility and adaptability of SUVs have appealed to a diverse range of consumers. SUVs offer a compelling combination of spaciousness, comfort, and off-road capabilities, making them suitable for various lifestyles and terrains. In recent years, the demand for SUVs has surged due to the growing interest in family travel and outdoor activities. Looking forward, the sales of SUV models is expected to maintain a stable growth rate that is higher than the overall passenger vehicle market, with a projected CAGR of 6.4% from 2024 to 2030, reaching 59.1 million units by 2030, and further increasing its share in global passenger vehicle sales to 66.1%.

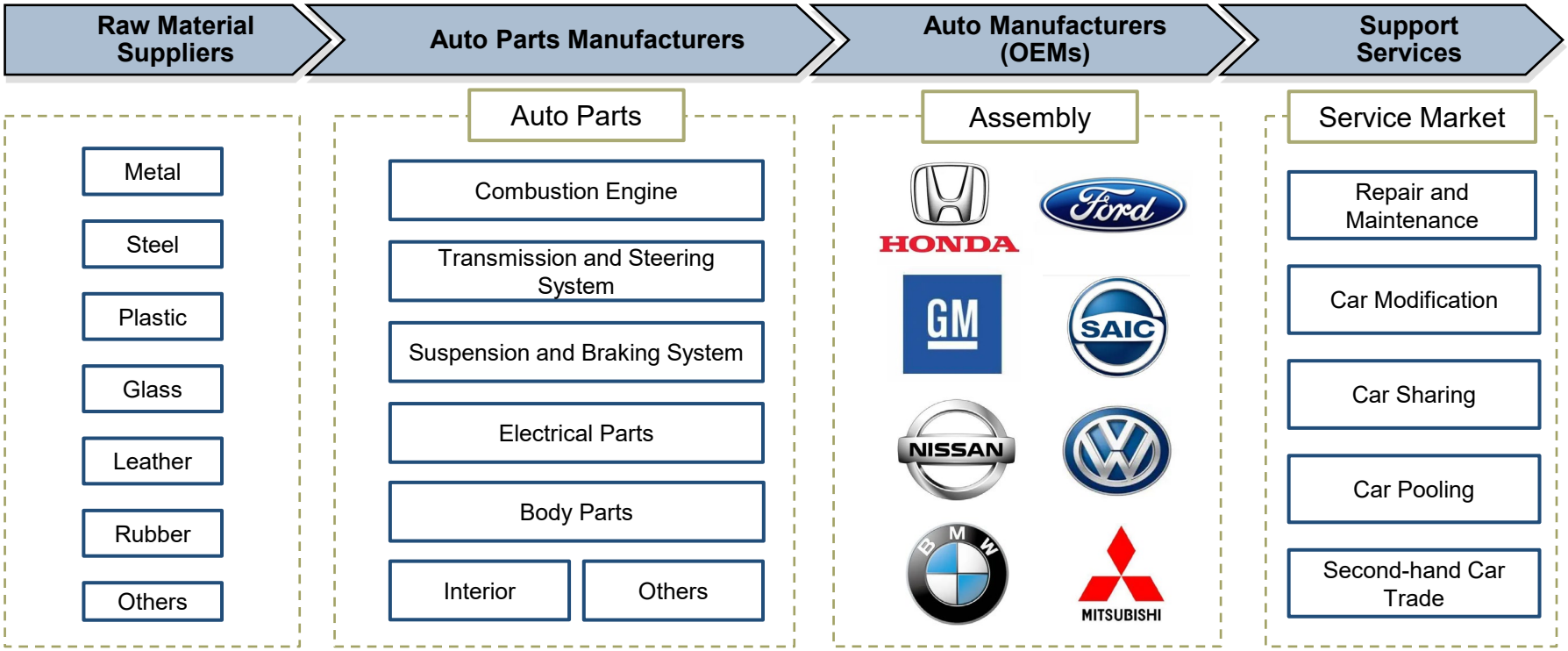
Market Share of Vehicles Types in Global Passenger Vehicle Sales



Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Industry Chain of ICE Vehicle



- The value chain of ICE vehicle encompasses participants of raw material suppliers, auto parts manufacturers, and auto manufacturers. The raw material suppliers provides general materials to auto parts manufacturers, such as metals, steel and plastic, etc. The components and parts of ICE vehicle include combustion engine, transmission and steering parts, suspension and steering parts, electrical parts, chassis, interior, body parts and others. The auto manufacturers will assembly all the parts and sell cars to customers through distributors and dealers. In addition, there are also car leasing, car sharing, and car pooling companies that participate in the service market to provide support services.

Source: Frost & Sullivan

Overview of Global Automotive Market
Definition of New Energy Vehicles

- New energy vehicles(NEV) refer to vehicles powered by non-conventional vehicle fuel as a power source or the use of conventional fuel based on the new vehicle power plant, with integration of vehicle power control and drive technology. New energy vehicles include battery electric vehicles(BEV) and plug-in hybrid electric vehicles(PHEV). BEV can only be powered by battery, while PHEV can be powered by battery, fuel engine and both. Compared with conventional energy vehicles, the number of auto parts in NEVs is largely reduced, and the battery, electromotor and electric control are the three core parts of NEVs.
- A BEV is powered by batteries only with propulsion solely produced by electric motors, and results in zero tailpipe emission. A PHEV is propelled by both internal combustion engine and electric motors, with energy supplied from fuel and batteries, which can be charged via external power supply.

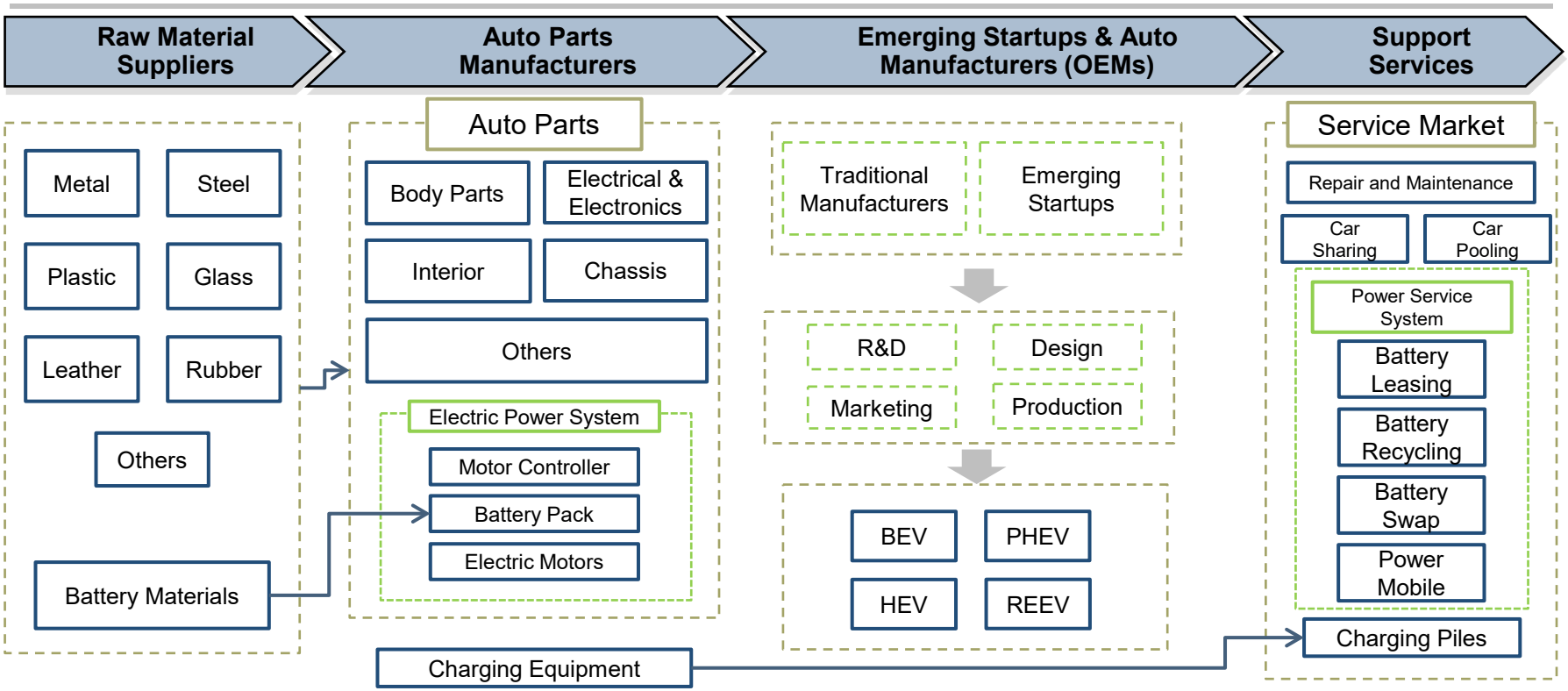
Classification	Definition	Representative Model
BEV	A battery electric vehicle generally refers to the pure electric vehicle, that is, only the battery provides energy supply, and only the electromotor provides power to drive the vehicle forward. This type of vehicle can achieve complete zero emissions in the driving process.	 Tesla - Model X, Y, S BMW - iX3 Mercedes Benz – EQC ICONIQ Seven NIO - ES6, ES8,EC6, ET7
PHEV	Unlike BEV, the batteries for a plug-in hybrid electric vehicle can be charged by a plug. Energy supply is provided by both batteries and fuel. The power supply is provided both by the fuel engine and electromotor. The extended-range electric vehicle (EREV) is also a type of PHEV. It is effectively an all-electric vehicle, with all the motive power provided by an electric motor, but with a small ICE present to generate additional electric power.	 BMW - X5, 5 Series Mercedes Benz - E class

Note: FCEV is not participate in statistics since it has not entered the stage of mass production.

Source: Frost & Sullivan

Overview of Global Automotive Market

Industry Chain of New Energy Vehicle



- The value chain of NEV encompasses participants of raw material suppliers, auto parts manufacturers, emerging startups and traditional auto manufacturers. The raw material suppliers are generally classified into two types. One type of suppliers provides general materials to auto parts manufacturers, such as metals and plastic, etc., and the other type of suppliers provides battery materials to battery manufacturers. Different from ICE vehicle, NEV has an electric power system, including motor controller, battery pack and electric motors. Besides auto parts and battery manufacturers, charging equipment manufacturers are also engaged to provide charging equipment to charging infrastructure companies, auto manufacturers, or emerging startups. In the complex auto market that includes both technical factors and non-technical factors, manufacturers of NEV and emerging startups are the leading power to guide the market by applying new business models, new power service system, or innovative strategy of marketing mix in order to develop an electrified transportation system in China. In addition, there are also some power service companies, car leasing, car sharing, and car pooling companies that participate in the service market to provide support services.

