
INDUSTRY OVERVIEW

The information and statistics set out in this section and other sections of this Document were extracted from different official government publications, available sources from public market research and other sources from independent suppliers, and from the independent industry report prepared by Frost & Sullivan (the “Frost & Sullivan Report”). We engaged Frost & Sullivan to prepare the Frost & Sullivan Report, an independent industry report, in connection with the [REDACTED]. The information from official government sources has not been independently verified by us, the Sole Sponsor, the [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], any of the [REDACTED], any of their respective directors and advisers, or any other persons or parties involved in the [REDACTED], and no representation is given as to its accuracy.

SOURCE OF INFORMATION

We commissioned Frost & Sullivan to analyse and prepare a report regarding the PRC automotive testing services market. Frost & Sullivan is an independent global consulting firm founded in 1961 in New York that offers industry research and market strategies and provides growth consulting and corporate training. We agreed to pay a commission fee of RMB380,000 to Frost & Sullivan pursuant to a service agreement reached by arm’s length negotiation. Except as otherwise noted, all of the data and forecasts contained in this section are derived from the Frost & Sullivan Report. We have also referred to certain information in the “Summary”, “Risk Factors”, “Business” and “Financial Information” sections to provide a more comprehensive presentation of the industry in which we operate.

In preparing the report, Frost & Sullivan conducted both primary and secondary research and relied on various sources. The primary research was conducted via interviews with key industry experts and leading industry participants. The secondary research involved analysis of market data obtained from several publicly available data sources, such as the National Bureau of Statistics of China and other industrial associations. The market projections in the Frost & Sullivan Report are based on the following key assumptions: (i) the overall social, economic and political environment in China is expected to remain stable during the forecast period; (ii) China’s economic and industrial development is likely to maintain a steady growth in the forecast period; (iii) related industry key drivers are likely to drive the growth of PRC automotive testing services market in the forecast period; and (iv) there is no extreme force majeure or industry regulation which may affect the market dramatically or fundamentally.

OVERVIEW OF AUTOMOTIVE MARKET IN THE PRC

Definition and Classification

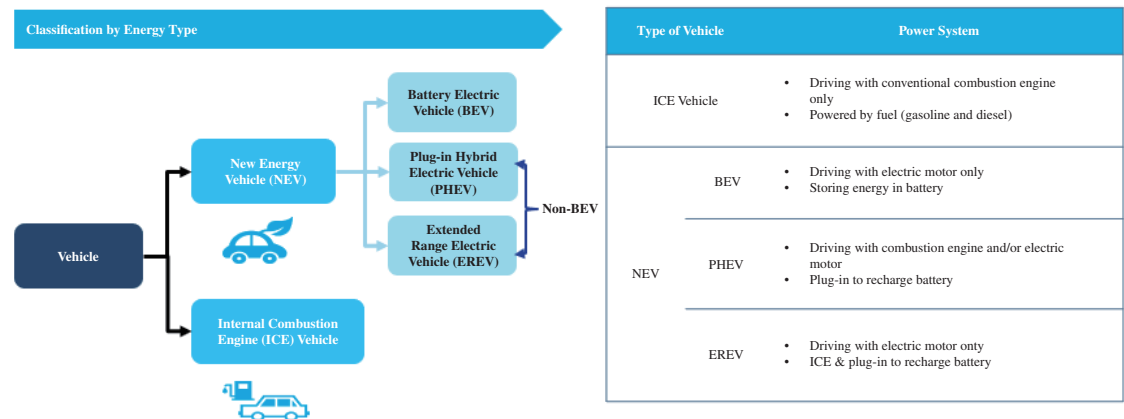
The automotive industry, by power source, there are two types of the automotive in the industry: ICEV driven by fossil fuels and NEV driven by electricity. Conventional vehicle, uses fossil fuel such as gasoline or diesel as the power source to drive the function of the internal combustion engine while a new energy vehicle is a vehicle that is powered, either wholly or in part, by alternative energy sources like electricity or hydrogen, rather than relying exclusively on traditional fossil fuels such as gasoline or diesel.

The new energy vehicle (“NEV”) market is mainly comprised of battery electric vehicles (“BEVs”), and non-battery electric vehicles (“non-BEVs”). Non-BEVs can be further divided into plug-in hybrid electric vehicles (“PHEVs”) and extended range electric vehicles (“EREVs”). BEVs refer to vehicles whose driving energy is completely provided by electric energy and driven by electric motors. PHEVs refer to hybrid electric vehicles that

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add pure electric systems to traditional engine fuel power systems. EREVs are powered solely by electric motors, but with energy provided by the battery packs and range-extending systems.

After more than ten years of innovation and development, the new energy vehicle (NEV) industry has achieved significant advancements in technology, performance, and quality. Consequently, consumers’ awareness and recognition of NEV have witnessed significant improvement. The growing understanding of their eco-friendly nature, long-haul capabilities, and incorporation of cutting-edge intelligent driving technologies, such as self-driving and Over-The-Air (OTA) systems, has led to an increasing number of people opting for NEV as their primary or additional vehicles.

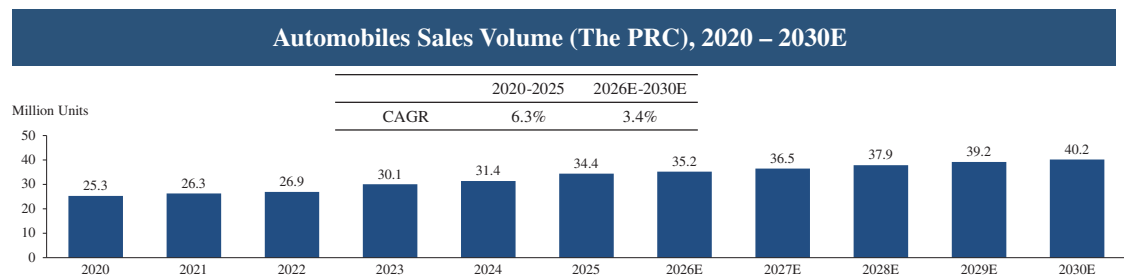


Source: Frost & Sullivan

Automobiles Sales Volume in the PRC

Automobile sales volume in the PRC grew from 25.3 million units in 2020 to 34.4 million units in 2025 at a CAGR of 6.3%, maintaining its position as the world’s largest auto market. In 2020, hit by the COVID-19 pandemic, automobile sales volume were 25.3 million vehicles. The market recovered with 26.3 million in 2021 and 26.9 million in 2022. Strong policy support such as purchase-tax exemption and the rapid rise of new energy vehicles drove a recovery in 2023 with sales volume of 30.1 million units and further growth to a record 31.4 million units in 2024.

