

Challenges and Future Paths for China's New Energy Vehicles under New Quality Productivity

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Abstract: As the concrete embodiment of advanced productivity, new quality productivity is the fundamental result of the breakthrough of cross integration of scientific and technological innovation, and it is the development path of productivity in which innovation plays a leading role and gets rid of the traditional mode of economic growth with high-tech, high-efficiency and high-quality features, and it is the quality of advanced productivity in line with the new development concept. As a strategic emerging industry, the rapid development of new energy vehicles requires the support and promotion of new productivity. New quality productivity is not only the key to promote industrial upgrading and enhance competitiveness, but also an important way to realize green transformation and meet the challenges of global climate change. Through continuous technological innovation, digital transformation, and green production, China's new energy automotive industry chain has shown strong vitality and competitiveness in the global market, which is of great significance in promoting the sustainable development of the global automotive industry. This paper deeply analyzes the development process, challenges and future development path of China's new energy automobile industry chain under the background of new quality productivity. By comparing the different development trends of the new energy automobile industry in recent years, it explores the uniqueness and complexity of the new energy automobile industry chain, and analyzes the current development status of the industry chain from the multi-dimensional perspective of technological innovation, policy environment, and market acceptance. Meanwhile, this paper also puts forward targeted development suggestions in light of the current international situation and domestic development environment, with a view to providing theoretical support and practical guidance for the sustainable development of China's new energy automobile industry chain.

Keywords: New quality productivity, New energy vehicles, Industrial chain, Technological innovation, Future paths.

1. Introduction

With the continuous progress of science and technology and the increasing awareness of global environmental protection, new energy vehicles, as an important development direction of the future automobile industry, are gradually becoming a key force to promote the transformation and upgrading of the automobile industry. As one of the world's largest automobile markets, the development of new energy automobile industry in China is of great significance in promoting economic restructuring and green development. Driven by the new quality productivity, the development process of China's new energy automobile industry chain is accelerating, but at the same time, it is also facing many challenges. Therefore, an in-depth study of the development status quo, challenges and future path of the new energy automobile industry chain has important theoretical and practical value for promoting the healthy development of China's new energy automobile industry.

Chen Wenlu, director researcher of Industrial Economy Research Center of Comprehensive Development Research Institute, said in an interview with the reporter: "New quality productivity is the contemporary advanced productivity spawned by revolutionary breakthroughs in technology, innovative allocation of production factors, and deep transformation and upgrading of industries. New energy automobile industry is a new industry that integrates new energy, new materials, new generation information technology, advanced manufacturing and many other new technologies as carriers, and conforms to the direction of

digitalization and green development. New energy automobile industry is an important engine for cultivating new quality productivity!" In April 2024, "high-end think tanks look at the new quality productivity in Zhejiang" special research activities, the State Council Development Research Center, deputy director, party group member Long Guoqiang said, grasp the fundamental power of the new quality productivity is derived from the subversive innovation of technology, to grasp this fundamental power, we must adhere to the use of scientific and technological innovation to promote the development of the new quality productivity. productivity development. This is an important support for the new quality productivity and the technological innovation of new energy automobile industry. At the same time, the new quality productivity has also been highly concerned by international scholars, Nepal's former Prime Minister Jala Nath Khanal said when talking about the new quality productivity that the concept of new quality productivity, reflecting China's scientific and technological innovation to promote the development of productivity in all areas of society, China's development in artificial intelligence technology, as well as breakthroughs in lithium batteries, photovoltaic batteries as a representative of the new energy technology, is a strong example of this. China's development of artificial intelligence technology and breakthroughs in new energy technologies, such as lithium batteries and photovoltaic cells, are powerful examples of this.