Source: Frost & Sullivan

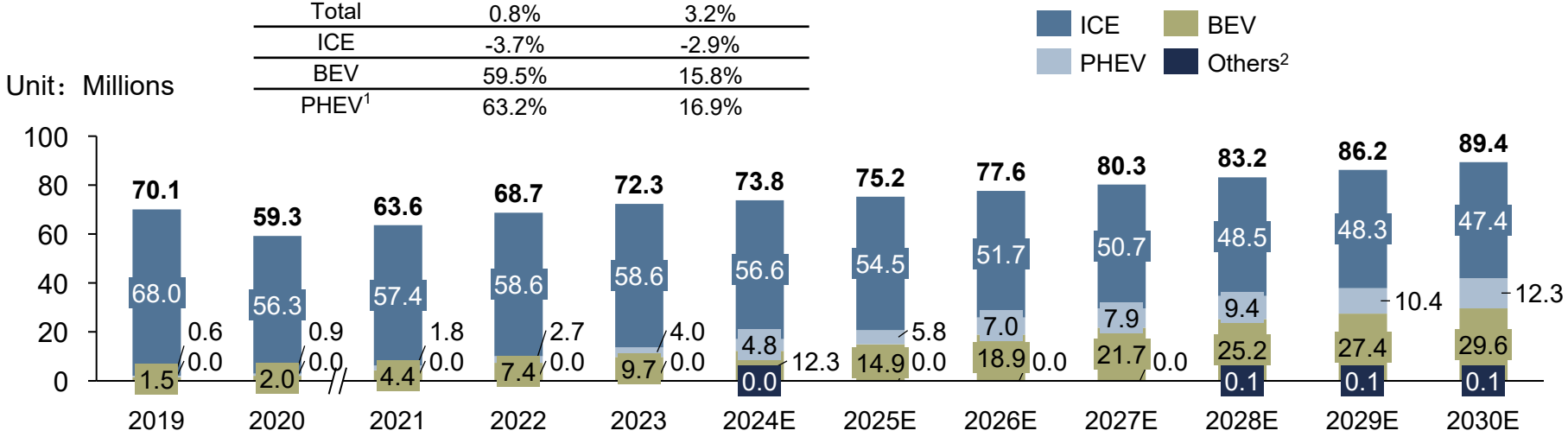
Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Power Type (1/2)

- NEVs can be divided into Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs). In recent years, there has been a marked shift toward electric vehicles, prompted by global efforts to reduce carbon emissions and the growing consumer awareness about sustainability. Governments worldwide are supporting this shift with incentives for NEV purchases and investments in charging infrastructure, which are crucial for overcoming range anxiety among potential buyers. And the increasing intelligence of electric vehicles provides consumers with more convenient experiences and better satisfies their evolving needs. Furthermore, advancements in battery technology, leading to enhanced driving ranges and reduced charging times, have fostered greater confidence in electric vehicles and encouraged more widespread adoption.

Global Passenger Vehicle Sales Volume, by Power Type

CAGR	2019-2023	2024E-2030E
Total	0.8%	3.2%
ICE	-3.7%	-2.9%
BEV	59.5%	15.8%
PHEV[1]	63.2%	16.9%



Note:
1. For statistical purpose, PHEV includes REEV; 2. Others mainly include fuel cell vehicles.

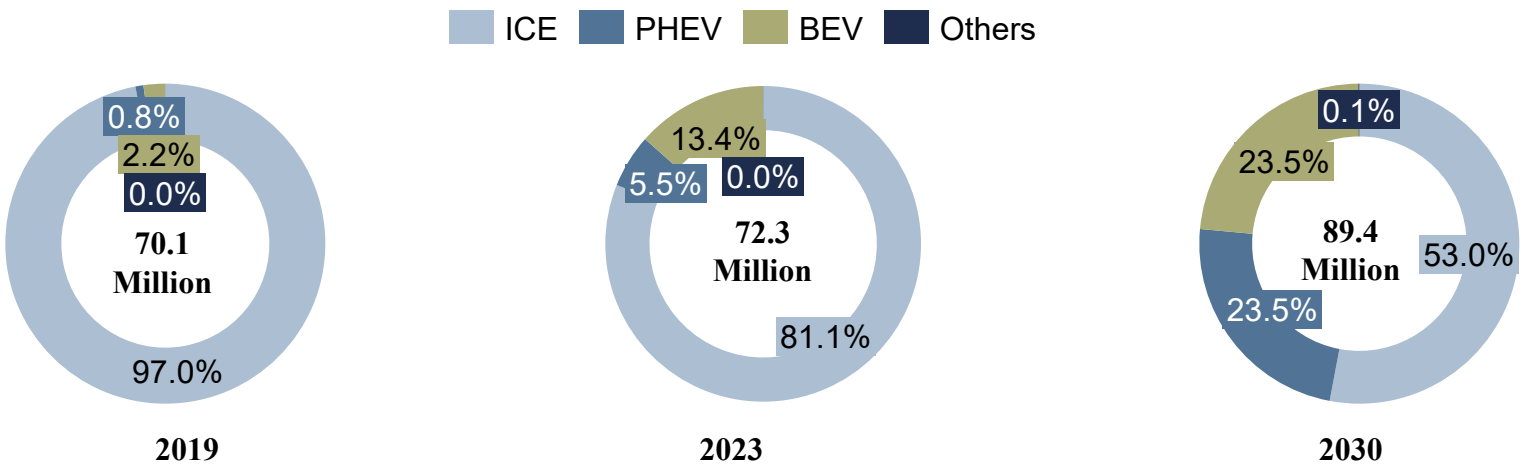
Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Global Passenger Vehicle Sales Volume, by Power Type (2/2)

- The largest passenger vehicle segment by power type remains ICE vehicles, which accounted for nearly 81.1% market share in 2023. And ICE vehicles will still be the mainstream of the global passenger vehicle market in the coming years, and it is expected that by 2030, ICE vehicles will still account for 53% of global passenger vehicle sales. ICE vehicles have historically been more affordable, making them a preferred choice for consumers in regions where electric vehicles infrastructure is still developing. The versatility of ICE cars, including their ability to function in various weather conditions and terrains, has further bolstered their demand across the globe. On the other side, PHEV vehicles combine both electric and gasoline propulsion systems. They can meet the daily commuting needs in pure electric mode while providing the flexibility to switch to gasoline power during long-distance travel or when charging infrastructure is unavailable, which effectively alleviates potential buyers' "range anxiety". As a result, the PHEV vehicle segment is expected to grow at a fastest CAGR of 16.9% from 2024 to 2030, while the BEV vehicle segment is expected to grow at a CAGR of 15.8% from 2024 to 2030.

Market Share of Vehicles Power Types in Global Passenger Vehicle Sales



Note:
1. For statistical purpose, PHEV includes REEV; 2. Others mainly include fuel cell vehicles.

Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

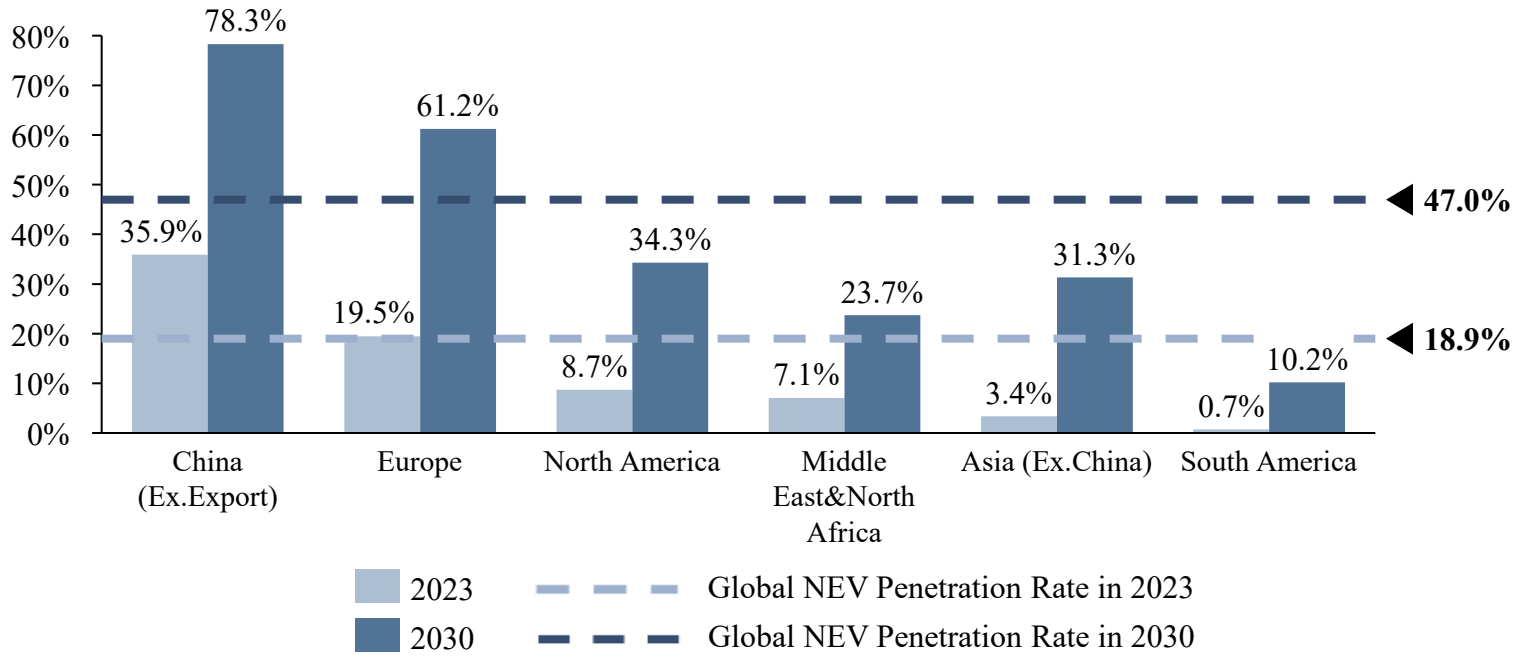
Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (1/3)

Increasing New Energy Vehicle Penetration with Regional Disparities

In recent years, there's been a significant shift towards NEVs due to global efforts to cut carbon emissions and growing customer awareness about sustainability. And the penetration rate of NEVs vary widely across different regions due to factors like energy prices, charging infrastructure, government policies and customer awareness. In 2023, the global penetration rate of NEVs was 18.9%. China's (excluding exports) new energy penetration rate in 2023 was 35.9%. However, the new energy penetration rate in regions outside of China was only 11.5%, among which, Europe had the highest new energy penetration rate of 19.5% in 2023, North America had a penetration rate of 8.7%, and South America had a penetration rate of only 0.7%.