From 2026 to 2030, automobile sales volume is projected to slow to a more moderate CAGR of 3.4% due to the high base effect, reaching 40.2 million in 2030. Throughout this decade, new energy vehicles will be the primary growth driver. By 2030, the automobile market in the PRC will have largely completed its transition to new energy dominance.

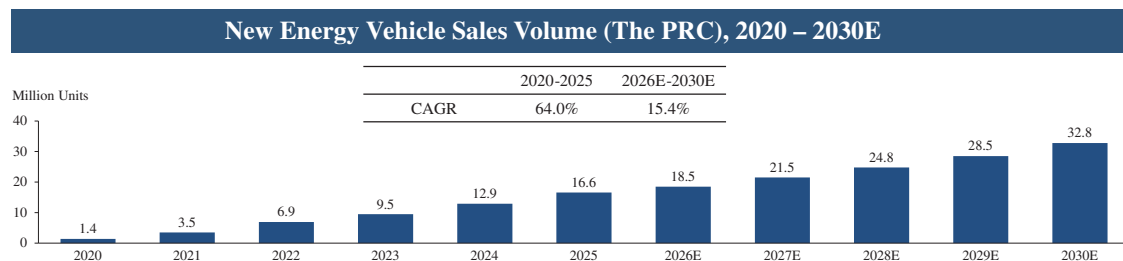


Source: The China Association of Automobile Manufacturers, Frost & Sullivan

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NEV sales volume in the PRC increased from 1.4 million units in 2020 to 16.6 million units in 2025, at a CAGR of 64.0% from 2020 to 2025.

In 2026, NEV sales volume in the PRC reached 18.5 million units with penetration crossing 52.6% for the first time, marking the historic moment when NEVs surpass traditional internal-combustion-engine vehicles. Growth will then moderate but remain strong, reaching 32.8 million units by 2030, by which point NEVs are expected to account for around 81.6% of all new automobiles in the PRC. This surge in demand for NEV has been powered by aggressive government subsidies, tax exemptions, trade-in programs, unlimited licence-plate privileges in major cities, and a mandatory NEV credit system that effectively forced every automaker to electrify.



Source: The China Association of Automobile Manufacturers, Frost & Sullivan

Key Growth Drivers and Trends

Accelerating Urbanisation and Rising Disposable Incomes – Accelerating urbanisation and rising disposable incomes are one of the drivers of automobile demand in the PRC. As hundreds of millions of rural residents continue to migrate to cities in search of better jobs and living standards, the urbanisation rate in the PRC is expected to climb to 71.2% by 2030 with per capita disposable income forecasted to reach RMB 56,385 by 2030. This has increased the demand for automobile in the PRC due to greater access to financing, parking, and road infrastructure, making car ownership both affordable and practical. This demographic shift creates a steadily growing pool of first-time buyers who view a private vehicle as a symbol of success, a daily necessity for longer commutes, and a safer alternative to crowded public transport. Higher incomes also drive replacement demand as existing owners trade up to larger SUVs, luxury brands, or new-energy vehicles for comfort, status, and advanced features. Together, accelerating urbanisation and rising disposable income provides a solid foundation for both domestic brands and global automakers operating in the PRC.

Rapid Adoption of Intelligent and Connected Technologies – The rapid adoption of intelligent and connected technologies has supported the growth of automobiles market in the PRC. Chinese buyers, particularly younger urban consumers, now treat advanced software and connectivity as core purchase criteria expecting ADAS, city navigation autopilot, natural-language AI voice assistants, over-the-air updates, and seamless integration with domestic apps like WeChat and Douyin, which often prioritise these features over traditional brand prestige or engine power. Domestic brands have aggressively delivered cutting-edge intelligent cockpits and autonomous-driving capabilities. This technology race has triggered premiumisation of mass-market segments, shortened replacement cycles, and created winner-takes-most dynamics where leading brands capture outsized market share and higher pricing power. With the rising adoption of intelligent connected vehicles, advanced intelligence is now the primary growth engine for both new-energy and premium vehicles across the automobiles market in the PRC.

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Supportive Vehicle Replacement Policies – Supportive government-led vehicle replacement policies, aligned with the PRC’s environmental and carbon-neutrality objectives, continue to stimulate new-vehicle demand. Under the nationwide “trade-in for new” (以舊換新) and scrappage-and-replace programmes, individual consumers who retire eligible older passenger vehicles (primarily those registered on or before mid-2013 for gasoline models, which largely covers China III and early China IV vehicles, with expanded coverage in subsequent years) and purchase qualifying new vehicles can receive subsidies of up to RMB20,000 for a new energy passenger vehicle or up to RMB15,000 for a gasoline vehicle with engine displacement of 2.0 litres or below. These measures form part of the broader “two new” (大規模設備更新和消費品以舊換新) initiative, coordinated across multiple central ministries and supported by substantial central funding, including ultra-long-term special treasury bonds, with the overall consumer-goods programme allocated hundreds of billions of RMB in recent years, plus local top-up incentives. The design of the subsidies strongly favours electrified models. By accelerating the replacement of older vehicles and generating incremental demand for new models, especially NEVs, these policies increase the absolute number of vehicles that must pass developmental testing and validation before market launch, thereby supporting sustained demand for specialised Automotive Testing Solutions.

Promotion of Motorsport and Auto Culture Events – Motorsport and auto culture events is another catalyst for automobiles market in the PRC. High-profile races and festivals such as the Formula 1 Chinese Grand Prix, China GT Championship, TCR Asia series, national drifting and touring-car championships, and large-scale auto shows like the Shanghai Auto Culture Festival attract hundreds of thousands of affluent, mostly young urban enthusiasts each year. These events provide automobiles manufacturers with intense brand exposure, direct on-site sales opportunities, and a halo effect that lifts demand for limited-edition models, track packages, and aftermarket upgrades. With a rapidly growing calendar of professional and amateur motorsport activities, this vibrant ecosystem is increasing the penetration rates of automobiles in the PRC.

