

China's EV Industry Development Policies and Fastener Business Opportunities Part 2

中国电动车产业发展政策与扣件商机(下)

Background of China's Electric Vehicle Industry Development

The 2010s were the heyday for the rapid development of China's new energy vehicle industry. In 2012, the Chinese government released the "Energy-Saving and New Energy Vehicle Industry Development Plan (2012-2020)," which stated the goal of a cumulative production and sales volume of 5 million new energy vehicles by 2020. To achieve this goal, the Chinese government expanded its support for new energy vehicles, including offering purchase subsidies, tax exemptions, and accelerating the construction of charging infrastructure. Meanwhile, leading Chinese companies like BYD, BAIC New Energy, and NIO actively invested in research and development, launching a series of competitive new energy vehicles.

As market demand grew and technological levels improved, China's new energy vehicle industry gained a significant position in the global market. By 2024, China's new energy vehicle stock had exceeded 6.5 million units, making it the world's largest new energy vehicle market. At this point, China's new energy vehicle supply chain was fully formed, with numerous companies participating in every stage from upstream battery material supply to downstream vehicle manufacturing, assembly, and sales, showcasing competitiveness in the international market.

In recent years, with China's aims to peak carbon emissions by 2030 and achieve carbon neutrality by 2060, China's new energy vehicle industry has faced new development opportunities. The government continues to expand policy support for new energy vehicles, promoting their intelligent and networked development. Additionally, the construction of charging infrastructure has been further expanded, significantly improving the convenience of using new energy vehicles. **In 2024, China's new energy vehicle sales reached a new high of 4.75 million units, accounting for 55.2% of the global market. Under the guidance of government policies, China's new energy vehicle industry has experienced rapid development from its inception. Leading companies are actively expanding their domestic and international presence, and with continuous technological breakthroughs and market maturation, China's new energy vehicle industry is expected to continue growing.**

Policies of Chinese Electric Vehicle Industry

The Chinese government has implemented a comprehensive set of policies to support the new energy vehicle industry, aiming to position China as a global leader in this sector. These policies cover new energy vehicle adoption, production, innovation, and include subsidies, production quotas, infrastructure support, R&D investments, and incentives for international expansion.

1. Subsidies for Consumers and Manufacturers: China has long provided direct subsidies to new energy vehicle buyers to make these vehicles more affordable. Although these subsidies have gradually decreased as the market matures, they remain in place for vehicles meeting certain mileage, efficiency, and safety standards, encouraging consumers to choose electric vehicles over traditional gasoline-powered



cars. For manufacturers, tax exemptions and production subsidies reduce operational costs and support the market. The government has implemented tax incentives for new energy vehicle purchases that will continue until 2025, particularly benefiting low-cost and mid-range models popular in urban areas.

2. Production Quotas and New Energy Vehicle Credit System: China's new energy vehicle production quota system requires automakers to meet specific production targets for new energy vehicles. The new energy vehicle credits are tied to production volumes, and manufacturers that fail to meet these quotas must purchase credits from companies that exceed their targets. This system provides an incentive for all companies to increase their new energy vehicle production. Over the long term, *China is gradually phasing out internal combustion engine vehicles, with a goal of having 40% of new car sales be new energy vehicles by 2030, and achieving full electrification by 2035.* This ambitious timeline is shaping the strategies of domestic and foreign automakers operating in China.

3. Expansion of Charging Infrastructure: China is at the forefront in new energy vehicle infrastructure, having established the world's largest public new energy vehicle charging network with government support. Initiatives include providing fast-charging stations and battery-swapping facilities. The Chinese government, local governments, and companies like NIO collaborate to increase battery-swapping stations, enhancing convenience and reducing downtime for new energy vehicles.

4. Rural Electrification: To promote widespread adoption, *China is expanding new energy vehicle infrastructure in rural areas*, aiming to make new energy vehicles viable beyond major cities and promote sustainable transportation across regions.

5. R&D and Innovation: Under the "Made in China 2025" initiative, *the government funds research and development in battery technology, autonomous vehicles, and new energy vehicle manufacturing and R&D to establish self-sufficiency in high-tech new energy vehicle components. This reduces dependence on foreign suppliers*, emphasizing improved battery performance, reduced production costs, and creating export competitiveness.

6. Global Expansion Support and Trade Protection: *The Chinese government encourages new energy vehicle manufacturers to expand into international markets, offering financial assistance to exporters targeting Europe, Japan, and Latin America.* Chinese brands like BYD and NIO use these policies to establish strong global deployment, further expanding their ambitions. *China imposes import restrictions and tariffs on foreign electric vehicles, protecting domestic companies* and enabling them to dominate the Chinese market despite significant international competition. This protectionist stance aims to nurture domestic brands and strengthen China's position in the global electric vehicle market.