NEV Penetration Rate in Major Regions, 2023 & 2030



Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

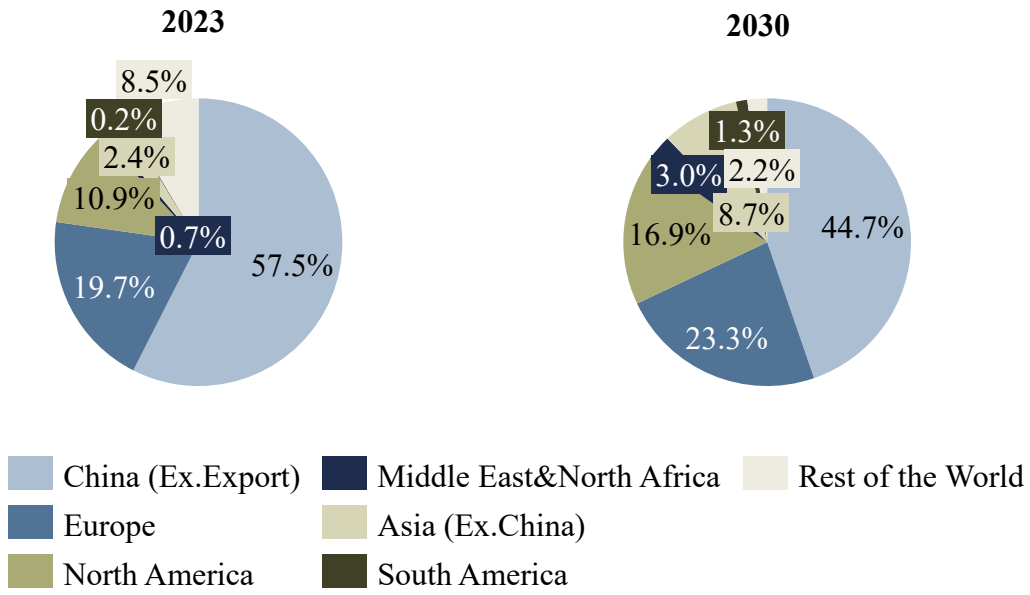
Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (1/3)

Increasing New Energy Vehicle Penetration with Regional Disparities

Looking forward, the global penetration rate of NEVs is expected to reach 47.0% in 2030. China's (excluding exports) new energy penetration rate in 2030 is expected to be 78.3%. And Europe will have a new energy penetration rate of 61.2% in 2030, North America will have a penetration rate of 34.3%, and South America will have a penetration rate of only 10.2%. China, Europe and North America are expected to be the primary markets for NEVs. Additionally, the market share of NEVs in Asia (excluding China) is anticipated to grow significantly.

Global NEV Passenger Vehicle Sales, Breakdown by Regions, 2023 & 2030



Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

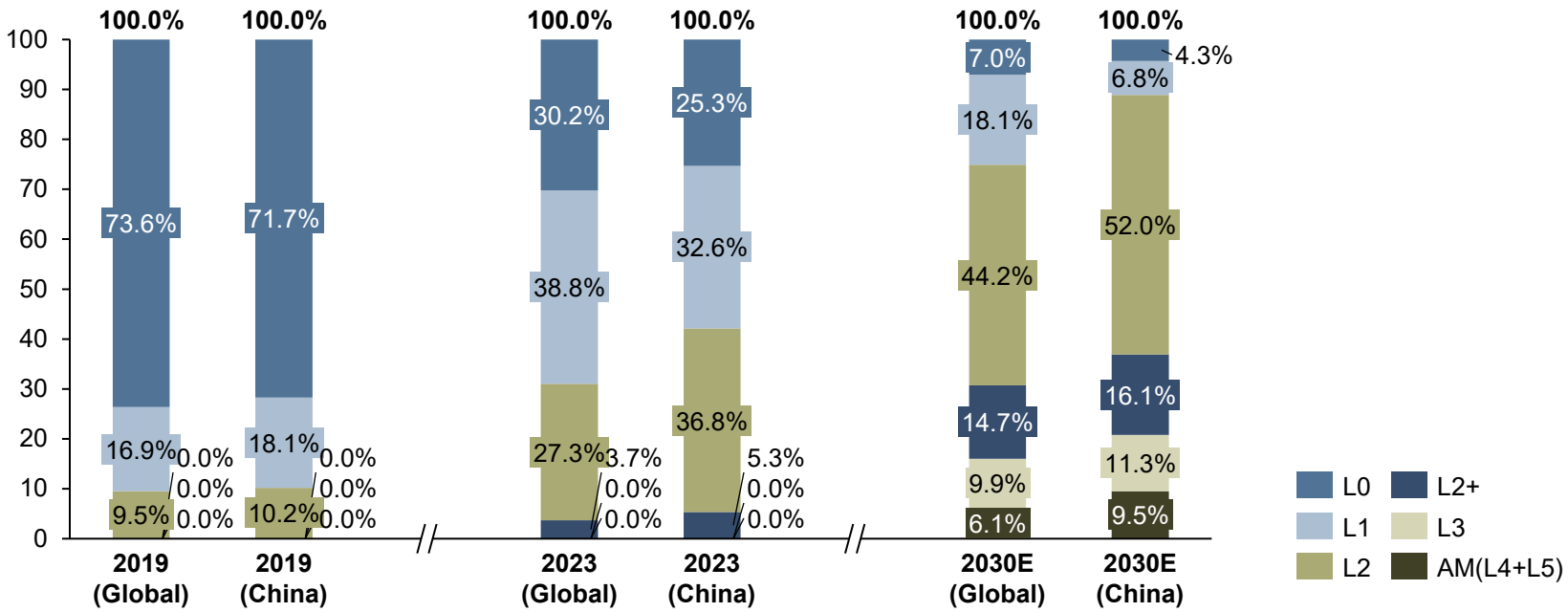
Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (2/3)

Rapid Development of Technological Innovation and Intelligent Technology

Technological innovation is rapidly transforming the automotive industry towards greater intelligence. Vehicle intelligence encompasses advancements in autonomous driving smart cockpits, and IoT (Internet of Things). Currently, autonomous driving technology has achieved full automation for steering and braking, moving towards hands-free driving, which enhances the comfort, safety, and convenience of driving experience. Smart cockpits, equipped with AI assistants, making it more intuitive and intelligent. Additionally, OTA technologies allow for continuous optimization of the driving experience through software updates and keep the vehicles up to the most updated technological applications.

Global and China Autonomous Driving Vehicle Penetration Rate



Note:

1. L2+ includes Highway Navigate on Autopilot (HNOA) and Urban Navigate on Autopilot (UNOA).

Source：Frost & Sullivan

Overview of Global Automotive Market

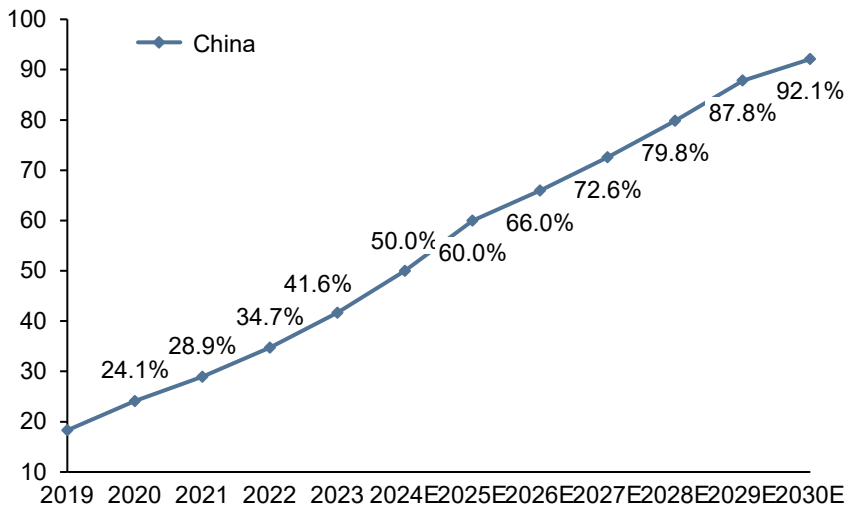
Market Drivers and Trends of Automotive Market (2/3)

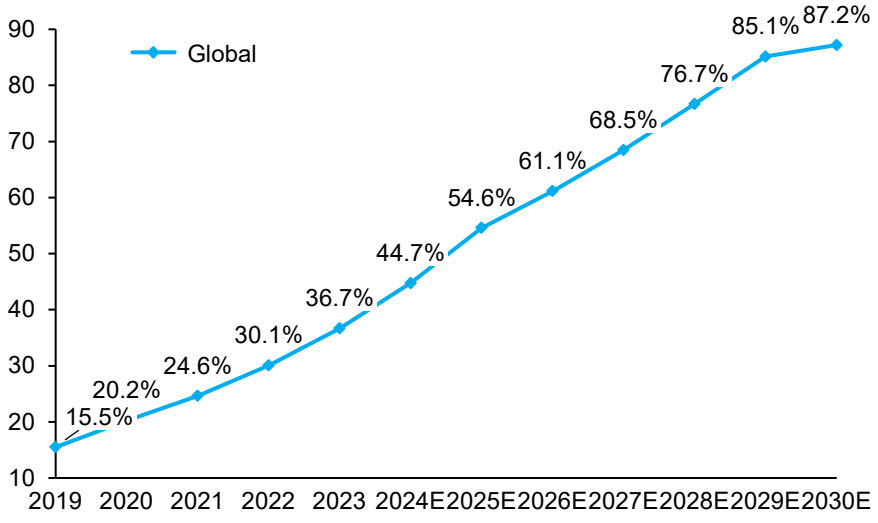
Rapid Development of Technological Innovation and Intelligent Technology

By 2030, as autonomous driving technology continues to advance and market acceptance grows, the penetration rate of autonomous driving vehicles is expected to see significant growth both globally and in China. Specifically, the market share of vehicles with L2 automation and advanced L2+ automation is projected to rise substantially. This indicates a clear trend towards the adoption of higher levels of autonomous driving technology.

The global penetration rate of smart cockpits had risen from 15.5% to 36.7%. The Chinese market is currently leading the way in this regard, with its swift adoption and implementation of these cutting-edge technologies. In 2023, for China's passenger vehicle market, the penetration rate of smart cockpits was 41.6%. The rapid growth in China is not only transforming the local automotive landscape but also setting a precedent for other regions to follow. It is projected that by 2030, the global penetration rate of smart cockpits will reach 87.2%. Looking forward, intelligent technologies will become an integral part of the driving experience and vehicle functionality.