OVERVIEW OF AUTOMOTIVE TESTING SOLUTIONS MARKET IN THE PRC

Definition and Classification

Automotive testing solutions is a comprehensive and systematic process used by automotive manufacturers and their suppliers to evaluate, verify, and ensure that a vehicle, its components, subsystems and its systems meet predetermined standards for performance, safety, reliability, durability, and regulatory compliance. The service is critical throughout the entire vehicle development lifecycle, encompassing both (i) non-mandatory testing performed during the research and development phase to refine design and function and system interoperability; and (ii) the formal process of mandatory testing required for final certification and market entry. It involves subjecting vehicles and parts to a wide array of controlled tests in laboratory settings, on closed test tracks, and on public roads to generate precise data that informs design improvements and confirms adherence to both internal quality benchmarks and government mandates.

It is important to note that the content in this industry overview section is focused on the pre-market (before vehicle sold), excludes the aftermarket (after vehicle sold).

By Developmental Testing and Validation Services:

- ***ICEV Testing and Validation:*** The primary focus of ICEV testing and validation is the powertrain, which includes the engine, transmission, fuel system, and exhaust system. Key evaluation areas of this developmental testing include engine performance analysis (power and torque), fuel consumption efficiency, and powertrain durability under various operational loads and environmental conditions. A critical component of ICEV testing is comprehensive exhaust

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emissions analysis, which measures pollutants such as carbon dioxide, nitrogen oxides, and particulate matter to ensure the vehicle complies with stringent national and international environmental regulations. Such service is essential to validate the mechanical reliability and ensure the vehicle is engineered to meet stringent environmental regulations prior to mandatory homologation.

- ***NEV Testing and Validation:*** NEV Testing and Validation is developmental testing process focuses on electrical and electrochemical systems of BEV and PHEV. The most critical area is the high-voltage battery system, where tests assess performance (charge/discharge rates, capacity), safety (thermal runaway, impact resistance, short-circuit protection), and durability (cycle life and degradation). Furthermore, NEV testing validates the performance and efficiency of the electric drive system, comprising the electric motor, inverter, and controller, as well as the functionality of the onboard charging system and the effectiveness of the vehicle’s overall energy management and regenerative braking strategies. The validation ensures these core systems meet design specifications for safety and performance before undergoing final regulatory certification.
- ***Advanced Driver-Assistance Systems (“ADAS”) Testing:*** ADAS are sophisticated electronic systems integrated into vehicles to enhance driver safety and comfort by automating, adapting, or assisting with driving tasks. Common examples include automatic emergency braking (“AEB”), adaptive cruise control (“ACC”), and lane-keeping assist (“LKA”). ADAS testing is a complex validation process that assesses the functionality, reliability, and safety of these systems regardless of the vehicle’s powertrain. It involves simulating a vast range of traffic scenarios and environmental conditions in both virtual and real-world settings to ensure the sensors, cameras, and control software perform as intended.

By Mandatory Testing Services:

- ***Automotive Homologation Certification:*** Automotive Homologation is the official and mandatory process of certifying that a vehicle, or a particular component within it, has successfully satisfied the specific technical requirements and regulations set by a statutory body for a target country or region. It is a mandatory prerequisite for a vehicle to be legally marketed and sold. While the specific tests differ for NEV (e.g., battery safety) and ICEV (e.g., emissions), the homologation service itself is a distinct discipline focused on regulatory compliance management. It involves providing comprehensive testing, generating detailed compliance reports, and managing submissions with authorities on behalf of manufacturers.

Value Chain

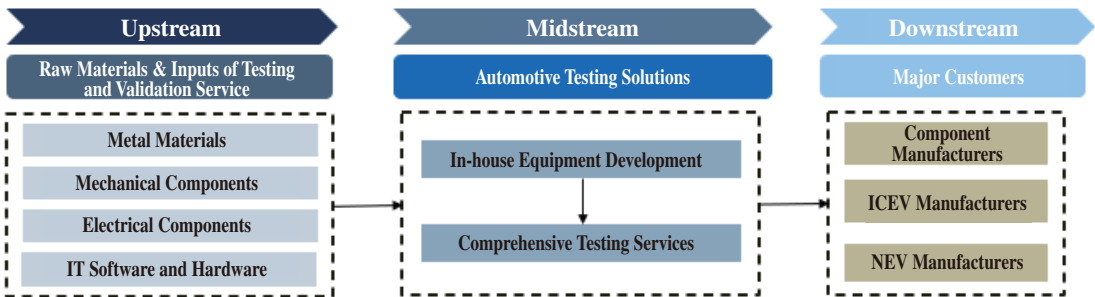
The upstream segment of the automotive testing services market comprises a diverse network of suppliers for development solutions providers providing the essential raw materials, specialised components, and foundational technologies for testing and validation service providers, which includes suppliers of high-grade metals and precision mechanical parts, manufacturers of sophisticated electrical components such as drive motors and data acquisition instruments, and providers of the critical IT software and hardware that underpin modern test automation and data analysis.

These upstream inputs flow into the midstream third-party testing service providers. These firms integrate the various upstream components to develop, build, and operate highly advanced testing facilities. While their primary and core business is to deliver a comprehensive suite of testing services, spanning validation, certification, and research and development support. Competent firms also possess strong in-house capabilities for

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designing and manufacturing their own proprietary testing equipment. The strategic capability creates a distinct competitive advantage, allowing them to address emerging technological challenges (particularly in the New Energy Vehicle sector) and offer unique, high-precision testing solutions. The internal research and development ensures they remain at the forefront of the industry and enables them to provide unparalleled value to their clients.

The value created in the midstream is then consumed by the downstream segment, which consists of the primary clients who are the principal consumers of these expert testing services, including Tier 1 & Tier 2 component manufacturers (such as Bosch, Continental, and Magna), ICEV manufacturers, and the rapidly expanding cohort of NEV manufacturers such as BYD, NIO, and Tesla. These clients strategically outsource their critical testing needs to their midstream partners to accelerate research and development cycles, ensure stringent regulatory compliance, and ultimately guarantee the safety, reliability, and market-readiness of their products.



