

Research on Global Market Competition and Activation Impact of China's New Energy Vehicles

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Abstract: With the shortage of global energy resources and the increased awareness of environmental protection, in recent years, China's new energy vehicle industry has developed rapidly and become a major player in the global electric vehicle market. This paper will discuss the competitive situation of China's new energy vehicles in the global market and its impact on the activation of the global new energy vehicle market. By analyzing the policy support, technological innovation, market expansion and international competitiveness of China's new energy vehicle industry, this paper aims to reveal China's important position in the global new energy vehicle market and its far-reaching impact on the global industrial structure. In recent years, China's new energy vehicle industry has sprung up and developed rapidly, and has become a powerful force in the global electric vehicle market. In this ever-changing era of science and technology, the new energy vehicle industry is regarded as an important driving force for future global economic growth, and countries have increased investment and competed for market share. In terms of technological innovation, China's new energy automobile industry continues to increase investment in research and development, breakthroughs in key technologies, and has achieved remarkable results. From the perspective of policy support, the Chinese government attaches great importance to the development of the new energy automobile industry and has introduced a series of policy measures to encourage and promote the rapid development of the industry. From the perspective of market expansion, the market of new energy vehicles in our country shows a rapid growth trend. In terms of international competitiveness, China's new energy automobile industry has gradually risen, and has the strength to compete with developed countries such as Europe, America and Japan. With the continuous growth of China's new energy automobile industry, the export business has also achieved remarkable results, and the international market share has gradually increased. On a global scale, China's new energy automobile industry has formed a new pattern of competition with major economies. The competitive situation of China's new energy automobile industry in the global market has become increasingly prominent, which has a positive activation effect on the global new energy automobile market. Under the joint promotion of policy support, technological innovation, market expansion and international competitiveness, China's new energy vehicle industry will continue to play an important role in the global market and have a profound impact on the global industrial pattern. With the increasingly fierce competition in the field of new energy vehicles, the development of China's new energy vehicle industry will have a greater impact and influence on the global market.

Keywords: China, New energy vehicles, Market competition, Impact study.

1. Introduction

Environmental problems intensified, energy crisis approaching, prompting automobile companies to focus on the development of fuel vehicles to new energy vehicles, the automotive industry is undergoing industrial restructuring, countries actively launched a variety of policies and measures to promote the promotion of new energy vehicles, increase efforts to promote the development and innovation of new energy vehicles. New energy vehicles will become the key industry in the future competition of automobile powers [1]. Vigorously developing the new energy industry can help reduce greenhouse gas emissions, promote the improvement of the global ecological environment, and add new drivers to the economic growth of countries. Under the influence of government policy incentives, mature technology, improved public charging network, cost reduction and other aspects of automobile companies actively provide consumers with more model choices, the global new energy vehicles are developing in a blowout.

2. Analysis of Global Share of China's New Energy Vehicles

2.1. Annual Sales Share Analysis

From the perspective of global new energy vehicle sales, the global new energy vehicle industry has entered a rapid growth channel, and the sales scale of new energy vehicles has continued to expand. Comprehensive comparison of nearly ten years of data, new energy vehicle sales in China and the world are steadily rising, are in 2021 to achieve rapid growth, China's year-on-year growth reached 157.5%, the global year-on-year growth reached 121.7%, more than 100%, to achieve a multi-fold growth, after this, the annual sales data in the rise but the growth rate is steadily declining. Some scholars predicted in 2018 that global sales of new energy vehicles will reach 11 million in 2025, and the data has exceeded expectations in 2023. EVTank data display in 2023 [2], the global new energy automobile sales of 14.653 million units, up 35.4% from a year earlier, with China's new energy automobile sales to 9.495 million, accounting for 64.8% of global sales, more than half, China has become the largest market for new energy vehicles. The comparison chart of global and Chinese new energy vehicle sales from 2013 to 2023 is as follows:

Table 1. 2013-2023 year comparison of global and Chinese new energy vehicle sales

Year	Sales in China (10000 units)	China's year-on-year growth	Global sales (10000 units)	Global year-on-year growth
2013	1.8	/	16	/
2014	7.5	316.67%	24	50.0%
2015	33.1	342.51%	37	54.2%
2016	50.7	53.17%	66	78.4%
2017	77.7	53.25%	107	62.1%
2018	125.6	61.65%	184	72.0%
2019	120.6	-3.98%	203	10.3%
2020	136.7	10.90%	286	40.9%
2021	352.1	157.50%	634	121.7%
2022	688.7	93.40%	1031	62.6%
2023	949.5	37.90%	1465	42.1%