Global and China Smart Cockpit Penetration Rate



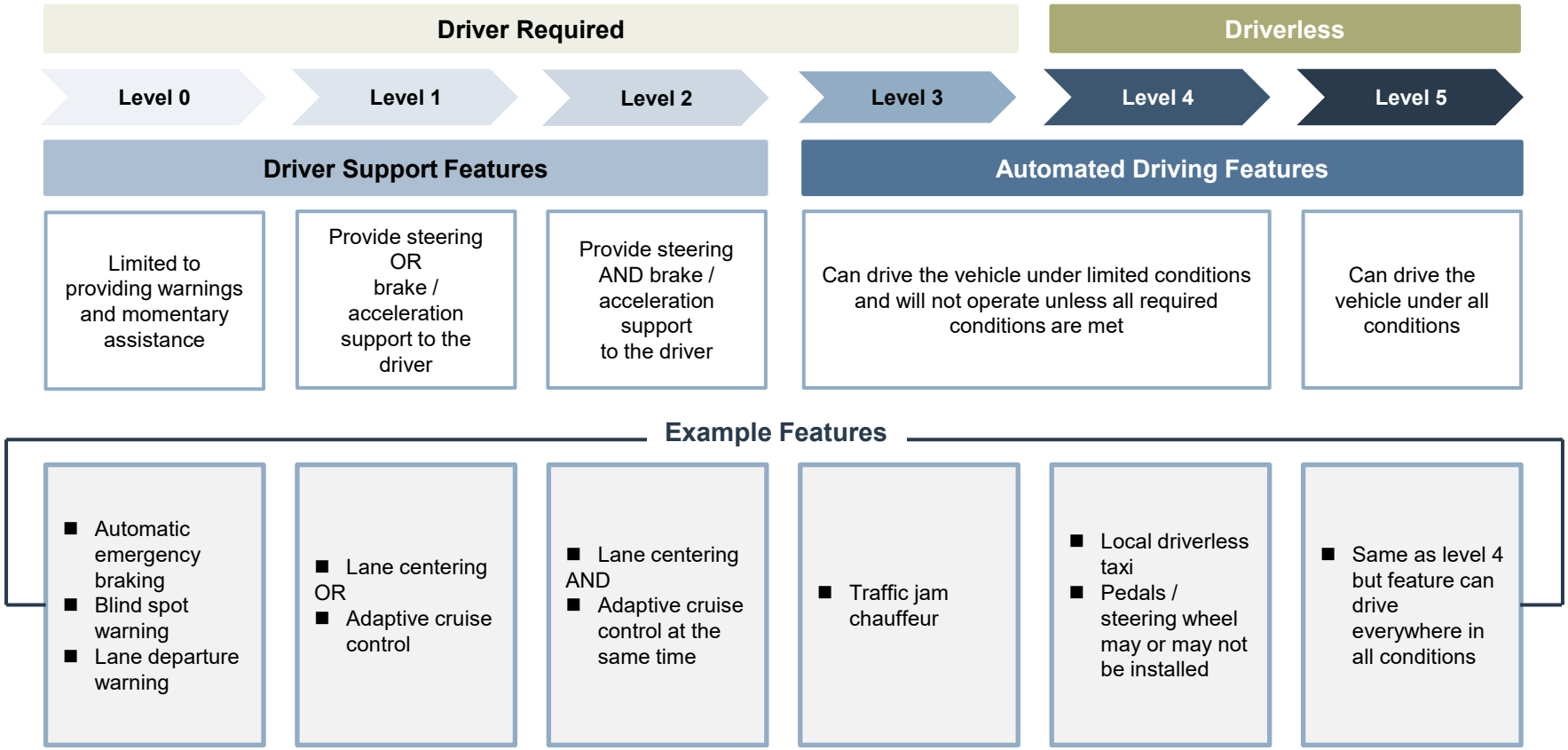


Source: Frost & Sullivan

Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (2/3)

- Autonomous driving refers to a complete set of software and hardware that acts as "Virtual Driver" to enable an autonomous vehicle to drive without the intervention of a human driver. According to SAE International, the levels of driving autonomy can be categorized into driver required and driverless, as illustrated below.



Source: SAE, Frost & Sullivan

Overview of Global Automotive Market

Market Drivers and Trends of Automotive Market (3/3)

Continuous Global Layout Adjustments by OEMs

OEMs have been continuously adjusting their global layouts in recent years. Chinese OEMs are expanding their global presence by building production plants, assembly lines, and supply chain systems overseas to boost their competitiveness. Meanwhile, traditional international OEMs strategically streamline to focus on their core markets to optimize their resource allocation. With rising geopolitical tensions, the global supply chain is shifting towards regional restructuring. As a result, OEMs from various countries are increasingly turning to localized procurement to enhance the stability and resilience of their supply chains.

Trends

Electrification	Refers to technologies that replace systems that run on fossil fuels with power batteries, as so to reduce pollution and achieve low-carbon economic development.
Intelligence	Refers to technology enables vehicles to perceive complex environments, perform intelligent decision-making and system control functions, further realizing the autonomous driving.
Connectivity	Refers to large system networks enable vehicles to achieve the wireless communication and information exchange with X (people, cars, roads, clouds, etc.)
Shared Mobility	Refers to the evolution of business models involves online ride-hailing, traditional taxi services, as well as Robotaxi in future.

Source：Frost & Sullivan

Overview of Global Automotive Market

Competitive Landscape of Global Passenger Vehicle Market (1/2)

- In recent years, the competitive landscape of global passenger vehicle market has undergone transformation. Against the backdrop of the industry's development trends towards electrification and intelligentization, the sales growth of traditional global OEMs has slowed down, while the competitive advantages of China OEMs have become increasingly prominent. Among the top 20 global OEMs by sales volume in 2019, only five were Chinese, with a combined market share of less than 9%. By the nine months ended 30 September 2024, six Chinese OEMs had entered this list, with a combined market share of 20%. As a result of technological advancements and their leading positions in the NEV sector, Chinese OEMs have steadily improved their industry status.

Top 20 Automotive Groups in terms of Global Passenger Vehicle Sales in 2019

Ranking	Group	Ranking	Group
1	Volkswagen (A)	11	Daimler (K)
2	Toyota (B)	12	BMW (L)
3	RNM Alliance (C)	**13**	**Geely (M)**
4	Hyundai-Kia (D)	**14**	**SAIC (N)**
5	GM (E)	15	Mazda (O)
6	Honda (F)	16	Subaru (P)
7	Ford (G)	**17**	**GWM (Q)**
8	FCA (H)	**18**	**CHANGAN (R)**
9	PSA (I)	**19**	**Chery**
10	Suzuki (J)	20	Tata (S)

Top 20 Automotive Groups in terms of Global Passenger Vehicle Sales For the Nine Months Ended September 30, 2024

Ranking	Group	Ranking	Group
1	Toyota (B)	**11**	**Chery**
2	Volkswagen (A)	12	BMW (L)
3	Hyundai-Kia (D)	13	Suzuki (J)
4	RNM Alliance (C)	**14**	**SAIC (N)**
5	Stellantis (T)	15	Mercedes-Benz (K)
6	GM (E)	16	Tesla (V)
7	**BYD (U)**	**17**	**CHANGAN (R)**
8	Ford (G)	18	Mazda (O)
9	Honda (F)	**19**	**GWM (Q)**
10	**Geely (M)**	20	Subaru (P)

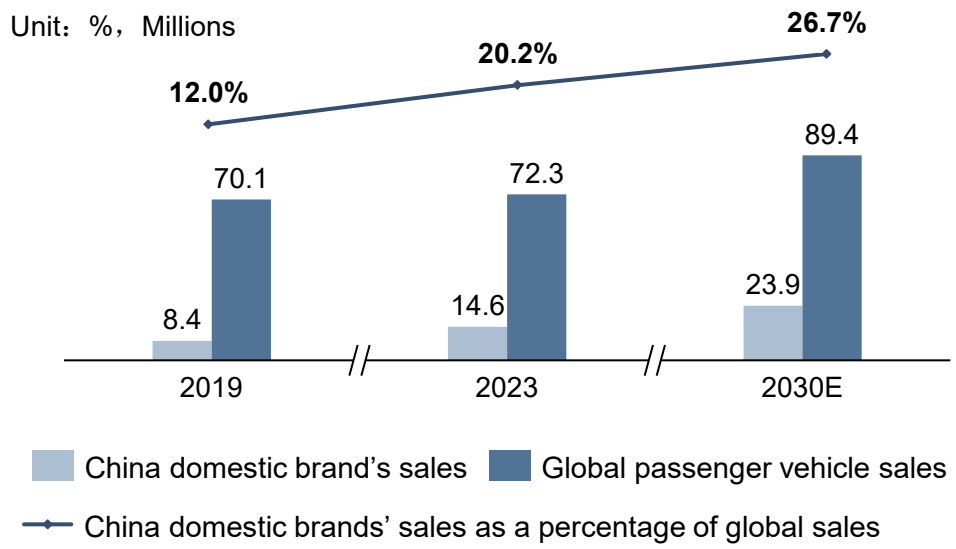
Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Competitive Landscape of Global Passenger Vehicle Market (2/2)

- China's automotive industry has achieved significant advancements in technological innovation and product quality, boosting the competitiveness of its products. The market share of China domestic brands in the China market has grown rapidly, from 34.4% in 2019 to 48.5% in 2023. Along with this trend, China domestic brands are expected to capture 69.6% market share by 2030. In recent years, the international recognition of China domestic brands has steadily grown. More overseas consumers are gaining a deeper understanding of and trust in these brands. After 2021, the export volume of Chinese passenger vehicles increased rapidly. In 2023, China exported 4.1 million passenger vehicles, surpassing Japan to become the world's largest passenger vehicle exporter. As a result, the market share of China domestic brands in global passenger vehicle sales has been steadily increasing. It rose from 12.0% in 2019 to 20.2% in 2023, and is projected to reach 26.7% by 2030.

China Domestic Brands' Sales as a Percentage of Global Sales



Key Factors of Global Passenger Vehicle Market:

- Develop products that meet changing customer needs;
- Stay ahead in technological innovation, especially in areas like electrification and autonomous driving;
- Have a strong and influential brand helps in long-term growth;
- Efficient production capabilities, supported by a robust and localized supply chain that ensures operational flexibility and cost-effectiveness;
- A well-integrated sales network and excellent after-sales services that boost customer satisfaction and loyalty.

Together, these elements help OEMs maintain a competitive edge in the complex global automotive industry.