Source: Frost & Sullivan

Market size of the PRC automotive testing services market

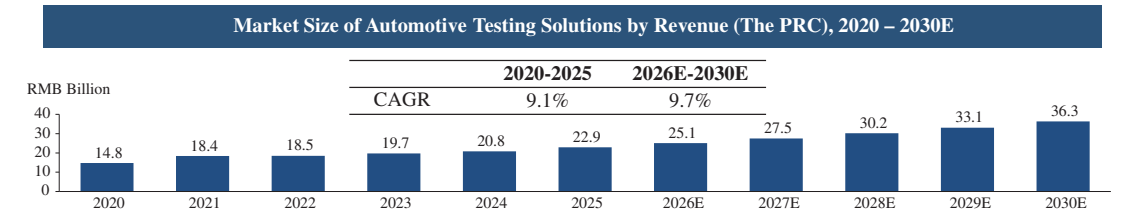
The market for automotive testing services in the PRC has demonstrated consistent growth, increasing from RMB 14.8 billion in 2020 to RMB 22.9 billion in 2025, representing a CAGR of 9.1%. The overall expansion during these years is driven by increasing vehicle complexity, more stringent regulatory standards for safety and emissions, and the rising investment in research and development for NEV. The increment in market size from 2020 to 2021 was notably bolstered by a rising number of new models launched in the traditional internal combustion engine vehicle segment.

Looking forward, the market is projected to continue its growth trajectory, expanding from an estimated RMB 25.1 billion in 2026 to RMB 36.3 billion by 2030. The forecast period shows an accelerated CAGR of 9.7%, underpinned by a confluence of powerful factors. Firstly, strong government support through policies such as purchase subsidies and investment in public charging infrastructure, combined with maturing technologies in batteries, electric motors, and charging systems, has significantly improved NEV performance and user experience, spurring a surge in the number of new NEV models entering the market, directly driving demand for testing and validation. Secondly, this influx of models has intensified market competition, compelling automakers to substantially increase their investments to differentiate their products and meet diverse consumer needs. Thirdly, a crucial market dynamic is the increasing tendency for automakers to outsource testing. As specialised testing and validation firms enhance their technical capabilities, vehicle manufacturers are more willing to delegate these complex tasks, thereby expanding the addressable market for service providers. Finally, the industry’s technological transformation towards “intelligentization” and electrification is accelerating development

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cycles. The rapid iteration of software versions for ADAS, autonomous driving features, and battery management systems creates a continuous and growing demand for comprehensive testing and validation, ensuring the market’s strong and sustained expansion.

The robust growth in end-user demand for ADAS is primarily driven by a fundamental shift in consumer purchasing criteria from traditional mechanical performance toward vehicle intelligence and active safety. Modern vehicle buyers, particularly younger demographics, increasingly treat software-defined features and connectivity as core decision criteria, often prioritizing automated driving capabilities over traditional brand prestige or engine horsepower. ADAS features such as AEB, LKA, ACC, and Navigation on Autopilot (“NOA”) directly address key consumer pain points by actively preventing human-error accidents and significantly reducing physical and mental fatigue during long-distance driving and daily urban commutes. Such consumer pull is further accelerated by enhanced cost-efficiency, regulatory frameworks, and intense competition among automakers. Technological advancements and supply chain economies of scale have substantially reduced the cost of core hardware components such as sensors, cameras, and domain controllers, enabling advanced driver-assistance features to rapidly trickle down from premium segments into mainstream mass-market vehicles. Simultaneously, official driving automation standards (such as GB/T 40429) and stringent C-NCAP safety rating incentives encourage automakers to include active safety technologies across their fleets. As domestic manufacturers aggressively integrate and refresh ADAS functions to differentiate their product offerings in a highly competitive market, these technologies are quickly transitioning from optional premium features to an increasingly common consumer expectation, driving sustained end-user adoption.



Note: The market size includes the pre-market (before vehicle sold), excludes the aftermarket (after vehicle sold).

Source: The China Association of Automobile Manufacturers, Frost & Sullivan

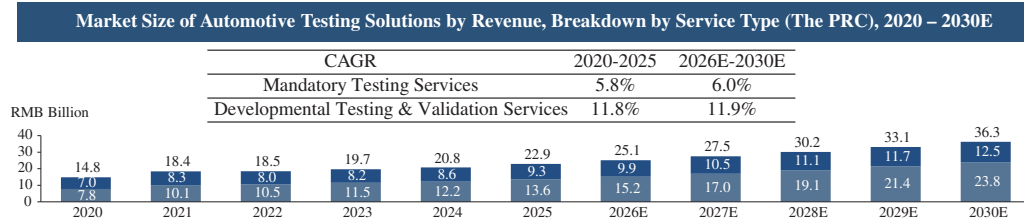
Market Size Breakdown by Service Type

The market for mandatory testing services in the PRC has demonstrated steady expansion, increasing from RMB7.0 billion in 2020 to RMB 9.3 billion in 2025, representing a CAGR of 5.8%. The growth was primarily driven by the consistent volume of new vehicle model launches and the tightening of national safety and emission standards, which necessitated rigorous homologation for both ICEVs and early-stage NEVs. Looking forward, this segment is projected to grow from an estimated RMB 9.9 billion in 2026 to RMB 12.5 billion by 2030, reflecting a slightly more moderated CAGR of 6.0%. While mandatory certification remains a non-negotiable prerequisite for market entry, its growth trajectory is relatively stable as it is closely tied to the absolute number of models reaching the final commercialization stage rather than the intensive iterative cycles seen in earlier R&D phases.

On the other hand, the market for developmental testing & validation services has shown more robust momentum, rising from RMB7.8 billion in 2020 to RMB 13.6 billion in 2025, representing a CAGR of 11.8%. Such segment’s growth is attributed to the escalating complexity of vehicle architectures, particularly the shift toward high-voltage battery systems and the integration of sophisticated ADAS features which require extensive validation. Looking ahead, the developmental segment is expected to experience accelerated growth, expanding from RMB 15.2 billion in 2026 to RMB 23.8 billion by 2030 at a CAGR

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of 11.9%. The rapid expansion is underpinned by the industry’s transition toward Software-Defined Vehicles, where the constant iteration of autonomous driving algorithms and Over-the-Air updates creates a continuous demand for simulation and real-world validation. Furthermore, as Chinese OEMs continuously shorten their R&D cycles to remain competitive, the frequency and depth of developmental testing for electric drive systems and sensor fusion have become the primary engines of value creation in the automotive testing market.