7. Environmental Protection and ESG Goals: New energy vehicles play a significant role in China's environmental protection strategy, including achieving peak carbon emissions by 2030 and carbon neutrality by 2060. By integrating new energy vehicles into environmental protection, social responsibility, and governance (ESG) frameworks, China aims to reduce urban pollution, decrease dependence on fossil fuels, and align with sustainability goals.

cooling, and vehicle lightweighting in the electric vehicle market, manufacturers are reevaluating manufacturing structures, designs, and assembly processes to optimize vehicle performance. Electric vehicle manufacturers must prioritize solving cooling and lightweighting problems by using streamlined components while considering supply chain's carbon footprints.

High-quality fasteners are crucial for electric vehicle production, as they ensure that all critical components remain connected and secure. Well-designed fasteners can help electric vehicle manufacturers determine the best fastening solutions to achieve optimal vehicle performance. According to statistics, the global electric vehicle market is expected to grow at a compound annual rate of 15.7% from 2024 to 2029. Component manufacturers are preparing to adapt to industry transformations in the consumer market, and electric vehicle manufacturers need to design optimized components, including fasteners, to give their products a competitive edge.

Although electric vehicle fasteners account for a relatively low percentage of vehicle costs compared to key components like power batteries, motors, and controllers, they may occupy up to 50% of the material list. For all electric vehicle manufacturers, using correct, high-quality fasteners to optimize vehicle performance is extremely important.

The following are key factors that electric vehicle manufacturers consider when selecting the best automotive fasteners:

(1) Durability and Lightweighting: Cold forming can enhance the metallurgical properties and structural integrity of materials. Prioritizing component strength and durability, fasteners must meet precise tolerances and vibration requirements, with a yield strength of 65-90%, ensuring they do not loosen or damage during assembly or use. Automotive fastener design and manufacturing can ensure very high safety and reliability, helping maintain the main structure and integrity of electric vehicles.

(2) Enhancing Fastener Performance: With the application of electrical technology, manufacturing has become more advanced. Electric vehicle batteries are often heavier than those in gasoline or diesel vehicles, making the use of lightweight materials crucial for improving vehicle performance. Using various lightweight materials for fasteners helps enhance vehicle performance and operational efficiency.

(3) Corrosion Resistance: All vehicles, including electric vehicles, encounter moisture, cleaning chemicals, and road salt. Automotive fasteners must have high corrosion resistance. Aluminum, stainless steel, and titanium have

Opportunities for Fastener Manufacturers in China's Electric Vehicle Industry Development

1. Electric Vehicle Industry and Fastener Demand

Electric vehicle manufacturers are continuously developing power batteries and whole vehicle technology. Due to ongoing issues with mileage, battery

excellent yield strength and corrosion resistance, suitable for all automotive and electric vehicle applications. Applying the correct electroplating surface treatment helps reduce corrosion risks. As vehicles increasingly use aluminum and carbon fiber bodies, it is also necessary to consider galvanic corrosion to offset the weight increase.

- (4) **Lightweighting to Extend Battery Life:** Using lightweight automotive fasteners in electric vehicles helps extend battery life. Lighter vehicles significantly reduce the stress on electric vehicle batteries, allowing for longer driving distances and better performance.
- (5) **Excellent Thermal Conductivity and Insulation:** Electric vehicles generate a lot of heat during operation. If the vehicle's fasteners and components are not optimally designed, heat may transfer to critical components, potentially shortening battery life and affecting vehicle performance. Aluminum fasteners help dissipate heat in electric vehicles, and when combined with specialized heat exchangers, they can help speed up faster heat dissipation.
- (6) **Improving Energy Efficiency:** Companies of any automotive assembly and manufacturing that use aluminum, titanium, or magnesium fasteners are advised to optimize electric vehicle energy consumption, enhancing overall vehicle performance and energy efficiency.

- (7) **Sustainability:** The popularity of electric vehicles is largely due to their environmentally friendly appeal, so original equipment manufacturers must source fasteners from earth-friendly manufacturers.

2. Deployment and Business Opportunities

Pure electric vehicle manufacturers are transforming faster than conventional automakers, leveraging their technological innovation advantages. Traditional manufacturers face cost pressures during electric vehicle transformations, such as labor union strikes in the U.S., and concerns over EV manufacturing potentially threatening automotive workers' jobs. With domestic market success, Chinese automakers are seeking to expand overseas production and sales to respond to potential economic impacts.

China is the world's largest automotive market, with electric vehicles accounting for 24.1% of the market in 2024, far exceeding the combined sales of 3 million electric vehicles in other regions. According to the data from Super Alloy Industrial, a Chinese automotive component supplier, global sales of electric vehicles, hybrid vehicles, and fuel cell vehicles grew to 17 million units in 2024, a 32.3% increase.

Chinese automakers are rapidly expanding in the electric vehicle industry, with significant growth in domestic market share. They are actively setting up production facilities in Europe, Southeast Asia, and Central and South America, exporting power batteries and electric vehicles to international markets. This expansion also provides development opportunities for Taiwanese fastener manufacturers. ■

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