With the global greenhouse effect intensifying, greenhouse gas emissions, such as vehicle emissions, continuing to rise, and temperatures everywhere being significantly affected, a

global energy transition is imminent. The global energy transition is closely linked to the need for environmental protection and is centered on two core objectives: reducing dependence on fossil fuels and greenhouse gas emissions, and promoting environmental sustainability. In terms of the popularization and promotion of clean energy, solar and wind power, as one of the most cost-effective renewable energy sources, have seen their costs reduced significantly as a result of technological advances and economies of scale, and their global installed capacity has continued to increase. And nuclear energy, as a low-carbon energy source, especially the development of fourth-generation nuclear reactor technology, is also seen as an option to reduce carbon emissions. At the same time, energy efficiency, including smart grids, has been greatly improved; the global electrification of automobiles is advancing rapidly, with policy support and advances in battery technology lowering costs to drive up penetration; and the electrification of public transportation and the emergence of bike-sharing are providing greater help in reducing carbon footprints. Against the backdrop of increased public awareness of environmental protection and deepening knowledge of climate change, more and more members of the public are opting for new energy vehicles, which use energy sources such as electricity, hydrogen, and solar energy, with a diversified energy structure that reduces dependence on a single oil source, and is more stable in terms of energy security and strategy compared to traditional fuel vehicles.

New quality productivity has far-reaching practical significance for the development of new energy automobile industry chain. First of all, the new quality productivity promotes the technological innovation of new energy automobile industry chain, such as the breakthrough of battery technology, electric motor and electronic control system, intelligent network technology, promotes the industry chain to transfer to high value-added links, and enhances the overall technological level and competitiveness of the industry; the breakthrough of the technological level at the same time enhances the digital transformation and efficiency, especially in the new energy automobile digitalization, the application of intelligent production methods, such as smart manufacturing, supply chain management optimization, big data analysis, significantly improve production efficiency, reduce costs, enhance market responsiveness, and promote industry chain refinement management, which further ensures the security of the new energy automobile supply chain, digital supply chain management to enhance the transparency of information, optimize resource allocation, and reduce the risk of the external environment, such as fluctuations in the price of raw materials, international trade uncertainty, and so on.

From the national and international perspectives, new quality productivity drives policy innovation, such as intelligent transportation policies and data security regulations, creating a favorable policy environment for the new energy vehicle industry chain while promoting the harmonious coexistence of the industry and the environment. New energy vehicle products created through a series of technological innovations, integrating intelligent and personalized features, coupled with excellent services, will attract global consumers, adopt new modes such as digital marketing and cross-border e-commerce to develop the international market, and promote the global layout of the new energy vehicle industry chain. Most importantly, the new quality productivity advocates a green production model,

reduces carbon emissions and improves energy efficiency, which is in line with the global sustainable development goals, helping the new energy automotive industry chain realize green transformation and respond to the carbon neutral strategy.

In summary, the new quality productivity injects vitality into the sustainable development of the industry chain, accelerates the high-quality development of the new energy automobile industry, and helps to realize the green transformation of the global economy and the goal of sustainable development.

2. Positive Impact of New Quality Productivity on New Energy Vehicle Industry

The new quality productivity, as the advanced productivity form in which innovation plays a leading role, is characterized by high technology, high efficiency and high quality, which is in line with the requirements of the new development concept. As a concrete embodiment of the new quality productivity, the development of new energy automobile industry not only represents the breakthrough of scientific and technological innovation, but also the optimization and upgrading of the structure of traditional automobile industry. With its unique technological advantages and efficient production methods, the new quality productivity has injected new vitality into the development of new energy automobile industry and provided strong support for its future development.

First of all, the new quality productivity provides a more efficient production method for the new energy automobile industry. Traditional new energy vehicle production methods mainly rely on manual and mechanical operations, with relatively low production efficiency. The application of new quality productivity, such as artificial intelligence, big data, Internet of Things and other technologies, makes the production process of new energy vehicles more intelligent and automated, greatly improving production efficiency. For example, through big data analysis, companies can better understand market demand, optimize product design and production processes, and improve product quality and competitiveness.