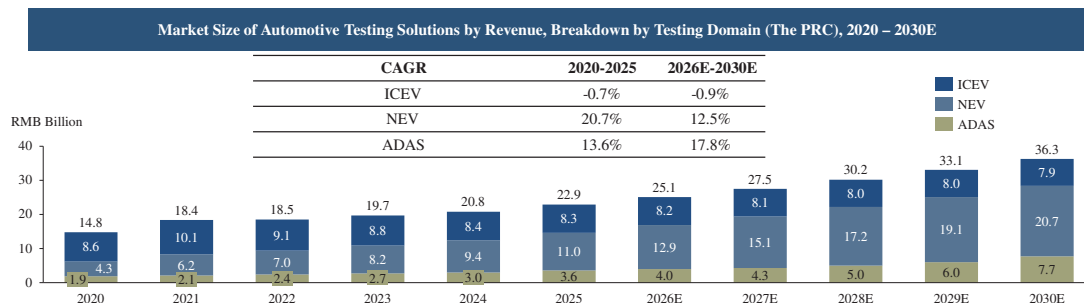
Note: the market size includes the pre-market (before vehicle sold), excludes the aftermarket (after vehicle sold).

Source: The China Association of Automobile Manufacturers, Frost & Sullivan

Market Size Breakdown by Testing Domain

The market for developmental testing and validation services in the PRC is undergoing a profound structural shift across different testing domains. Revenue attributed to the ICEV powertrain domain is projected to experience a steady decline from RMB 8.6 billion in 2020 to RMB 7.9 billion by 2030, as automakers prioritize investment in next-generation platforms over traditional internal combustion technology. In contrast, the NEV powertrain domain has emerged as the primary engine of growth, expanding from RMB 4.3 billion in 2020 to RMB 11.0 billion in 2025, and is projected to reach RMB 20.7 billion by 2030, representing a CAGR of approximately 12.5% during 2026 to 2030. The growth is driven by the intensive and iterative validation required for high-voltage battery safety, thermal management, and electric drive efficiency.

Simultaneously, the ADAS domain represents the fastest-growing frontier in terms of technical complexity, with market size forecast to grow from RMB 4.0 billion in 2026 to RMB 7.7 billion by 2030, representing a CAGR of approximately 17.8%. The segment is characterized by a high frequency of testing due to the rapid evolution of sensor fusion and the continuous need for software validation throughout the product lifecycle. As a result of these diverging trends, the market composition is being fundamentally redefined, shifting from a landscape once dominated by mechanical engineering to one centered on electrification and intelligent software systems.



Source: The China Association of Automobile Manufacturers, Frost & Sullivan

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Key Growth Drivers and Trends

Intensified R&D Investment and Accelerated New Model Launch Cycles – Chinese automakers continue to increase R&D spending and compress vehicle development timelines amid intense competition. Major players have reported annual growth in R&D expenditure, often in the double-digit. New model development cycles have been shortened from the traditional 3–5 years to approximately 18–24 months or less. This acceleration applies to both remaining ICEV/hybrid platforms and the much larger volume of new NEV models. Each new model, whether ICEV, PHEV, EREV or BEV, requires extensive developmental testing and validation, including powertrain, battery systems, emissions or high-voltage safety, durability, and system integration, before homologation. The combination of higher R&D budgets and shorter cycles directly increases the volume and urgency of external testing demand, favouring specialised third-party providers that can deliver flexible, high-throughput validation services.

Growing Technological Complexity from Electrification and Intelligent Systems – The shift toward electrification and vehicle intelligence has materially raised the technical barrier and scope of developmental testing. Battery systems require extensive performance, thermal runaway, impact and cycle-life validation; high-voltage powertrains and power electronics demand specialised electromagnetic compatibility (EMC) and safety testing; and ADAS as well as autonomous-driving features require large-scale scenario simulation and real-world validation. These tests depend on capital-intensive equipment and cross-disciplinary expertise that many OEMs prefer to outsource rather than maintain in-house, thereby expanding the addressable market for independent testing and validation providers.

Stringent Domestic Regulations and Expanding Export Homologation Requirements – Continuous updates to PRC safety, emissions, battery and ADAS standards, together with the need to obtain certification for growing volumes of Chinese vehicles exported to Europe, Southeast Asia, the Middle East and other regions, create mandatory testing and documentation workloads. Both new ICEV/hybrid models and the much larger number of NEV models must pass developmental validation before formal homologation. Automakers therefore increasingly rely on specialised external partners to manage the complexity, cost and timeline of these regulatory and export-related testing programmes.

Rising Number of New ICEV/Hybrid and NEV Models Requiring Specialised Validation – Although pure ICE platforms are being deprioritised, automakers continue to launch updated ICEV and hybrid models alongside a rapidly expanding pipeline of NEV models. Each new model triggers a full suite of developmental testing, with ICEV/hybrid variants focusing on engine performance, fuel efficiency, emissions and powertrain durability, and NEVs focusing on high-voltage battery safety and durability, electric drive systems, energy management and regenerative braking. Accordingly, there is a sustained increase in the absolute number of new models entering validation, generating continuous demand for ICEV testing & validation, NEV testing & validation, and related whole-vehicle and ADAS services.

Market Opportunities

Pioneering Testing for Next-Generation Vehicle Technologies – A significant future opportunity lies in developing capabilities for the next generation of automotive innovation. Such as testing and validation to address emerging technologies like solid-state batteries, ultra-fast charging systems, and highly integrated “X-in-1” electric drive units, each demanding novel testing methodologies for performance, safety, and longevity. Similarly, as the industry progresses from L2/L3 driver assistance to fully autonomous systems (L4 and above) and Vehicle-to-Everything (V2X) communication, the nature of validation will transform. The leap will require massive-scale virtual simulation, digital twin modeling, and complex open-road scenario testing, far exceeding the scope of current track-based tests.