With the strong support of countries around the world for new energy vehicles, the market competitiveness of the new energy automobile industry continues to improve, the recognition and acceptance of consumers continues to improve, and the proportion of new cars is constantly improving. According to the EVTank survey, the annual sales of new energy vehicles in the United States and Europe in 2023 were 2.948 million and 1.468 million, with year-on-year growth rates of 18.3% and 48.0%, respectively. EVTank analysts believe that the growth rate of the European new energy vehicle market is less than expected and the subsidy decline in Germany and other countries in 2023 has a greater relationship. EVTank experts forecast the future of the new energy vehicle market, and it is expected that the global sales of new energy vehicles will reach 18.30 million in 2024, of which the sales of new energy vehicles in China will reach 11.80 million, and the global sales of new energy vehicles will reach 47 million in 2030 [3].

Automobile Manufacturers, from the perspective of domestic and foreign markets, the importance of the export market to China's automobile industry is increasing, and this trend is more significant in the fuel vehicle market. At present, the proportion of automobile exports in total sales is still less than 20%, and the domestic market is still its largest sales group, but from the year-on-year growth situation, whether it is fuel vehicles or new energy vehicles, the growth rate of the export market has far exceeded the domestic market. As shown in Figure 1, the fastest growth rate is in 2021, mainly due to factors, one is the policy incentive, which did not further promote the role, but still played a decisive role. The second is the rapid progress of technology, and the driving range can basically meet the travel needs. The third factor is the abundance of products, 236 types of new energy vehicles are on sale, and consumers have more opportunities to choose. Vehicle export sales in 2023 increased by 57.9% year-on-year, an expansion from 2022 and in sharp contrast to the 6% year-on-year growth in the domestic market [4].

2.2. Analysis of Export Sales of China's New Energy Vehicles

According to the data of the China Association of

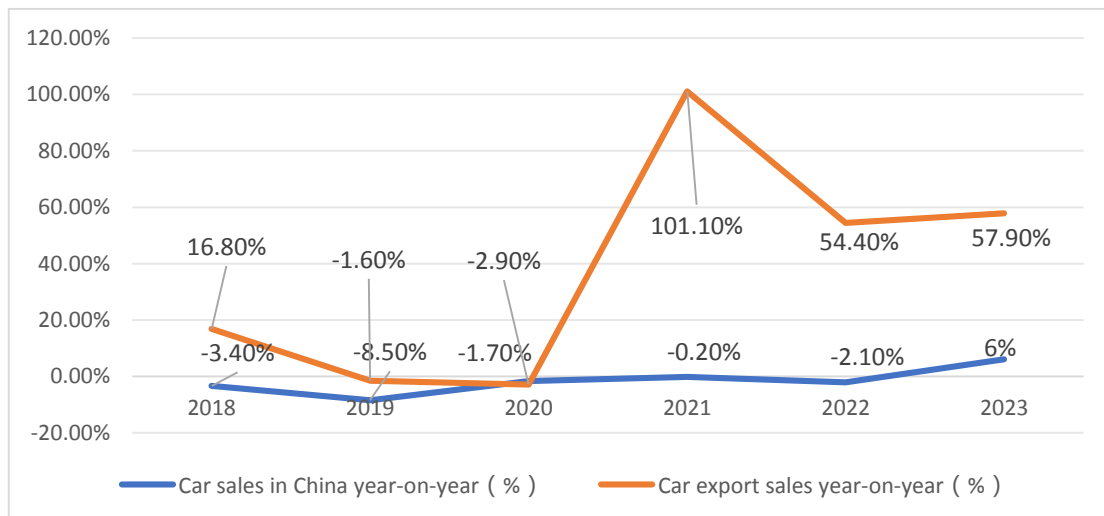


Figure 1. 2018-2023 Comparison of automobile export sales from

As Figure 2 shows, new energy vehicles grew by 77.6% year-on-year, much higher than the 33.5% growth in the

domestic market. In 2023, 4.91 million vehicles were exported, accounting for 16.3% of total sales (3.7% in 2018),

and 1.2 million new energy vehicles were exported (24.5% of total automobile exports), accounting for 12.7% of new energy vehicle sales (0.5% in 2018). In 2020-2021, the export proportion of new energy vehicle sales is slightly higher than the overall proportion of cars, during the same period, new

energy vehicle companies led by BYD, NIO, Ideal, etc., actively go to sea, and Tesla's Shanghai Gigafactory in China will also achieve mass production and begin to export in 2020 [5].