Source: International Organization of Motor Vehicle Manufacturers (OICA), China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of Global Automotive Market

Drivers for the Global Competitiveness of China Domestic Brands

Breakthroughs in Traditional Technology and Leadership in Electrification and Intelligentization

China domestic brands have made impressive improvements in traditional technologies like engines and transmissions. Over the years, they've achieved significant breakthroughs, with several performance indicators now meeting or even exceeding international standards. This progress allows ICE vehicle users around the world to enjoy high-quality driving experiences at more competitive prices. In addition, China domestic brands progressed significantly in electrification, particularly in developing electric and hybrid powertrain technologies. These innovations have surpassed those of traditional foreign OEMs, positioning China as a leader in the global NEV sector. Additionally, with the global trend towards intelligentization in the passenger vehicle market, China domestic brands have ramped up their R&D investments in areas like intelligent driving and smart cockpits. China domestic brands are extensively using large AI models in intelligent driving and smart cockpits. This technology offers customers smart driving experiences and personalized interactions.

Efficient R&D, Supply Chain, and Production Systems

Thanks to the efficient R&D iteration capabilities of China domestic brands, the development cycles for new versions and products have significantly shortened. This allows them to promptly reflect customer needs and technological advancements into their product designs and provide users with cutting-edge features through remote OTA updates. China automotive industry has built a sound, mature, and stable supply chain system. Combined with strong quality and cost management capabilities and efficient manufacturing processes, China domestic brands are able to consistently offer more economical, practical, and high-quality passenger vehicles.

Actively Promoting Global Layout and Enhancing Brand Influence

Thanks to significant investments and close cooperation with domestic and international partners, China domestic brands have established a robust global sales network in both domestic and overseas markets, providing timely and efficient after-sales services to customers. With excellent technical research and development capabilities, continuously improving product quality, and cost-effective products, China domestic brands are intensifying their brand influence worldwide. This has led to growing consumer recognition and brand loyalty. China domestic brands are increasingly adapting their models sold overseas to meet local requirements and preferences. This approach enhances their market competitiveness and customer satisfaction in international markets. According to the 2024 China Initial Quality Study (10S) by JD. Power, four China domestic brands ranked among the top ten mass-market brands, a significant improvement from just one in 2019.

Source: Frost & Sullivan

Agenda

Overview of China Passenger Vehicle Market

The Development of China Passenger Vehicle Market

- **The development of China passenger vehicle market can be divided into three main periods:**
  - **Rapid Growth Period of China Passenger Vehicle Volume (2001-2017):** After China joined the World Trade Organization in 2001, global automakers began flooding into the Chinese market and forming joint ventures. This influx of international players significantly boosted the industry's growth. During this time, China's economy grew rapidly, and residents' disposable income increased, enhancing their purchasing power. This economic boom, along with supportive government policies, created an ideal environment for the automotive market to thrive. As a result, passenger vehicle sales in China surged from 1.2 million units in 2001 to 24.7 million units in 2017, achieving a CAGR of 20.8%.
  - **Steady Market Period (2018-2020):** During this period, China passenger vehicle market began to stabilize. Although the growth rates slowed down, the sales volume of passenger vehicles in China remained consistently above 20 million units each year. During this period, NEVs started to gain more attention and received increased policy support.
  - **Significant Growth in NEVs and the Rise of Domestic Brands (Since 2021):** Since 2021, the sales volume of NEVs have experienced rapid growth, with a CAGR of 92.1% from 2020 to 2023. This significant growth in the NEVs segment, along with the enhancement of core competitiveness, has allowed domestic brands to increase their market share in China's passenger vehicle market from 33.6% in 2020 to 48.5% in 2023. Further growth is expected in the coming years.

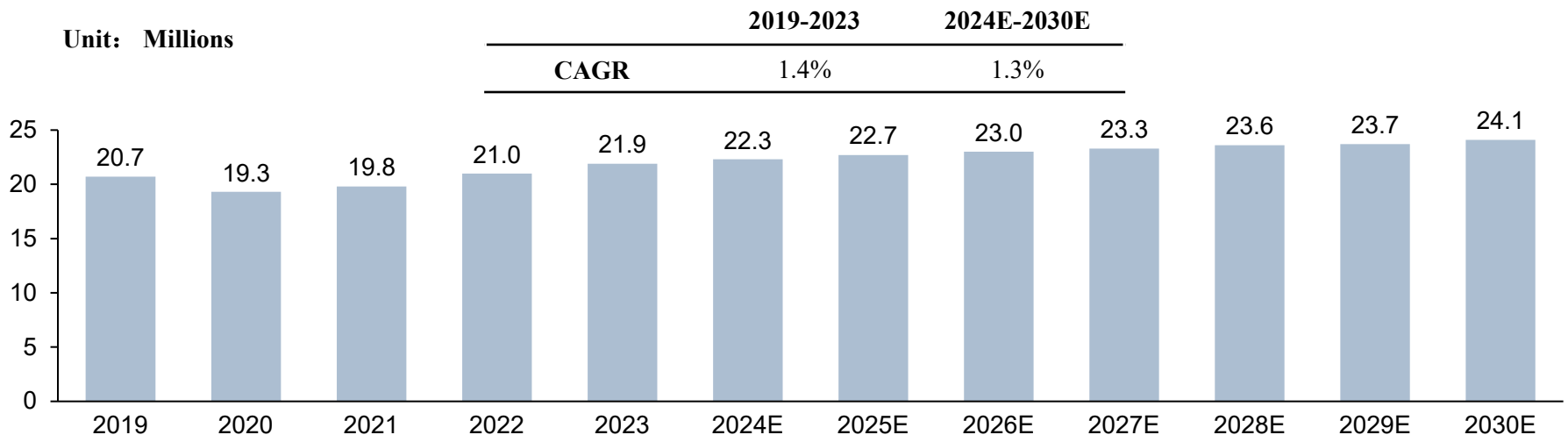
Source: Frost & Sullivan

Overview of China Passenger Vehicle Market

China Passenger Vehicle Market Size

- The China passenger vehicle market is vast and dynamic, showing notable characteristics and development trends in recent years. In 2023, passenger vehicle sales volume reached 21.9 million units, with a CAGR of 1.4% from 2019 to 2023. The sales volume is expected to reach 24.1 million units by 2030, with a CAGR of 1.3% from 2024 to 2030
- In 2023, first-tier cities[1] accounted for 15.0% of China passenger vehicle market, while the second-tier and lower-tier markets collectively held a market share of 85.0%. First-tier cities often have restrictions on the number of license plates, so market growth there is expected to be steady. In contrast, as residents' incomes rise, the demand for passenger vehicles in second-tier and lower-tier markets is increasing, showing significant development potential.

China Passenger Vehicle Sales Volume[2]



Note:
1.First-tier cities include Beijing, Shanghai, Guangzhou, Shenzhen.
2.China's passenger vehicle market size excludes export volume.

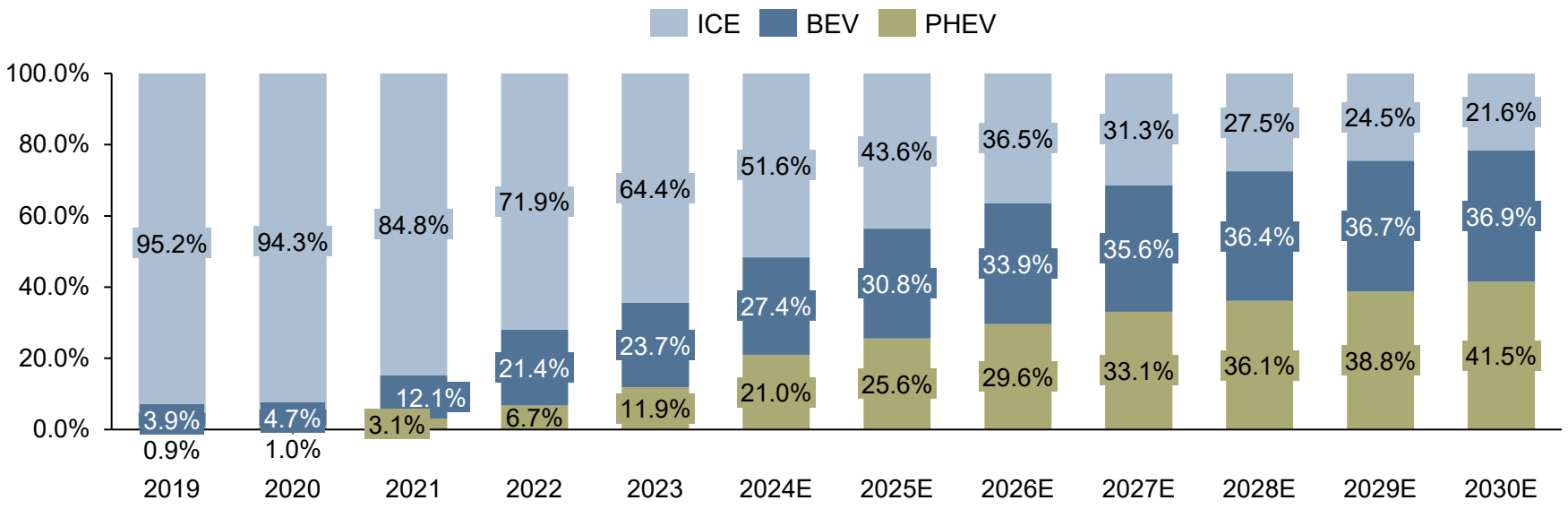
Source: China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of China Passenger Vehicle Market

Penetration Rate of Different Power Type in China Passenger Vehicle Market

- In 2023, ICE vehicles still made up the majority of the market, accounting for 64.4% of market share. However, with continuous advancements in autonomous driving technology, hybrid systems, and power batteries, along with strong domestic policy support, the market share of NEVs has risen significantly, from 4.8% in 2019 to 35.6% in 2023, and is expected to reach 78.4% by 2030.
- NEVs mainly include BEV and PHEV models. PHEV models combine electric and gasoline propulsion systems, allowing them to meet daily commuting needs in pure electric mode and switch to gasoline power for long trips or when charging infrastructure is unavailable. Due to the low prevalence of charging stations in China, PHEV models could effectively alleviate potential buyers' 'range anxiety.' As a result, PHEVs are becoming more popular due to technological advances in fuel economy and flexibility. Additionally, with technological advancements, PHEV models demonstrate better fuel economy and flexibility, making them more popular in the market. It's forecasted that PHEV sales will grow at a CAGR of 13.4% from 2024 to 2030, with market share increasing from 21.0% in 2024 to 41.5% in 2030.

Penetration Rate of Different Power Type in China Passenger Vehicle Market



Note:

1. China's passenger vehicle market size excludes export volume.
2. For statistical purpose, PHEV includes REEV in this section.

