

The Prospect of New Energy Vehicle Market

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Abstract: China's new energy vehicle market has shown a comprehensive recovery trend as a result of the extension of relevant subsidy and tax exemption policies, as well as the introduction of many measures to promote automobile consumption, but the sales volume of independent brand new energy vehicles has declined, the industrial weakness is prominent, the policy system is imperfect, and the consumption and use environment is not good. Under the influence of a fresh cycle of scientific and technical revolutions, the new energy vehicle sector is undergoing significant changes. To promote industrial development, we must improve local vehicle enterprises' market competitiveness and brand influence, maintain the safety and stability of the domestic industrial chain and supply chain, improve the flexibility and adaptability of industrial policies, constantly optimize the consumption and use environment, promote the digital transformation of new energy vehicles, and implement the quality brand development strategy.

Keywords: New Energy Vehicles, Market recovery, Automobile Power, Strategic Emerging Industries.

1. The Development and Prospect of New Energy Vehicle Market

The rapid expansion of the car industry is owing to the quick development of the economy, as well as the unavoidable effect of a rise in automobile consumption as a result of the faster pace of life and improved quality of life. Traditional fuel cars, on the other hand, will inevitably cause environmental issues and energy inconsistencies. The transition from traditional fuel vehicles to environmentally friendly new energy vehicles is necessary and inevitable from the standpoint of environmental protection, but the government must intervene and stimulate through relevant policies and measures in the early stages to encourage consumers to choose environmentally friendly products such as new energy vehicles. Customer behavior and market demand are influenced by a variety of factors, including consumer preferences, financial restrictions, consumer choice, and so on; at the same time, market demand for new energy vehicles is socially connected. The more individuals who use it, the more the product's worth may be represented, and customers' purchasing selections become easier.

Consumer acceptance is intimately tied to market demand and market penetration of new energy vehicles. An essential reason why large-scale adoption of new energy cars is difficult to achieve is because the adoption of new energy vehicles is highly dependent on the approval of private consumers, as evidenced by the current promotion impact of new energy vehicles. Consumers' purchase intentions, in addition to vehicle characteristics and policy incentives, have a direct impact on market demand and industrial development of new energy vehicles, though consumer willingness to use new energy vehicles is currently low; as a new type of automobile product, new energy vehicles are technologically distinct from traditional fuel vehicles. At the same time, the individual differences of consumers also have a great impact on the acceptance of new energy vehicles.

2. Study on Influencing Factors of Purchase Intention of New Energy Vehicles

Jing Li & Shiyu Li (2013) evaluated the survey data of 1080 drivers in the United States, studied the factors that affect potential car buyers to consider plug-in electric vehicles and pure electric vehicles, and found that respondents pay more attention to the economic benefits of products, and no mileage focus is the main factor affecting potential new energy vehicle buyers. Lei Li (2018) & Rui Li (2016) believe that income level and environmental awareness are positive factors of purchase intention.

The results of a questionnaire survey of 299 students in Nanjing driving school show that whether consumers choose electric vehicles is not affected by income; Xiaoli Cui & Suxiu Li (2017) drew similar conclusions from a similar survey in the United States, believing that income is not an important factor in consumers' acceptance and purchase intention of new energy vehicles; Wang Z. (2016) found in the survey on the acceptance of new energy vehicles among Norwegian people that income is not a prominent indicator affecting consumers' purchase intention compared with gender, age, and education.

2.1. Impact of Industrial Policy on the Market Demand for New Energy Vehicles

The transportation industry is the basic industry of contemporary society and plays an important role in world economic growth. To realize the plan to accelerate the development of new energy vehicles, governments of various countries have issued various incentive policies, such as subsidies, tax exemption, and traffic supervision policies, so as to promote people to travel with new energy vehicles, and hope to popularize the use of new energy vehicles and establish a sustainable transportation system. Thanks to the joint efforts of governments and industry, the global ownership of new energy vehicles have developed rapidly in recent years. According to the data on EV volumes, by the end of 2018, the global ownership of new energy vehicles had

reached 5.4 million, an increase of 64% over 2017; In 2018, the global market penetration of new energy light vehicles reached 2.2%, of which the penetration of new energy vehicles reached 3.8% in December. 69% of the sales of new energy vehicles came from pure electric vehicles (BEVs) and 31% from plug-in hybrid vehicles (PHEVs). Due to the impact of water restrictions, the sales of plug-in electric vehicles decreased, and the market share of pure electric vehicles in Europe increased to 65%. In the three years from 2015 to 2017, The share of pure electric vehicles in Europe is about 50%. The rapid development of global new energy vehicles in the early stage is inseparable from the pull of industrial policies.