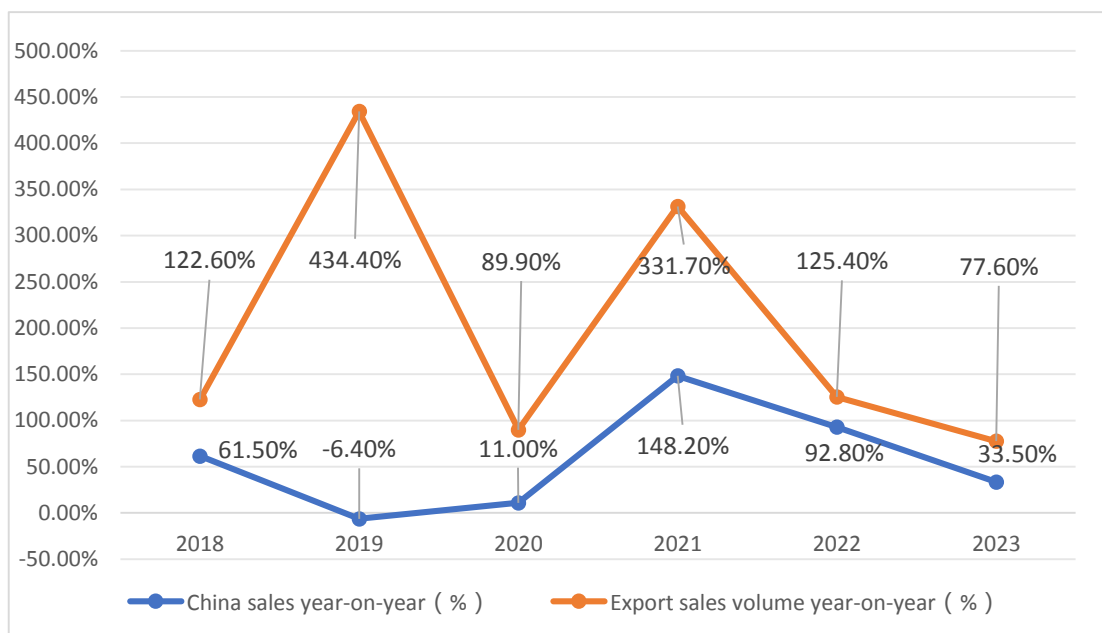


Figure 2. 2018-2023 Comparison of export sales of new energy vehicles

According to the survey of the international automobile market, the American automobile market is mainly dominated by the American and Japanese automobiles, supplemented by the Korean and European automobiles. In fact, the European car market is a very exclusive market, at present, the European car accounts for about 70%, China exported the past part, a total of 448,000 units, accounting for about 3.49%. In the field of new energy vehicles, according to the latest analysis by the European Agency, nearly one in five (19.5%) electric vehicles sold in Europe in 2023 will be made in China, and this figure is expected to reach one in four (25%) by 2024.

The increase in the proportion of Chinese-made new energy vehicles benefited from the Chinese government's strong support for the electric vehicle industry, including subsidy policies and market access concessions, which also provided a strong boost for domestic car companies. It is worth noting that Western brands such as Tesla, Mercedes and BMW account for a considerable proportion of the electric vehicles made in China, and these brands have production bases in China that not only serve the Chinese market, but also export a large number of electric vehicles to Europe. Tesla's Gigafactory in Shanghai, for example, is a key part of its global expansion strategy. Chinese brands such as NIO, Xiaopeng and BYD are also exploring the electric vehicle market in Europe and their share is expected to continue to grow, accounting for 11 percent by 2024.

3. Popular Models of New Energy Vehicles of Various Brands

3.1. Sales Analysis of Popular Models

The following table shows the TOP20 global new energy passenger vehicles by brand/model sales in 2023 released by CleanTechnica. Among these 20 models, Tesla ModelY still

ranks first in the global single model sales for two consecutive years with 1.2116 million units. Song (BEV+PHEV) ranked stable second, with global sales of 636,500 vehicles; The Tesla Model3 came in third with 529,200 units sold. Qin Plus (BEV+PHEV), Yuan PlusEV/Atto3, Dolphin EV, and Seagulls EV are all BYD models, with global sales of more than 200,000 to 400,000 vehicles. In the TOP20 sales rankings of global models, there are 16 Chinese brands, while there are only 4 multinational brands, respectively two models owned by Tesla and Volkswagen, and no other foreign brands are shortlisted.