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Furthermore, the nascent development of hydrogen fuel cell technology represents another frontier. Testing providers who proactively invest in the specialised infrastructure and expertise for these next-generation systems will be positioned to capture the most valuable, high-growth segments of the future market.

Integrated Model of Testing Services and Component Production – A significant opportunity exists in deeply integrating automotive testing services with the research and development and production of automotive components. This model creates a unique “discover-and-solve” business loop: testing services precisely identify performance weaknesses in vehicles and their parts, which in turn allows the provider to offer optimised or even customised component solutions from its own research and development and production capabilities. The dual capability not only diversifies revenue streams but elevates the company from a simple service vendor to a strategic research and development partner, creating deeper client loyalty and a formidable competitive barrier.

Market Challenges and Threats

The Dual Pressure of High Capital Investment and Specialised Talent Scarcity – The rapid technological evolution from traditional vehicles to intelligent, software-defined NEV necessitates a constant and significant capital investment in new testing equipment and facilities. Technologies like high-voltage battery systems, ADAS, and V2X communication require entirely new testing paradigms and costly, specialised hardware. Simultaneously, there is a severe shortage of skilled engineers who possess the required interdisciplinary expertise in software, data science, electronics, and automotive engineering. Testing companies face intense competition for this talent not only from direct competitors but also from automakers and technology giants, leading to rising labour costs and difficulty in scaling up technical teams to meet the market’s complex demands.

Evolving Cost Structures and Value-Chain Integration – The highly competitive nature of the PRC automotive market promotes a strong focus on cost optimization among vehicle manufacturers. The focus naturally extends to their procurement strategies for third-party services, including testing and validation. As a result, there is an increasing emphasis on value-based pricing, operational efficiency, and faster project turnarounds from partners across the supply chain. Such market environment encourages testing providers to innovate their business models, enhance operational productivity, and clearly articulate the return on investment their services provide in order to align with the evolving financial and strategic objectives of their automaker clients.

Industry Outlook

According to official notices and reported by outlets including CarNewsChina, Jiemian, Bloomberg, and CnEVPost, China’s EV/NEV subsidies are indeed being gradually tightened starting in 2026. The full purchase-tax exemption for new energy vehicles ends on 31 December 2025; from 1 January 2026, it transitions to a 50% reduction, halved vehicle purchase tax rate, with the maximum tax benefit capped at RMB15,000 per passenger vehicle through 2027, down from RMB30,000 previously, as outlined in the 2023 joint announcement by the Ministry of Finance, State Taxation Administration, and Ministry of Industry and Information Technology.

This policy shift is accompanied by stricter technical eligibility requirements effective 2026, such as higher pure-electric range thresholds for plug-in hybrids (raised to 100 km) and tighter energy-consumption/efficiency standards, further limiting which models qualify for remaining incentives.

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Trade-in and scrappage subsidies have been extended into 2026 but shifted from fixed amounts to percentage-based formulas (e.g., up to 12% of vehicle price, capped at RMB20,000 for NEVs), which tends to favor higher-priced models over affordable ones.

The robust growth of China's automotive sector, particularly the new energy vehicle segment, from 2020 to 2025, driven by substantial government subsidies and favorable policies such as the dual-credit system, had a strong positive impact on the financial performance of automotive testing solutions providers. Surging vehicle production and rapid model development significantly increased demand for advanced testing equipment and services in battery validation, powertrain systems, ADAS, EMC, and regulatory compliance. This translated into robust revenue growth, expanded order backlogs, and improved profitability for leading providers, supported by healthy OEM cash flows that fueled higher capital expenditure on R&D and production testing infrastructure.

Going forward, the gradual tightening of new energy vehicle subsidies beginning in 2026 is expected to moderate new energy vehicle sales volume growth, which may soften volume-driven demand for testing solutions. However, stricter regulatory standards, the industry's shift toward premiumization and technological advancement¹ including longer-range batteries and smarter autonomous systems, and rising export compliance needs are likely to sustain demand for more sophisticated, higher-margin testing systems. Consequently, while growth is expected to moderate from the 2020–2025 peak, the long-term outlook for automotive testing solutions providers remains positive, particularly for those specializing in advanced technologies and regulatory compliance.

Cost Structure Analysis

The cost structure of the automotive testing services industry in the PRC is predominantly driven by two distinct categories: highly specialised human capital and capital-intensive technical infrastructure. Labour costs typically constitute the single largest operational expense, accounting for approximately 45-55% of total operating costs, split between the general engineering workforce required for mechanical testing and the increasingly premium-priced software talent needed for intelligent network and ADAS validation. The second major component comprises Testing Consumables and Testing Equipment, accounting for approximately 25-35%, which includes direct inputs such as energy (industrial electricity), hydrocarbon fluids, and coolants, alongside the significant depreciation of specialised hardware like test benches. While raw materials like steel influence the cost of fixtures and tooling, the industry's cost base is structurally shifting from traditional mechanical inputs toward higher expenditures on energy stability and advanced digital validation tools. Beyond these primary drivers, the cost structure includes other operational expenses, typically 10-15% of OPEX, being accreditation and compliance fees, logistics, data storage and cloud infrastructure etc.

Labour Cost: From 2020 to 2024, the average monthly wage for engineering and technical personnel in the PRC grew from RMB 5,441.7 to RMB 6,400.0, representing a CAGR of 4.1%. Over the same period, information transmission, software and information technology service personnel experienced faster growth, with wages increasing from RMB 5,941.7 to RMB 8,025.0, achieving a CAGR of 7.8%. Looking ahead, the growth rate for both categories is forecasted to slow down between 2025 and 2029. The CAGR for Engineering and Technical Personnel is projected to be 2.5%, while the CAGR for Software and IT Personnel is expected to moderate to 2.9%.

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The robust wage growth for information transmission, software and information technology service personnel between 2020 and 2024 was fueled by a talent war as numerous industries underwent digital transformation. The automotive sector's rapid pivot towards electrification, connectivity, and autonomous driving was a major contributor to this intense demand. The more moderate, yet steady, growth for the general pool of engineering personnel reflects their continued core importance across the entire industrial economy. The forecasted slowdown from 2025 onwards likely indicates a maturing national market, where the initial explosive demand for specific tech talent begins to stabilise as the supply of skilled workers catches up.