2.2. Influence of Product Competitiveness on Market Demand for New Energy Vehicles

Academic circles have also conducted a lot of research on the competitiveness of the Chinese traditional automobile industry and the competitiveness of products. Zhan Jinhua and Lin Jihong (2015) comprehensively evaluated the international competitiveness of the Chinese automobile industry based on its characteristics of the automobile industry. Their research found that the current relevant scientific and technological investment and supporting facilities are insufficient, and the automobile parts industry lacks core power, It is pointed out that the competitiveness should be improved by participating in the international specialization division of labor or the support of domestic policies; Cao Yueheng (2018) believed that measures such as forming R & D strategic alliance, establishing brand image, strengthening the construction of laws and regulations, improving infrastructure and developing auto finance and its derivative services can help improve China's auto international competitiveness

2.3. Impact of Infrastructure on the Market Demand for New Energy Vehicle

Improved infrastructure construction is favourable to increased sales of new energy cars as well as encouraging and promoting consumers to utilize them. Consumers' mileage anxiety can be alleviated with high-density charging infrastructure. The creation of special infrastructure can attract more consumers to purchase new energy vehicles in order to boost driving mileage; the number, location, and kind of charging stations must all be matched in order to increase charging equipment availability. To optimize the benefits of infrastructure development, Vassileva I and Campillo J (2017) argue that the building of charging infrastructure for new energy vehicles must be carefully examined. By analyzing the existing charging locations and charging periods of new energy vehicles in a day, it will play an important role in preparing for the penetration of a large number of new energy vehicle markets.

3. China's New Energy Vehicle Industry's Development Tendencies

The number of new energy cars sold in China increased from 2011 to 2019. According to the national strategy, China's new energy vehicle industry will focus on pure electric vehicles and create three types of new energy vehicles: pure electric, plug-in hybrid, and fuel cell. The sales volume of new energy cars has also been dominated by pure electric vehicles from 2011 to 2019, and the sales volume of pure

electric vehicles has expanded significantly, whereas fuel cell vehicles just entered the statistical range in 2018. When it comes to the use of new energy vehicles, they are primarily used for passenger cars.

4. Four Difficulties in the Development of the New Energy Vehicle Industry

4.1. Increasing Competition That the Industry Is Facing

The sales volume of independent brand new energy vehicle enterprises has dropped substantially since the second half of 2019, while multinational vehicle enterprises have begun to join the Chinese market on a large scale.

In May 2020, Volkswagen of Germany purchased 50 percent of JAC's shares after Tesla of the United States established a plant in China and put it into operation; in July, Daimler announced the formation of a strategic partnership with Funeng Technology and held about 3% of Funeng Technology's shares; and in the same month, Honda and Ningde Times signed an all-round strategic cooperation agreement on the power battery of new energy vehicles. According to statistics from the China Automobile Industry Association, China's new energy vehicle market share decreased to 40.7 percent in 2020, down 10.3 percent from the previous year. Domestic independent brand new energy vehicle market share climbed to 100% in 2017 from 98% in 2016.

It fell to 66 percent in June 2020, a 33 percent decrease in less than four years. More foreign-funded companies are expected to enter the local new energy vehicle sector in the future. Independent brand car businesses will confront a number of obstacles, including foreign-funded new energy vehicles, traditional fuel vehicles, and falling subsidies, as well as increased external competitive pressure.

4.2. The Risk of Interruption of the Industrial Chain

Although China has led the world in new energy vehicle production and sales for many years, there is still a significant technology gap between China and developed countries, and many key technologies need to be broken through. To begin with, the overall competitiveness of new energy vehicle businesses is low. Basic research skills, such as basic materials, production equipment, and technology, are still lacking in local businesses. The "small scattered" phenomena in the sector has existed for a long time, and the entire industry is located at the middle and low ends of the global value chain. Second, China's new energy vehicle industry's supply chain is still at risk of being disrupted. The fields of advanced driving assistance systems (ADAS), advanced sensors, intelligent driving chips, and insulated gate bipolar transistors (IGBT), the core components of electronic control, are monopolized by foreign countries and highly dependent on imports; The upstream micro control unit (MCU), driving chip, thin-film capacitor and other core parts of the electronic control industry is also highly dependent on imports. In terms of fuel cells, the world's top three fuel cell enterprises are mainly concentrated in Japan, the United States, and Germany, while China still relies on imports of key fuel cell raw materials such as carbon paper and catalyst. Affected by the covid-19 pneumonia outbreak and reverse globalization, China's new

energy vehicle industry chain will continue to be at a high risk in the long run.