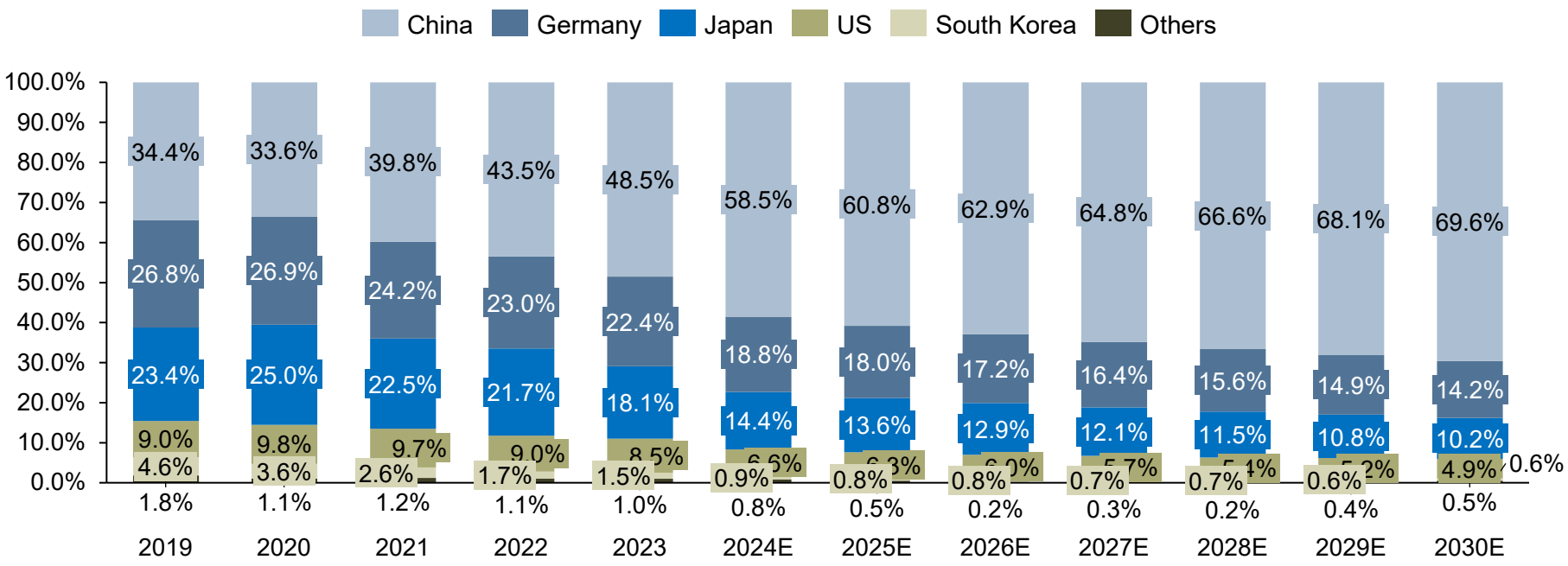
Source: China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of China Passenger Vehicle Market

Penetration of Brands from Different Countries in China Passenger Vehicle Market

- China passenger vehicle market was historically dominated by foreign and joint venture brands. However, in recent years, China domestic brands have rapidly strengthened their position by continuously accumulating and advancing traditional ICE vehicle technologies while strategically capitalizing on the trends of electrification and intelligence. Combined with their advantages in high quality and cost-effectiveness, domestic brands have accelerated their rise in the China passenger vehicle market. Market share of domestic brands in China market has increased from 34.4% in 2019 to 48.5% in 2023. With continuous technological innovation and product upgrades, domestic brands are expected to maintain a leading position and achieve a market share of 69.6% by 2030.

Penetration Rate of Brands from Different Countries in China Passenger Vehicle Market



Note： The penetration rate of brands from different countries is calculated based on passenger vehicle insurance registration volumes.

Source: China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

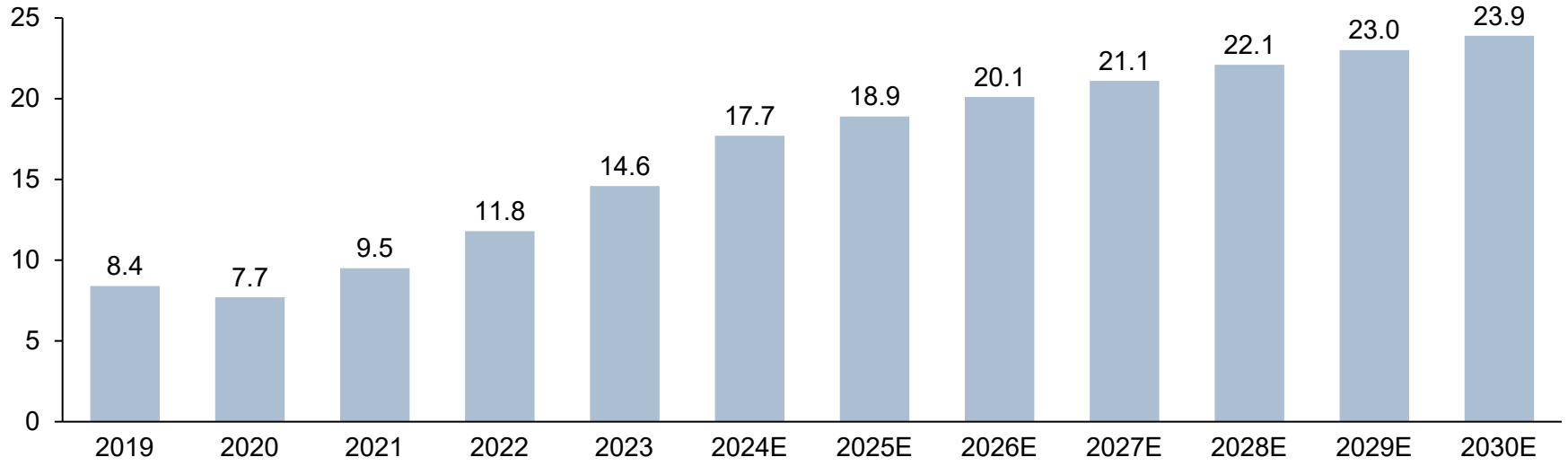
Overview of China Passenger Vehicle Market

Market Size of China Domestic Brands Passenger Vehicle Market

- Under the dual advantages of new energy and intelligence, China domestic brands passenger vehicle market has seen rapid growth recently. In 2023, the sales volume of passenger vehicles from domestic brands in China reached 14.6 million units, with a CAGR of 14.8% from 2019 to 2023. With the development of NEVs market and the globalization of Chinese domestic brands, the passenger vehicles sales volume from domestic brands is expected to achieve 23.9 million units in 2030, representing a CAGR of 5.1% from 2024 to 2030.

China Passenger Vehicle Sales Volume by Domestic Brands

Unit: Millions	2019-2023	2024E-2030E
CAGR	14.8%	5.1%



Note: China passenger vehicle sales volume by domestic brands includes export sales.

Source: China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of China Passenger Vehicle Market

Competitive Landscape of China Domestic Brands Passenger Vehicle Market（1/2）

- In terms of passenger vehicle sales volume (including exports volume) in 2023 and for the nine months ended Sep 30, 2024, Chery Automobile ranked second among China domestic brand companies.

The Ranking of Passenger Vehicle Sales Volume by Domestic Brand Companies, 2023

Ranking	Company	Passenger Vehicles Sales Volume in 2023 (Thousand Units)	Market Share in 2023 (%)
1	BYD Auto	3,013	20.6%
2	Chery Automobile	1,716	11.8%
3	Geely Automobile	1,687	11.6%
4	Changan Automobile	1,586	10.9%
5	Great Wall Motor	1,028	7.0%
	Others		38.1%

The Ranking of Passenger Vehicle Sales Volume by Domestic Brand Companies, for the Nine Months Ended September 30, 2024

Ranking	Company	Passenger Vehicles Sales Volume for the Nine Months Ended September 30, 2024 (Thousand Units)	Market Share for the Nine Months Ended September 30, 2024 (%)
1	BYD Auto	2,736	23.0%
2	Chery Automobile	1,657	13.9%
3	Geely Automobile	1,490	12.5%
4	Changan Automobile	1,142	9.6%
5	Great Wall Motor	721	6.1%
	Others		34.9%

Note： The ranking is based on passenger vehicle sales volume (including exports volume) in 2023 and for the nine months ended September 30, 2024.

Source: Frost & Sullivan

Overview of China Passenger Vehicle Market

Competitive Landscape of China Domestic Brands Passenger Vehicle Market（2/2）

Company	Company Background
BYD Auto	BYD Auto was established in 2006 and is headquartered in Shenzhen. It is responsible for the automotive business under BYD Group.
Geely Automobile	Geely Automobile was established in 1996 and is headquartered in Hangzhou. It is responsible for the automotive business under Geely Group, excluding the brand Volvo headquartered in Sweden that Geely Group acquired in 2010.
Changan Automobile	Changan Automobile was established in 1996 and is headquartered in Chongqing.
Great Wall Motor	Great Wall Motor was established in 1984 and is headquartered in Baoding.

Source: Frost & Sullivan

Overview of China Passenger Vehicle Market

Drivers and Trends of China Domestic Brands Passenger Vehicle Market

Technological Advancement Driving High-quality Development of Domestic Brands

- Technological innovation is indeed a core driver of the growth of China's domestic passenger vehicle brands. After years of research and development investment, China domestic brands have built strong technical expertise for ICE vehicles, such as engines and transmissions, reaching mainstream and even advanced international levels. With the development of electrification, intelligence, and connectivity, they continue to innovate in the three-electric systems, autonomous driving, and smart cockpit technologies, offering high-performance and intelligent products that meet the cutting-edge market demand.
- Efficient technological advancements have allowed China domestic brands to create high-end products with better performance and more features. These advancements have also reduced the costs of technology applications, making advanced functions like autonomous driving and smart cockpits available in mid- to low-priced models. This trend will continue to strengthen as technology progresses. The combination of brand elevation and cost optimization will continuously enhance the competitiveness of China domestic brands, driving a steady increase in their market share.