Average Monthly Wage of Labour Engaged in the automotive testing services industry (The PRC), 2020-2029E

RMB	2020	2021	2022	2023	2024	2025E	2029E	CAGR (2020- 2024)	CAGR (2025E- 2029E)
Engineering and Technical Personnel	5,441.7	5,916.7	6,041.7	6,283.3	6,400.0	6,534.4	7,226.8	4.1%	2.5%
Information Transmission, Software and Information Technology Service Personnel	5,941.7	6,758.3	7,266.7	7,941.7	8,025.0	8,225.6	9,213.0	7.8%	2.9%

Source: National Bureau of Statistics in the PRC, Ministry of Human Resources and Social Security in the PRC, Frost & Sullivan

Note: 2025 data is published yearly during end of May, 2024 is adopted as the base year currently

Testing Consumables and Testing Equipment Cost: Between 2020 and 2025, industrial electricity prices stabilised following a 2022 peak and slightly declining in 2025, resulting in a CAGR of -1.0% due to government controls; this stability is projected to persist through 2030 with a CAGR of 0.4%. Conversely, gasoline and lubricants rose significantly (CAGRs of 3.7% and 3.8%) alongside crude oil costs, a trend expected to continue through 2030 at moderated rates of 2.3% and 2.5%, respectively. Coolants exhibited high volatility, correcting to a 2.4% CAGR by 2025, but are forecast to rebound to a 1.0% CAGR by 2030 as EV thermal management testing expands.

Regarding hardware, test benches saw a 4.2% CAGR through 2025, reflecting the premium for complex EV systems, and are projected to maintain a steady 2.5% growth, reaching a price index of 137.6 by 2030. Finally, steel prices declined to an index of 83.0 in 2025 due to stable domestic supply and are expected to remain subdued with a projected 0.8% CAGR through 2030, reflecting moderate industrial demand.

INDUSTRY OVERVIEW

Price Index of Selected Testing Consumables in the Automotive Testing Solutions Industry (The PRC), 2020-2030E

Price Index 2020=100	2020	2021	2022	2023	2024	2025	2026E	2030E	CAGR (2020- 2025)	CAGR (2026E- 2030E)
Industrial Electricity	100.0	98.8	118.2	106.6	100.7	95.3	94.5	96.2	-1.0%	0.4%
Gasoline (95 Ron)	100.0	117.6	143.5	132.5	131.3	120.2	139.6	152.7	3.7%	2.3%
Lubricants	100.0	105.0	116.1	114.4	112.5	120.4	123.8	136.5	3.8%	2.5%
Coolants	100.0	99.3	110.5	96.6	89.0	112.8	115.5	120.2	2.4%	1.0%
Test Benches	100.0	107.8	114.4	118.2	108.0	122.8	124.9	137.6	4.2%	2.5%
Steel	100.0	101.2	97.3	96.1	90.9	83.0	84.5	87.2	-3.7%	0.8%

Source: State Grid Corporation of China, National Bureau of Statistics in the PRC, Trade Map, Frost & Sullivan

COMPETITIVE LANDSCAPE

The automotive testing services market in the PRC is highly competitive with moderate concentration, involving over 1,500 market players that can be categorised into three major types:

- (i) State-owned enterprises (SOEs): Mostly national authoritative institutions for automotive testing and certification, represented by China Automotive Engineering Research Institute Co., Ltd. (CAERI) and China Automotive Technology and Research Center Co., Ltd. (CATARC). By leveraging profound technical accumulation, strong capital strength, and policy endorsement, they have formed a full-industry-chain business matrix covering fuel vehicles, new energy vehicles, and intelligent driving, and thus occupy a dominant position in areas such as industry standard formulation and official certification testing.
- (ii) Private enterprises: Represented by third-party automotive research and development testing service providers such as ITImotor, Jiangsu Liance, and the Group. Based on years of experience in collaborative development with local automakers, they have achieved technological breakthroughs in segmented testing fields. Coupled with advantages such as localised service response and customised solutions, they are gradually expanding their market share.
- (iii) Foreign-invested enterprises (FIEs): Represented by AVL and Dektra SA. Generally entering the PRC market through joint venture or wholly-owned models, they rely on globally leading research and development testing technologies, mature management experience, and years of industry data accumulation, and have formed competitive pressure in areas such as high-end fuel vehicle research and development testing and core simulation technology.

INDUSTRY OVERVIEW

Looking ahead, driven by new energy and intelligent connected technology upgrades and stricter regulatory requirements, competition in high-value segments like intelligent driving testing will intensify. Leading players will constantly leverage their respective advantages to compete and complement each other, shaping a more refined competitive landscape.

In 2025, the overall automotive testing solutions market in the PRC is moderately concentrated with the top 2 service providers which represented approximately 37.8% of PRC’s automotive testing solutions market in terms of revenue. The Group recorded the revenue of RMB199.8 million in 2025, accounting for the market share of 0.9% of the overall automotive testing solutions market in the PRC.

Ranking	Company	Revenue of Automotive Testing Solutions, 2025 (Million RMB)	Market Share (%)
1	China Automotive Technology and Research Center Co., Ltd. (CATARC)	5,322.9	23.2%
2	China Automotive Engineering Research Institute Co., Ltd. (CAERI)	3,335.2	14.6%
3	Shanghai Motor Vehicle Inspection, Certification & Tech Innovation Center. Co.,Ltd. (SMVIC)	1,271.6	5.6%
4	Xiang Yang Da An Automobile Test Center Limited Corporation	1,047.0	4.6%
5	China Merchants Testing Vehicle Technology Research Institute Co., Ltd.	908.3	4.0%
	Top 5 Sub-total	11,884.9	51.9%
	The Group	199.8	0.9%
	Others	10,815.3	47.2%
	Total	22,900.0	100.0%

Source: Annual Reports of Listed Companies, Frost & Sullivan

Note: China Automotive Technology and Research Center Co., Ltd. (CATARC), founded in 1985, is a central enterprise directly under SASAC. It is an authoritative comprehensive automotive technology service group, with core businesses covering industry standard formulation, testing certification, and R&D of key technologies for new energy and intelligent connected vehicles in the PRC.

