Introduction to China Automotive Industry and Standardization Progress

China Automotive Technology and Research Center China Auto Standardization Research Institute Lu Chun 27th November, 2024

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Latest Development of China Automotive Industry

- **2** Overview of Automotive Standardization Work in China
- **3** Development Trends and Considerations

1.1 Overall situation of China's automotive economy

In recent years, China's automotive industry chain develops well, the manufacturing capacity has been improved, the scale of China's automotive market has been increasing with fluctuations.

■ From January to Qctober 2024, China's automotive sales reached 24.62 million units, a year-on-year increase of 2.7%.



China's automobile sales and growth rate from 2001 to 2024 (unit: 10,000 vehicles, %)

> 1.2 The market penetration rate of new energy vehicles has been growing rapidly

From January to October 2024, 9.78 million NEVs were sold, which represented a respective 33.9% year-onyear growth. NEVs constituted 39.6% of auto sales.

China's NEV Sales from 2013 to 2024





Emerging technologies improve the NEV usage experience



> 1.3 The development of intelligent and connected vehicles industry is accelerating

Large-scale application of vehicles with L2 automated driving system

Up to now, the installation rate of intelligent connected passenger cars with L2 automated driving system has exceeded 50%, and the installation rate of new energy vehicles far exceeds that of ICE vehicles.

Road test demonstrations were widely conducted

More than 50 cities across the country have carried out road test demonstrations of intelligent connected vehicles, and 32,000 kilometers of test roads have been opened.

Connected infrastructure accelerates deployment

More than 8,700 sets of roadside units have been installed, and Beijing has built a "Vehicle-Road-Cloud" collaborative service capability covering 160 square kilometers.

Main OEMs are fully deploying combined driver assistance systems.



The automotive industry is conducting extensive testing of driver assistance systems.



The high degree of integration of connected technology and vehicle applications.



> 1.4 Policies continue to support the industry

China published multiple new energy vehicle policies to support high-quality development.

Development Plan for NEV Industry (2021-2035)	Electrification of public sector vehicles	Charging infrastructure system
In October 2020, the General Office of the State Council issued the policy. It clearly stated that the industry should adhere to the development direction of electrification, networking, and intelligence, and promote the high-quality and sustainable development of China's new energy vehicle industry.	On January, 2023, MIIT and eight other departments jointly issued a notice on organizing the pilot work of comprehensive electrification of public vehicles in the pilot zone, promoting the improvement of vehicle electrification level and energy conservation and emission reduction.	In June 2023, The General Office of the State Council issued the "Guiding Opinions on Further Building a High Quality Charging Infrastructure System", requiring further construction of a high quality charging infrastructure system.
Tax reduction and exemption	Modification of dual credit policy	A set a manufa a surrant
Tax reduction and exemption	Mounication of dual credit policy	Auto replacement

1.4 Policies continue to support the industry

Policies specifically targeting ICVs

Road Testing and Demonstration application

In July 2021, three ministries including MIIT jointly issued the **"Management Specification for Road Testing and Demonstration Application of Intelligent Connected Vehicles (Trial)".**

- Increase the demonstration application on the basis of road testing.
- The range of test vehicles increased with special working vehicles.
- Improve the testing projects and promote the unification with standards.
- Add enterprise security self-declaration and simplify the procedures

Product access and Road Use

In November 2023,	four ministries	including MII	⁻ jointly	issued the	"Notice on	Pilot Work for
Acess of ICV and	Road Travel",					

- Guide production enterprises and users to strengthen capacity building
- · Improve access and road requirements, approval processes, management mechanisms
- Support the revision of relevant regulations and technical standards.
- Form a safety management mechanism of all departments to build an industrial ecology

Demonstration application

In January 2024, five ministries including MIIT jointly issued the "**Notice on Carrying out ICV Pilot Work of 'Vehicle-road-cloud Integration' Application**".

- Build city-level ICV pilot projects with unified standards and reliability.
- Promote joint standard research and improved the "vehicle-road-cloud integration" system.
- In July 2024, 20 pilot cities were announced.





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> 2.1 Automotive Standard System Planning and Construction

- Automotive standards support the healthy development of the automotive industry.
- Automotive standards are an effective way for the industry to cope with technological innovation. The technological update of the automotive industry also points out the direction for the development of automotive standardization.
- Automotive standard is an effective support for the implementation of automotive industry policy.



> 2.1 Automotive Standard System Planning and Construction

Comprehensively promote the development of standard systems in key areas

Publish and Implement Roadmap of China's EV Standardization Work



Publish Roadmap of China's EV standardization work (2021-2030), and provide guidance on the development of EV standardization.