Diversifying Market Demand Driving Segmented and Rapidly Iterating Product Matrix

- As the national economy and residents' income continue to rise, as well as new technologies emerge, Chinese consumers' demands for cars are becoming more diverse and rapidly changing. Besides basics like brand, economy, space, and quality, they now want cars with stylish looks, advanced tech, rich features, eco-friendliness, and a complete ecosystem. To meet these varied demands, China domestic brands are creating more specialized product lines and quickly updating them based on consumer needs. They have a deep understanding of local consumers, allowing them to tailor products to different usage scenarios

Efficient Production Capabilities and Comprehensive Ecosystem Support Long-term Leadership

- Thanks to China's vast manufacturing system and abundant engineering talent, China domestic brands have built comprehensive production, quality control, and supply chain systems. This allows them to manage costs and quality effectively, delivering high-quality, cost-effective passenger vehicles to customers promptly. This enhances their competitiveness in the Chinese passenger vehicle market. Additionally, a well-developed industrial ecosystem provides extensive innovation and R&D support, enabling China brands to lead in electrification and intelligent technologies

Source: Frost & Sullivan

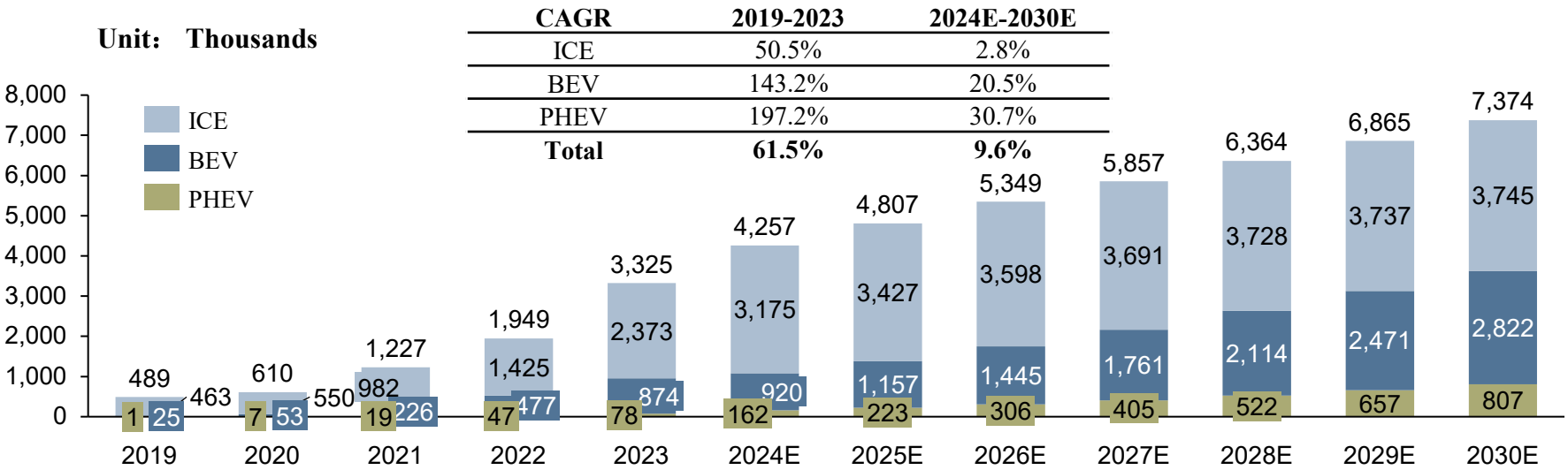
Agenda

Overview of China Domestic Brands in Overseas Passenger Vehicle Market

China Passenger Vehicle Exports Volume by Domestic Brands（1/2）

- In recent years, China's automotive supply chain has distinguished itself through stability, technological innovation, and comprehensive coverage of both traditional components like chassis and engines, as well as new energy components such as batteries and electric motors. With significant technological innovation and quality enhancement, Chinese domestic brands have seen significant growth in the export volume of passenger vehicles since 2021. In 2023 and 2024, China became the world's largest passenger vehicle exporting country.
- In 2023, the export volume of China passenger vehicles by domestic brands reached 3,325 thousand units, showing a remarkable CAGR of 61.5% from 2019 to 2023. The main export regions were Europe, Asia, and North America, accounting for 37.9%, 22.7%, and 11.9% of the exports, respectively. This growth has been driven by the continuous upgrading of Chinese products. Looking ahead, the export volume of passenger vehicles by domestic brands in China is expected to reach 7,374 thousand units by 2030, with a CAGR of 9.6% from 2024 to 2030.
- Currently, ICE vehicles still dominate China's passenger vehicle export market. In 2023, the export volume of ICE vehicles by domestic brands reached 2,373 thousand units, making up 71.4% of the total passenger vehicle exports. However, NEVs are expected to become a new growth driver for domestic brand exports. It's forecasted that the export volume of BEVs and PHEVs will grow at a CAGR of 20.5% and 30.7% respectively from 2024 to 2030.

China Passenger Vehicle Exports Volume by Domestic Brands, Breakdown by Power Type



Source: China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

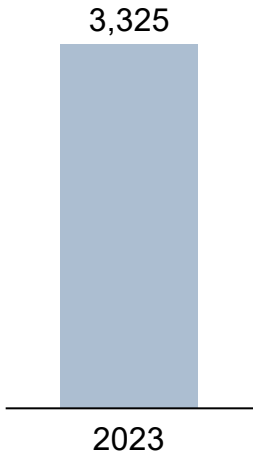
Overview of China Domestic Brands in Overseas Passenger Vehicle Market

China Passenger Vehicle Exports Volume by Domestic Brands（2/2）

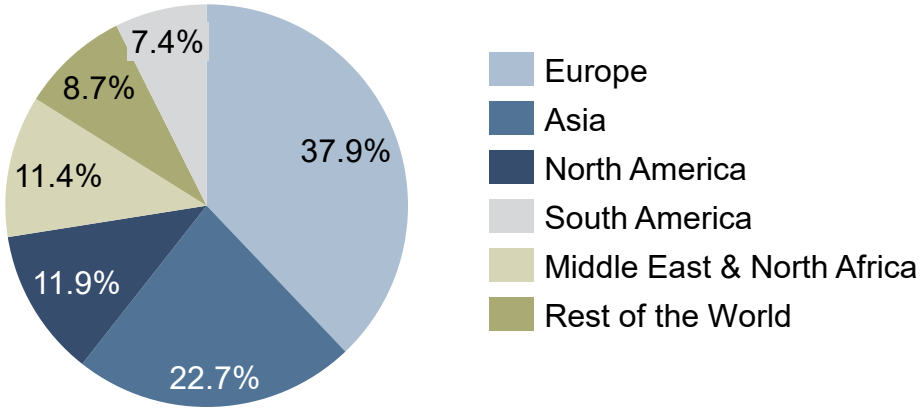
- In 2023, the main export regions of passenger vehicles by domestic brands were Europe, Asia and North America, accounting for 37.9%, 22.7%, and 11.9%, respectively.

China Passenger Vehicle Exports Volume by Domestic Brands, 2023

Unit： Thousands



The Proportion of China Domestic Brands Passenger Vehicle Export Regions, 2023



Note：
1. Asia (Ex.China) includes: India, Indonesia, Japan, Kazakhstan, Malaysia, Myanmar, Pakistan, Philippines, Singapore, South Korea, Thailand, Uzbekistan and Vietnam;
2. Europe includes: Austria, Belarus, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom;
3. Middle East & North Africa include: Egypt, Israel, Kuwait, Oman, Saudi Arabia, Turkey and the United Arab Emirates;
4. North America includes: Canada, Mexico and the United States;
5. South America includes: Argentina, Brazil, Chile, Colombia and Uruguay.

Source: China Association of Automobile Manufacturers (CAAM), Frost & Sullivan

Overview of China Domestic Brands in Overseas Passenger Vehicle Market

Competitive Landscape of China Passenger Vehicle Exports Market by Domestic Brands

- The key domestic companies in China passenger vehicle exports market include Chery Automobile, SAIC Motor Passenger Vehicle, Geely Automobile, Great Wall Motor and BYD Auto. In 2023 and for the nine months ended Sep 30, 2024, Chery Automobile ranked as the largest domestic brand company in terms of passenger vehicle exports volume.

The Ranking of Exports Volume by China Domestic Brand Companies

Ranking	Company	Ranking in 2023	Ranking for the Nine Months Ended September 30, 2024
1	Chery Automobile	1	1
2	SAIC Motor Passenger Vehicle(2)	2	2
3	Geely Automobile(3)	3	3
4	Great Wall Motor(4)	4	5
5	BYD Auto(5)	5	4

Note：
(1) The ranking is based on passenger vehicle exports volume for the period indicated.
(2) SAIC Motor Passenger Vehicle was established in 2007 and is headquartered in Shanghai. It is responsible for the domestic brand passenger vehicle business under SAIC Group.
(3) Geely Automobile was established in 1996 and is headquartered in Hangzhou. It is responsible for the automotive business under Geely Group, excluding the brand Volvo headquartered in Sweden that Geely Group acquired in 2010.
(4) Great Wall Motor was established in 1984 and is headquartered in Baoding.
(5) BYD Auto was established in 2006 and is headquartered in Shenzhen. It is responsible for the automotive business under BYD Group.

Source: Frost & Sullivan

Overview of China Domestic Brands in Overseas Passenger Vehicle Market

Drivers and Trends of China Domestic Brands in Overseas Passenger Vehicle Market

Promote the Construction of Global Localization Layout	• As China domestic brands aim to strengthen their presence in overseas passenger vehicle market, building overseas production capacity will be a key trend. This involves establishing production plants, assembly lines, and supply chains in key global markets to streamline logistics, avoid trade barriers, reduce costs, and improve efficiency. At the same time, China domestic brands are actively setting up R&D centers and sales networks in global key markets to better understand and meet local market demands and consumer preferences. These efforts enhance their competitiveness in the international market. These global localization initiatives are a crucial part of China domestic brands' long-term strategy to strengthen their presence internationally.
Diversified Power Type of Passenger Vehicle Exports	• In 2023, the export volume of ICE vehicles by China domestic brands accounted for 71.4% of the total market. While ICE vehicles remain a driving force for China domestic brands in overseas markets, new energy vehicles are expected to become an increasingly important driver of export growth. The export volume of NEVs by China domestic brands reached 952 thousand units in 2023, with a CAGR of 146.0% from 2019 to 2023, demonstrating a strong growth trend. With the global push for greener, more sustainable transportation options, the proportion of NEV exports is expected to increase further, making NEVs a key factor in driving the international expansion of China domestic brands in the coming years.
Enhancing Brand Images in Global Market	• As the global automotive industry evolves and competition intensifies, China domestic brands are focusing more on brand building and differentiated competition. With increased investment in R&D, these brands are shifting their product offerings toward higher-end, high-value models. This includes improving product quality, incorporating advanced technologies, and enhancing vehicle intelligence to position their brands as premium options. The higher level of intelligence, enhanced brand power, and shift toward high-value products help improve the global brand image of Chinese domestic brands, thereby enhancing their global competitiveness.