3.2. Comparative Analysis of Popular Models

BYD new energy vehicles. It has been widely praised by consumers for its excellent performance, innovative design and excellent quality. In addition to the well-known hot models such as Song PLUS new energy, Dolphin, Yuan PLUS and Tang New energy, BYD also continues to innovate and bring more eye-catching new models to the market [6].

BYD's Dynasty series models have become market stars with their luxurious interiors, powerful power and stable handling performance. Han EV has attracted the attention of many electric vehicle enthusiasts with its ultra-long driving range and excellent driving experience. The Han DM-i, with its hybrid advantages, has found the perfect balance between energy saving and performance. Ocean series models have attracted the attention of young consumers with a younger and more fashionable image. Ocean series models incorporate more fashion elements in the design, and also have good performance in the interior and configuration. Among them, the Sea Lion 07, as a mid-sized SUV, has attracted much attention in the market with its sporty appearance and excellent performance. Whether it is pure electric, hybrid or fuel cell technology, BYD will continue to explore and

practice to bring consumers a more environmentally friendly and intelligent travel experience.

Geely's new energy vehicles. As an important strategic direction of Geely Group, it has achieved remarkable development results in recent years. With advanced technology and the spirit of continuous innovation, Geely new energy vehicles have gradually emerged in the market and become the focus of consumers' attention [7]. In addition to the hybrid development of Geely's parent brand in the field of new energy, Geely has also continued to layout, such as geometric cars in the pure electricity market, middle and high-end luxury brands polar Krypton, Lynk & Co hybrid new energy and the newly launched Galaxy series products, which have good market performance in the market. Taking polar Krypton as an example, the cumulative delivery of polar Krypton in 2023 has delivered 118,000 vehicles, refreshing the record of the fastest delivery of new forces, and the world's only new energy zero spontaneous combustion record. Panda MINI and polar Krypton 009 are the most popular models at present. In addition, Geely New energy Vehicles also pay attention to the improvement of user experience and service quality. Through optimizing sales channels, improving after-sales service system, and carrying out user interactive activities, Geely New energy Vehicles has continuously improved user satisfaction and loyalty, laying a solid foundation for the long-term development of the brand.

Changan new energy vehicles. Changan New energy vehicles, with its excellent technology and innovation capabilities, has made remarkable achievements in the field of new energy vehicles. The company closely follows the national strategic pace of new energy vehicle development, actively promotes the research and development and application of new energy vehicle technology, and is committed to providing users with more environmentally friendly and efficient travel methods [8].

In addition to Changan Lumin, new energy and iDD series products, Changan also laid out deep blue cars, deep Blue has launched deep blue SL03 and deep blue S7, in 2023 Changan Automobile released Qiyuan brand, including Qiyuan A07, Qiyuan Q05 and Qiyuan A05 three models. Refresh the new energy market pattern. Changan new energy Vehicles will continue to adhere to the development concept of "innovation, green and intelligent", increase technology research and development and marketing efforts, and constantly improve product quality and service level. At the same time, the company will also actively explore the deep integration of new energy vehicles with intelligent transportation, smart cities and other fields to provide users with a more intelligent and convenient travel experience [9].

Ideal new energy vehicle. As a rising star in the domestic new energy vehicle market, it has won the favor of more and more consumers with its innovative design concept, excellent performance and green environmental protection concept. Last year's domestic new energy sales comparison in the top ten list of the most obvious increase in new energy manufacturers. Its ideal L7, Ideal L8, ideal L9 have good sales results. Ideal new energy vehicles will continue to uphold the concept of innovation and environmental protection, and continue to introduce more advanced and better quality models to provide consumers with a more convenient and more comfortable way to travel. At the same time, Ideal Automobile will also actively expand the international market, bring China's new energy vehicle technology to the world stage, and make greater contributions to the global

environmental protection cause.