Publish the New Version of Intelligent Connected Vehicle Standard System



• Publish Guidelines for the Construction of National Internet of Vehicles Industry Standard System (Intelligent Connected Vehicles) 2023, which adapts to the development of intelligent connected vehicles

Conduct Research on Emission Peak & Carbon Neutrality Standard System



 Construct the emission peak & carbon neutrality standard system based on green development, lowcarbon development, and recycling development

> 2.2 China has established a relatively comprehensive NEV standard system

- **D** Consists of four parts: Vehicle, basic and general, key components and energy supply system.
- Generally, The framework of China's NEV standards are harmonized with corresponding ISO/IEC standards, UNR and UN GTR.
- With the development of China's NEV industry, the number of standards has steadily increased. There are 131 current effective NEV standards in China by Oct, 2024.



> 2.2 Recent work progress of China's NEV standardization work

The rapid development of EV technology requires standards and regulations to adapt to market demand and technological innovation.



2.Improve the test profile to better evaluate the performance of EV and related components

- Develop traction battery(GB 38031) & vehicle (GB/T 18488) vibration test profile based on the actual application conditions.
- Develop shortened test procedure under low and high temperature for the energy consumption and range of light-duty EVs (GB/T 18386.1)



3. Develop charging and battery swap standards to improve the convenience of NEVs Develop 2015+ charging connection port to support high-power charging and scheduled charging application Develop battery swap electrical interface, cooling interface, swappable battery pack and communication standards

> 2.3 Progress of China's automotive energy-saving standard system



China has established a relatively complete system of automotive energy-saving standards covering power types such as gasoline, diesel, hybrid, and battery electric vehicles, consisting of different levels of standards such as test methods, limits, and label, covering 26 standards.

> 2.4 Automotive green low-carbon cycle standard system



4 comprehensive sustainable assessment (LCA, OEF, PEF, ESG, CSR) / comprehensive sustainable management (digital passport, Supply chain due diligence, expanded producer responsibility)

General standard	Product Carbon Fo	Enterprise Accounting	
 GB/T (Under research) □ terms & definitions □ carbon footprint labels 	 QC/T (Submit for approval) ✓ passenger cars ✓ traction batteries ✓ road vehicle products 	 GB/T (Advance research) electric vehicles traction batteries drive motors 	 QC/T (Submit for approval) ✓ battery manufacturer GB/T (Advance research) □ vehicle manufacturer

2.5 Dynamic update and improvement of the ICV standard system

Scale of global ICV market has increased rapidly, breakthroughs have been made in key technologies, and industrial development has moved from pilot demonstration in designted areas to real-road pilot application.



The market penetration rate of L2 system is nearly 50%



Commercialization of ICV in urban areas



C-V2X technology to accelerate vehicle-road-cloud integration

Industry management stage

Product >>> access

Access >>>> pilot



Industrial development, technological progress, and industry supervision all demand the construction of standard system

2.5 Dynamic update and improvement of the ICV standard system



2.6 User Experience related standards

The automotive industry is experiencing a shift from focusing on automotive function to user experience, which brings new challenge for standardization.



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> 3.1 Automotive Standardization Work – Development Trend

Electrification	 Electric vehicles will still maintain rapid development in the future, and the global development of electric vehicles has entered an irreversible fast lane. Electrification technologies such as high safety, all-climate lithium-ion and all-solid-state batteries and high-power fuel cells will become important development trends.
W low-carbon	 The market for fuel-efficient, low-carbon models is growing under global background of carbon peaking and carbon neutrality. By 2025 and 2030, the proportion of new vehicle sales of hybrid technology will reach 50-60% and 75-85% respectively, by 2035 proportion is expected to 100%. The energy consumption of hybrid models will be significantly lower than that of conventioanl energy vehicles. The carbon emissions of the automotive industry will be continuously reduced acoordingly.
intelligent	 The level of advanced perception of intelligent connected vehicle (ICV) continues to improve, and the degree of autonomy of core decision-making algorithms has significantly increased. The proportion of commercialized application of driver assistance functions has been rapidly increased, and automatic driving functions have accelerated the iteration and maturity.
Internet- connected	 The stability and reliability of Internet connection technology have been rapidly improved, and network security and data security protection technology have been more closely combined with automotives. The application scenarios of vehicles based on network connection technology have been expanding, and the application of "vehicle, road and cloud integration" has become an important development trend of network connection.

3.2 Future work considerations

- The global automotive industry faces new common challenges, while there exists many opportunities.
- Attentions shall also be paid to technical innovation, industry development trends and future market demand, so as to support the development of the global automotive industry.



Thanks for your attention!