Source: Frost & Sullivan

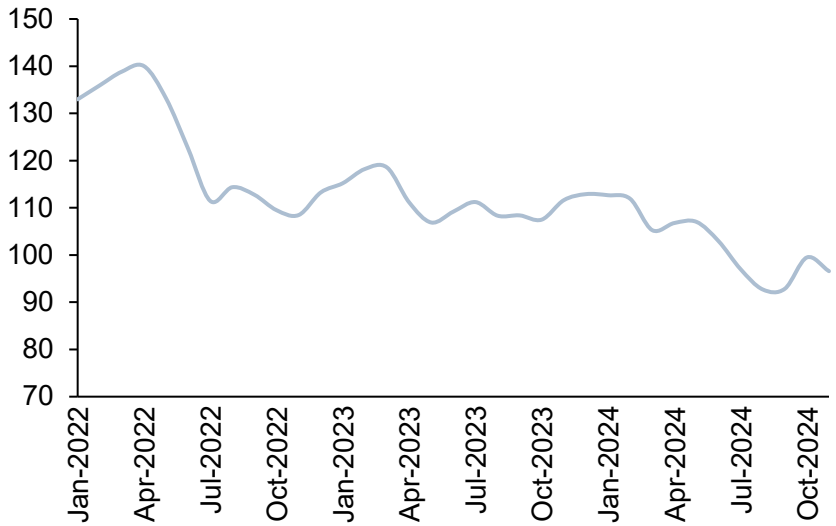
Agenda

Appendix A

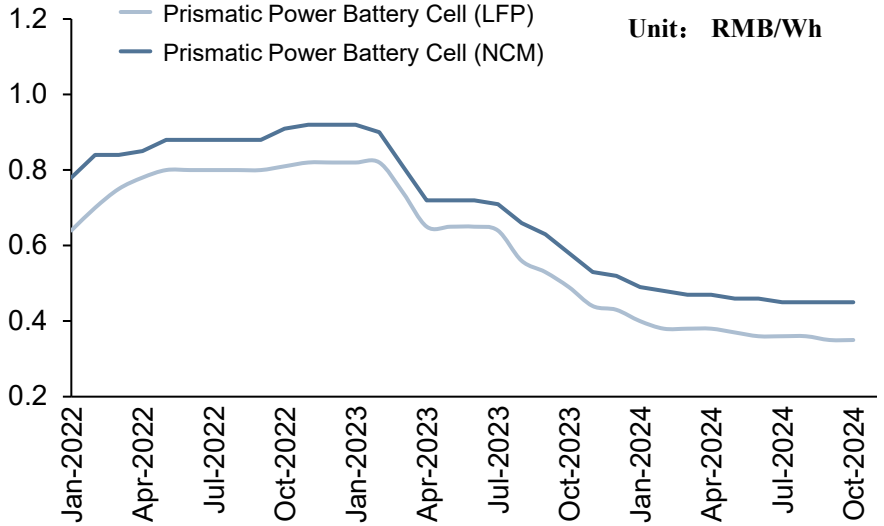
Historical Price Trends of Major Automotive Raw Materials and Components

- Due to changes in macroeconomic conditions, supply and demand dynamics, and market outlook, the prices of vehicles may be affected by fluctuations in raw material prices. And the cost structures of ICE vehicles and NEVs differ notably. The costs of ICE vehicles are primarily concentrated in the engine, transmission system, and other mechanical components, which require high-strength metals and high-quality materials. As the primary material for automotive bodies and components, steel prices have shown a downward trend in recent years, mainly due to the decline in demand for steel caused by the slowdown in real estate and infrastructure investment growth, as well as overcapacity in the steel industry.
- In contrast, the costs of NEVs are mainly driven by the power battery, which accounts for the largest proportion. Due to the decline in raw material prices, technological advancements, and increasingly fierce market competition, the price of China power batteries has experienced a decline since 2022. It is expected that this trend will continue in the future.

China Steel Price Index(CSPI)



China Power Battery Cell Price



Note： The base time for the China Steel Price Index (CSPI) is April 1994, and the index value at that time was set at 100.

Source: China Iron and Steel Association, Frost & Sullivan

Appendix B

- Chery is the second largest China domestic brand passenger vehicle company in China, and the 11th largest global OEMs, in terms of global sales volume of passenger vehicles in the nine months ended September 30, 2024.
- Chery is the second largest Chinese domestic brand passenger vehicle company in terms of sales volume in the nine months ended September 30, 2024 (excluding sales volume of brands acquired from overseas by Chinese companies).
- Chery is the No.1 exporter for 22 consecutive years since 2003 among Chinese domestic brands passenger vehicle companies in terms of export volume of passenger vehicles from 2003 to 2024 (excluding export volume of brands acquired from overseas by Chinese companies).
- Chery ranked No.1 among top 20 global OEMs in terms of the year-on-year growth rate of passenger vehicle sales volume in the nine months ended September 30, 2024.
- Chery is the only one among top 20 global OEMs to achieve a sales volume increase over 30.0% for both NEVs and ICE vehicles and both China and overseas markets in the nine months ended September 30, 2024.
- In the nine months ended September 30, 2024, we ranked first among the top 10 Chinese OEMs in terms of sales volume growth of both ICE vehicles and NEVs in China.
- Chery ranked first among the Chinese domestic brand passenger vehicle companies in Europe, South America, and Middle East and North Africa market, and second in North America and Asia (excluding China) in terms of sales volume in the nine months ended September 30, 2024. This ranking excluded sales volume of brands acquired from abroad by Chinese companies in the relevant local markets.
- Chery was the first Chinese domestic passenger vehicle brands to achieve an accumulated sales of one million units.
- Tiggo 8 ranked No. 1 and No. 3 in the global and China markets, respectively, among ICE vehicle models of the Chinese domestic brand passenger vehicles companies by sales volume of ICE vehicles in the nine months ended September 30, 2024.
- In the nine months ended September 30, 2024, the sales volume of JETOUR X70 ranked No. 3 among all B-class SUV models globally.
- EXLANTIX ET (REEV version), a major model of the EXEED brand, is equipped with our REEV powertrain, the first of this kind in China that obtained technical validation by CATARC as “Premium Drive-High Quality Range Extender”.
- In the nine months ended September 30, 2024, the export volume of EXEED brand vehicles in the overseas markets exceeded 33,000 units, ranking No. 1 among high-end Chinese domestic brands.

Source: Frost & Sullivan

Appendix C

- In the nine months ended September 30, 2024, iCAR 03 ranked fourth in terms of sales volume of A-class pure electric SUVs in China.
- The iCAR V23 ranked No. 7 in terms of sales volume of pure electric SUVs in China in January 2025.
- In the nine months ended September 30, 2024, the sales volume of iCAR brand vehicles exceeded 40,000 units, ranking third among the Chinese domestic brand A-class pure electric SUVs.
- In terms of sales volume in China in January 2025, R7 ranked No.1 among all mid-to large-sized pure electric SUV models.
- China's passenger vehicle market can be categorized into mainly three market segments primarily in terms of the selling prices, namely (i) mass segment (below RMB80,000); (ii) mid- to high-end segment (RMB80,000-RMB300,000); and (iii) premium segment (above RMB300,000).
- Chery is a frontrunner in the development and manufacturing of engine and transmission systems in China automotive industry.
- In recent years, there has been a marked shift toward NEVs.
- R7 deliveries exceeded 15,000 units in December 2024, making it the best-selling model among Chinese domestic brand pure electric SUVs priced over RMB250,000 in the month in China.
- Chery ranked No.1 among the top 20 global OEMs in terms of the year-on-year growth rate of NEV sales volume in the nine months ended September 30, 2024.
- Chery developed their vehicle safety development system that meets international standards, their 16 models obtained a total of 25 five-star safety certifications both domestically and internationally, place them at the forefront in the industry.
- For Chery, the reusability rate is more than 80% with respect to standard component across models developed on the same vehicle platform with the same type of powertrain, which is at industry-leading level.
- Chery developed China’s first domestically-produced proprietary passenger vehicle engine in 1999.
- Chery’s state-of-the-art ACTECO 1.6 TGDI engine and ACTECO 2.0 TGDI engine are among the most advanced in the world.
- Chery in-house developed Kunpeng 8-speed automatic transmission was the first proprietary 8AT transmission with complete intellectual property rights in China.
- Chery’s high-performance hybrid engines boast industry-leading thermal efficiency.

Source: Frost & Sullivan

Appendix D

- Chery's REEV engine can achieve an oil-to-electricity conversion efficiency of 3.7 kWh/l, ranking among the best in the industry.
- Chery's hybrid DHT's maximum mechanical efficiency in pure electric mode is among one of the highest globally.
- Chery offer varied levels of intelligent driving solutions on their vehicles with L2, L2+ and L2++ options, making them one of the leading Chinese domestic brand passenger vehicle companies in respect to intelligent driving technologies.
- In 2023, China's overall penetration rate of L2 and above ADAS was 42.1%.
- In 2023, global overall penetration rate of L2 and above intelligent driving solutions was 31.0%
- Chery was one of the first Chinese domestic brand passenger vehicle companies to venture abroad with international sales of vehicles, KD kits and engines.
- As of September 30, 2024, Chery had 1,086 overseas dealers, one of the most among Chinese domestic brands passenger vehicle companies.
- Tiggo 7 was the best-selling passenger vehicle among Chinese brand passenger vehicles in terms of export volume in the nine months ended September 30, 2024.
- Chery's 1.5TGDI engine achieves a maximum thermal efficiency of 40%, which is higher than the industry average of around 35% by Chinese brand passenger vehicles powered by ICE.
- With the intelligent thermal management system and low friction technology, Chery's ACTECO 1.5TGDI hybrid engine is able to achieve an effective thermal efficiency of 44.5%, higher than the industry average of around 40% by Chinese brand passenger vehicles.
- Technological innovation and the rapid development of intelligent systems have become pivotal in shaping the future of the automotive industry.
- In 2010, Chery established dedicated R&D taskforce in respect of intelligence driving and intelligent cockpit systems, making them the one of the first China domestic brand passenger vehicle companies conducting R&D in vehicle intelligence solutions.

Source: Frost & Sullivan

Appendix E

- L2 (Level 2) autonomous driving is defined as partial automation, where the vehicle can control both steering and acceleration/deceleration simultaneously under certain conditions, such as adaptive cruise control and lane centering, but the driver must remain fully engaged and ready to take control at any moment. L2+ autonomous driving builds upon L2 autonomous driving by incorporating advanced features such as HNOA (Highway Navigation on Autopilot). HNOA function enables automated navigation and driving assistance on highways, such as automatic lane changes and overtaking. L2++ autonomous driving builds upon L2 autonomous driving by incorporating advanced features such as HNOA and CNOA (City Navigation on Autopilot). CNOA function extends automated navigation and driving assistance to urban environments, allowing the vehicle to navigate through complex city roads with more advanced automation. Same as L2 autonomous driving, L2+ and L2++ autonomous driving still require driver supervision.

Source: Frost & Sullivan