Secondly, the new quality productivity provides a broader market space for the new energy automobile industry. With the improvement of environmental awareness and the promotion of policies, the market for new energy vehicles is expanding rapidly. The development of new quality productivity makes the research and development, production and sales of new energy vehicles more convenient, shortens the marketing cycle and expands the market scale. In addition, new quality productivity can help enterprises better expand overseas markets and improve international competitiveness.

Finally, the new quality productivity has an important leading role in the future development of the new energy automobile industry. The development of new quality productivity will bring new technologies, new products and new business models, which will provide a strong impetus for the future development of the new energy automobile industry. For example, with the development of driverless technology, future new energy vehicles will be more intelligent, which can not only improve driving safety, but also provide more services, such as shared travel and unmanned delivery.

The impact of new quality productivity on the new energy automobile industry is far-reaching. It not only improves

productivity and expands market size, but also provides a strong lead for future development. However, new opportunities are often accompanied by new problems. How to adapt to and make full use of the changes brought by the new quality productivity, as well as to cultivate corresponding talents, will be an important task for the future development of new energy automobile industry. Whether the new energy automobile industry can realize greater development under the impetus of the new quality productivity, and make greater contribution to the environmental protection cause and economic development, the whole world will wait and see.

3. Challenges to the Development of New Energy Vehicle Industry Chain

With the global emphasis on environmental protection and energy security, the new energy vehicle industry, as an important part of the new quality productivity, is experiencing unprecedented rapid development. However, the rapid expansion of this industry is not without challenges, and the development of its industrial chain is facing severe tests in many aspects. In the following, we will discuss the challenges facing the development of new energy vehicle industry chain from the perspectives of technology, market, policy, industry chain synergy and international cooperation.

3.1. Policy Challenges

Environmental protection policies are difficult to implement. As a clean energy vehicle, new energy vehicles have been emphasized and supported by governments. However, the implementation of environmental policies requires more coordination and supervision to ensure the healthy development of the new energy vehicle industry. When the government formulates and implements environmental policies, it needs to give full consideration to the actual situation and development needs of the industry, and avoid excessive policy intervention or lagging behind the development of the industry.

Incomplete technical standardization and certification system. The technical standardization and certification system of the new energy vehicle industry is a key issue in the development process. The formulation and management of technical standards are of great significance in promoting technological innovation, improving product quality and reducing costs. However, at present, the technical standardization and certification system of new energy automobile industry is still imperfect, which requires the government and industry organizations to strengthen the formulation and management of standards in order to promote the healthy development of new energy automobile industry.

3.2. Insufficient Technological Innovation Constrains Industrial Upgrading

Battery technology bottleneck. One of the core technologies of new energy vehicles is battery technology, while the current lithium-ion battery is mainstream, but its energy density and range is still difficult to meet market demand. Improve the energy density and safety of the battery, reduce charging time, is the new energy vehicle industry urgently need to solve the technical problems. In addition, solid-state batteries and other new battery technology research and development and application is still in the early stages, from the large-scale commercialization of the application is still a large distance.

Insufficient charging infrastructure. The construction and popularization of charging facilities is key to the development of the new energy vehicle industry. However, charging facilities are still insufficient globally, especially in remote areas and highway service areas and other areas, the construction of charging equipment is lagging behind, which seriously affects the long-distance driving experience of new energy vehicles. In addition, the relatively long charging time is also a major pain point, which requires accelerating the development of charging technology and improving the convenience and intelligence of charging facilities.

Telematics technology security and privacy protection needs to be improved. With the development of intelligentization and Internet technology, Telematics technology has become an important part of the new energy automobile industry. However, connected car technology also faces problems such as security and privacy protection. Communication and data sharing between vehicles need to ensure the security and privacy of information and prevent data leakage and hacker attacks. Therefore, strengthening the R&D and management of Telematics technology and improving the security and stability of the system are technical challenges that the new energy vehicle industry must face.