Nio new energy vehicles. As a dark horse in China's new energy vehicle market, it has gradually won the favor of consumers with its unique design concept and cutting-edge technological innovation. Development has been more than nine years, innovative manufacturing of a number of high-end intelligent electric vehicles, NIO has also taken a unique operating model [10]. Weilai is committed to the construction of infrastructure systems such as charging piles and charging stations, and encourages users to directly change electricity compared with the long waiting for charging of other brands of trams. In the third quarter of last year, NIO ranked first in China's electric vehicle market with an average transaction price of more than 300,000 yuan, with a market share of more than 45%. Nio will continue to uphold the concept of "user first" and constantly promote the development and innovation of new energy vehicle technology. At the same time, NIO will also actively expand overseas markets and bring China's new energy vehicle technology and brands to the world stage. It is believed that in the near future, NIO will become an important force in the global new energy vehicle market.

4. Development Suggestions for New Energy Vehicles

According to the above data analysis, last year, China's new energy vehicle sales reached 9.495 million, accounting for 64.8% of global sales, more than half, China is currently the world's largest new energy vehicle production and sales of the country. In 2023, the export of automobiles was 4.91 million, accounting for 16.3% of the total sales, and the export of new energy vehicles was 1.2 million, an increase of 77.6%, and the international market for new energy vehicles in China was gradually opening. At the same time, the development of new energy vehicles in China also faces problems such as weak core technology innovation ability, quality assurance system to be improved, infrastructure construction is still lagging behind, industrial ecology is not perfect, and market competition is intensifying [11]. To solve these problems, the following suggestions are made:

4.1. Promote Technology Research and Development and Business Innovation

If the new energy automobile industry wants to develop healthily and steadily in the long term, it needs to break through the relevant technological blockades in foreign countries and promote technological innovation and research and development in related fields. Therefore, it is necessary to strengthen technological research and development cooperation between enterprises and scientific research institutions and universities, and encourage the current new forces to organically combine with traditional enterprises in key technical fields such as fuel cells, vehicle scale chips, and control systems in new energy vehicles, integrate the advantages of multiple fields, actively build corresponding technology research and development and testing platforms and institutions, and gather strength to break through the existing technology blockade. We will overcome key technologies in the field of new energy. At the same time, encourage new energy market model innovation, actively explore diversified marketing, support automobile manufacturers to cooperate with the Internet and other industries, promote cross-border innovation of new energy vehicles in artificial intelligence and the Internet of Things,

and optimize their marketing model.

4.2. Strengthening Infrastructure Construction

In the daily use of new energy vehicles, infrastructure such as charging piles, charging stations and changing stations play a very important role, which is the basic guarantee for the promotion and application of electric vehicles, and helps consumers buy new energy vehicles. However, China's infrastructure coverage in the city is not high, there is a large space for development, it is necessary for enterprises and governments at all levels to work together to improve the overall layout of infrastructure construction, reasonable planning of facilities construction land, and promote the development of new energy vehicles. We will guide the construction and upgrading of smart charging piles, and accelerate the intelligent upgrading of distribution networks.

4.3. Formulate a Reasonable International Development Strategy

Actively build an international marketing network, and carry out regional cooperation and exchanges through different means. International marketing programs need to innovate and keep pace with The Times; In addition, in addition to conventional marketing planning, while setting up mining local potential customers, time-sharing leasing and other projects in line with the trend of The Times, enterprises should actively plan new programs in line with local consumer groups. We will further align with the latest international economic and trade rules, participate in the revision of regulations on international standards, and promote the "going global" of standards with Chinese characteristics and advantages.

5. Summary

Through the analysis of global new-energy vehicle sales and market share in the past decade, and the comparative analysis of some popular models in China, countries vigorously develop new energy industry, can help reduce greenhouse gas emissions, promote the improvement of the global ecological environment, and add new momentum to the economic growth of countries. As the technical level of China's new energy automobile industry continues to improve, the industrial system is becoming increasingly perfect, the competitiveness of products has been greatly enhanced, and it has been sought after by the majority of consumers and recognized by the market, and the effect of industry transformation and upgrading continues to consolidate.

At the same time, the development of new energy vehicles in China is also faced with problems such as weak core technology innovation ability, quality assurance system to be improved, infrastructure construction is still lagging behind, industrial ecology is not perfect, and market competition is

intensifying. In the face of these problems and fierce market competition, four reasonable suggestions are put forward: (1) Promote technology research and development and commercial innovation; (2) Strengthen the construction of basic charging facilities; (3) Strengthen the training of relevant professionals; (4) Formulate a sound international development strategy. Although the development of new energy vehicles in China started late, there are some natural and acquired advantages such as population and time in the international competition in the industry, and the development trend is upward and the prospects are broad. In the future, the development trend of China's new energy vehicles and new energy industry will be all the way up, and the related construction work will also achieve good results.

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