4.3. Policy Is Difficult to Meet the Needs of New Development

Despite the fact that China has issued a series of new energy vehicle policies in recent years, given the changing industrial development environment and situation at home and abroad, policies such as "double qualification" access to vehicle manufacturing and the state's payment of value-added tax for new energy vehicles still need to be further optimized and improved in terms of promotion fees and adapting to the new needs of new models. First and foremost, present policies are incapable of properly adapting to the new industrial development model and needs. The "OEM manufacturing" mode chosen by some growing new energy vehicle firms, for example, faces access management challenges, while the promotion of "vehicle electricity separation" modes such as new energy vehicles faces similar challenges such as inconsistent standards and uncertain safety ownership.

Secondly, the policy to promote the consumption of new energy vehicles is gradually reduced, which harms the market to a certain extent. For example, the liberalization of "purchase restrictions" in various regions makes potential consumers of new energy vehicles turn to traditional fuel vehicles, which is not conducive to the expansion of new energy vehicle market space; Since 2020, the subsidy for new energy vehicles sold will be subject to a 13% value-added tax policy, which will reduce the actual subsidy for products and affect the consumption of new energy vehicles. Finally, the medium and long-term policies to support industrial development need to be refined and implemented. In particular, the fuel consumption objectives should be refined and further clarified, and specific policies and measures such as subsidies, finance, transportation, and taxation should be issued in support so that enterprises can formulate strategic planning and product layout in advance.

4.4. Poor Consumption and Usage Environment

To begin with, local protectionism is incompatible with a widespread promotion of alternative fuel cars. For example, in Beijing, where BAIC new energy (which primarily produces pure electric vehicles) is the primary venue, pure electric vehicles are almost entirely promoted, whereas in Shanghai, where SAIC Group (which primarily produces plug-in hybrid vehicles) is the primary venue, plug-in hybrid vehicles are almost entirely promoted. According to relevant institution figures, Beijing's market share of pure electric new energy vehicles is as high as 98 percent, while Shanghai's market share of plug-in hybrid new energy vehicles is around 74 percent. Furthermore, some localities continue to take steps such as local filing, establishing local businesses, acquiring local parts and components, and receiving government subsidies, which will protect local enterprises explicitly or implicitly and hinder fair competition in the market.

Secondly, the charging infrastructure of new energy vehicles is not perfect. By the end of 2020, the number of new energy vehicles in China is about 4.92 million, and there are about 1.5 million charging piles, which is equivalent to one charging pile for every 3.3 new energy vehicles. There is still a large gap in the number of charging piles, and the

construction problem of private charging piles has not been fundamentally solved. In addition, the problems of low utilization rate, unreasonable distribution, poor security, and hardware compatibility of charging piles also reduce consumers' purchase intention to a certain extent.

5. Policy Orientation Towards Purchasing New Energy Vehicles

5.1. Strengthen Consumers' Awareness of Environmental Protection

Consumers' cognition of environmental protection awareness, industrial policy understanding, and attitude toward products have a positive and significant effect, that is, on personal consumption, according to the empirical results, whether consumers' long-term car purchase intention or short-term car purchase intention. The higher environmental awareness, policy familiarity, the more optimistic the prospect of new energy vehicles, the stronger the willingness to buy new energy vehicles, and the easier it is to accept and choose to buy new energy vehicles, the easier it is to accept and choose to buy new energy vehicles. As a result of the favorable influence of consumers' cognition on industry development, the government can intentionally increase consumers' individual cognition status and promote the promotion effect of new energy vehicles.

5.2. Improve the Environmental Protection Awareness

The government should play a leading role in citizens' awareness of environmental protection and guide the public to enhance environmental protection awareness. Encourage the public to participate in environmental protection activities or join environmental protection organizations, promote green consumption, and advocate low-carbon travel; combined with quality education. Cultivating and instilling an awareness of green environmental protection in different stages of the people from childhood, using scientific and modern education methods to educate people of all ages on environmental protection, and establishing a comprehensive education system to urge the masses and consumers to understand the impact of human activities on the environment and resources. The public has basic environmental protection knowledge and positive and correct values and establishes a scientific environmental protection concept and resource management awareness. Focusing on the goal of building a resource-saving society, make citizens' qualities and behaviors compatible with an environment-friendly economic society. In addition, the government should further improve the laws and regulations on environmental protection and increase the public's attention to environmental protection.

5.3. Increase the Propaganda of the Media

As an effective tool and means of information transmission and information exchange, the media has played a very important role in human life. Therefore, media propaganda has an obvious impact on people's ideas. Such media are showing a diversified trend. The in-depth application of TV, newspapers, mobile phones, and various mobile phone software, various media, and information platforms have become an indispensable part of people's lives. Through various media to promote the new energy vehicle industry Policies, as well as various information on new energy vehicle products, improve the efficiency of consumers' understanding

of new energy vehicle industry policies, improve the efficiency of product information dissemination and reception, and promote consumers to increase their attention to the new energy vehicle industry and products. Increase the willingness to purchase the product.

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