China Automotive Engineering Research Institute Co., Ltd. (CAERI), founded in 2001, is a leading automotive technology service and equipment manufacturing enterprise headquartered in the PRC, with a stock code of 601965.SH. Its principal business includes automotive R&D consulting, test evaluation, and manufacturing of special vehicles and rail transit components, mainly serves clients in the PRC.

Shanghai Motor Vehicle Inspection, Certification & Tech Innovation Center Co., Ltd. (SMVIC), founded in 2003, is a third-party automotive testing and certification institution. It mainly provides national authorized testing services such as vehicle announcement, CCC certification, and environmental protection verification, covering conventional and new energy vehicles, mainly serves clients in the PRC.

Xiang Yang Da An Automobile Test Center Limited Corporation, founded in 2005 and affiliated to Dongfeng Motor Group, is a comprehensive third-party automotive testing institution. Its principal business includes vehicle performance testing, safety evaluation, and regulatory compliance verification, relying on professional test sites, mainly serve clients in the PRC.

China Merchants Testing Vehicle Technology Research Institute Co., Ltd., founded in 2003, is a national high-tech enterprise under China Merchants Group. It mainly engages in regulatory testing, R&D verification, standard formulation, and technical consulting for automobiles and motorcycles, mainly serves clients in the PRC.

INDUSTRY OVERVIEW

Ranking	Company	Revenue of IC EV Testing and Validation Service, 2025 (Million RMB)	Market Share (%)
1	China Automotive Engineering Research Institute Co., Ltd. (CAERI)	2,501.4	30.1%
2	China Automotive Technology and Research Center Co., Ltd. (CATARC)	1,596.9	19.2%
3	Shanghai Motor Vehicle Inspection, Certification & Tech Innovation Center. Co.,Ltd. (SMVIC)	635.8	7.7%
4	AVL	442.1	5.3%
5	HORIBA Group	280.5	3.4%
	Top 5 Sub-total	5,456.7	65.7%
	the Group	59.7	0.7%
	Others	2,783.6	33.5%
	Total	8,300.0	100.0%

Source: Annual Reports of Listed Companies, Frost & Sullivan

Note: AVL List GmbH, founded in 1948 and headquartered in Austria, is a leading global mobility technology company focusing on automotive development, simulation and testing. Its principal business includes electrified propulsion system testing, vehicle performance verification, ADAS/AD testing and simulation services, relying on advanced test systems and global technical centers, mainly serves automotive OEMs, Tier 1 suppliers and research institutes worldwide.

HORIBA Group, founded in 1945 and headquartered in Japan, is a global comprehensive automotive testing and measurement institution. Its principal business includes automotive emission measurement, engine and driveline testing, autonomous and electric vehicle validation, relying on professional test facilities and integrated measurement technologies, mainly serves global automotive manufacturers, regulatory agencies and independent test laboratories.

In 2025, the ICEV testing and validation service sector in the PRC is relatively concentrated with the top 5 service providers represented approximately 65.7% of PRC’s ICEV testing and validation service market in terms of revenue. The Group recorded a market share of 0.7% and a revenue of RMB 59.7 million.

Entry Barrier

Qualification and Certification – The regulatory authorities governing the PRC’s vehicle and auto parts testing service market have established a rigorous qualification certification system for testing institutions, which covers multiple complex procedures including laboratory accreditation and metrological certification. Furthermore, such certification standards are subject to continuous updates and upgrades. New entrants are required to invest substantial time and capital in site construction, equipment procurement, and personnel training to meet the qualification requirements. For instance, laboratories seeking accreditation from CNAS (China National Accreditation Service for Conformity Assessment) must pass strict technical capability verification and management system audits. This creates significant challenges for new enterprises to enter the market promptly.

Technology and Research and Development Barriers – Vehicle and auto parts testing involves multi-disciplinary technical fields such as materials science, machinery, electronics, and environmental engineering. Specific examples include battery safety testing for NEV and performance testing for autonomous driving systems, all of which demand long-term technological research and development and experience accumulation. New entrants face a substantial gap compared to leading enterprises in the industry in terms of core testing technologies and the innovation capability of testing methods, making it difficult for them to master complex testing technologies and establish competitiveness within a short timeframe.

INDUSTRY OVERVIEW

Resource Integration and Capital Investment – Industry development requires simultaneous access to high-end testing equipment (e.g., engine test benches, emission analyzers), authoritative testing qualifications, professional talent teams, and continuous research and development investment, all of which demand significant capital support. New entrants not only face initial capital pressure for equipment procurement and capacity building but also need to bear long-term costs for technological iteration and talent training. Insufficient capital strength will directly restrict their market access capabilities.

Key Success Factors

Customer Resource Accumulation and Reputation Building – Service providers need to accumulate high-quality customer resources and track records through long-term services, establish a testing database covering multiple scenarios, and accurately meet downstream customers’ core demands for testing safety and reliability. Meanwhile, it is necessary for market players to build a strong brand reputation that heavily relies on technical strength and service quality, forming a virtuous cycle of “cases-trust-repurchase” to consolidate customer stickiness and market position.

Construction of Compound Talent Teams – Service providers must establish professional talent echelons covering multiple fields such as mechanical engineering, electronic engineering, and computer science and attract and retain core talents with long-term industry experience who are proficient in the operation of various testing equipment and cutting-edge testing methods. Additionally, service providers should establish continuous training and innovation mechanisms to ensure that the team’s professional skills keep pace with industrial technological iteration, providing core human support for business development.

Core Technology Iteration and Innovation Capabilities – Service providers must continuously focus on research and development of testing technologies in emerging fields such as new energy vehicles and intelligent driving, break through core technologies including multi-disciplinary integration, simulation, data processing, and maintain the advanced nature of testing equipment performance and testing methods. This enables them to adapt to industrial technological upgrades and customer customised demands, establishing differentiated technological advantages.

COMPETITIVE STRENGTHS OF OUR GROUP

Please refer to the paragraph headed “Business – Competitive strengths” in this document for a detailed discussion of competitive strengths of our Group.