3.3. Intense Market Competition Intensifies the Pressure of Enterprise Survival

Competition is one of the key factors to promote the development of the industry. At present, China's new energy vehicle market is highly competitive, and enterprises need to occupy a place in the market. However, the intensification of market competition has also brought many challenges to enterprises.

First, from the perspective of consumers, the price of new energy vehicles is still relatively high compared to traditional fuel vehicles, which makes there is a certain threshold for consumers to buy. Although the state has introduced incentives such as car purchase subsidies, the influence of these policies on consumers' willingness to buy is still limited. The new energy vehicle industry needs to reduce costs and improve price competitiveness to attract more consumers.

Secondly, there is a high degree of market uncertainty. The market demand for new energy vehicles is affected by a variety of factors, including policy support, oil price fluctuations and consumer habits. The strength and continuity of policy support, the rise and fall of oil prices, and consumers' cognition and acceptance of new energy vehicles will all affect market demand. Moreover, the current international trade environment is complicated and volatile, and trade protectionism is on the rise, which brings uncertainty to the international cooperation of new energy automobile industry. China's new energy automobile industry needs to pay close attention to the changes in the international trade situation and market dynamics, strengthen communication and coordination with the international market, actively respond to trade barriers and trade frictions, and flexibly adjust market strategies to cope with fluctuations in market demand.

Finally, there are numerous brands and fierce competition in the new energy vehicle industry, and with the rapid development of the new energy vehicle industry on a global scale, the competition in the international market is becoming increasingly fierce. Internationally renowned automobile manufacturers have invested heavily in the field of new

energy vehicles and actively seized market share. This requires China's new energy automobile industry to strengthen international cooperation, learn from international advanced experience and technology, strengthen brand building and product innovation, and improve market competitiveness in order to stand out in the fierce market competition.

3.4. Environmental Challenges

The environmental pollution problem is one of the important factors for the development of new energy automobile industry. At present, China is facing problems such as environmental pollution and resource shortage, and the development of new energy automobile industry is one of the important ways to solve these problems. However, the rapid development of new energy vehicle industry also brings a series of environmental problems, such as environmental pollution caused by improper disposal of waste batteries. How to balance the relationship between industrial development and environmental protection is one of the important challenges facing the new energy automobile industry at present.

3.5. Talent Challenge

Talent is one of the key factors for enterprise development. At present, China's new energy automobile industry still has many deficiencies in talent training. On the one hand, enterprises need to cultivate a group of technical talents and management talents with innovation ability and practical experience; on the other hand, enterprises also need to strengthen cooperation with universities and research institutions to jointly cultivate talents required by the new energy automobile industry. However, the current talent reserve and training mechanism of China's new energy automobile industry is not perfect, which brings challenges to the sustainable development of enterprises.

3.6. Insufficient Industry Chain Synergy Affects Overall Development

The new energy automobile industry involves a number of fields and links, and requires mutual cooperation between upstream and downstream enterprises in the industry chain, and challenges arise.

First, some parts of the industry chain have entered a period of contraction. Certain parts of the new energy vehicle industry chain, such as battery enterprises and the automotive chip industry, are now facing a period of investment contraction. Tail enterprises are facing financing pressure, and vehicle production capacity has entered the adjustment stage. This requires upstream and downstream enterprises in the industry chain to strengthen synergistic cooperation and jointly respond to market changes and challenges.

Second, the industry chain integration is difficult. The new energy vehicle industry chain involves a number of fields and links, including batteries, motors, electronic control systems, charging facilities and so on. The integration between these fields and links is difficult, requiring upstream and downstream enterprises in the industry chain to strengthen communication and collaboration to form a close cooperative relationship. However, in practice, due to the different interests of enterprises, industry chain integration often faces many difficulties and challenges.

At present, the degree of synergy in China's new energy vehicle industry chain is not high enough, and the connection

between upstream and downstream enterprises is not close enough, leading to problems such as waste of resources and inefficiency. At the same time, the existence of short boards or bottlenecks in some parts of the industry chain also restricts the development of the overall industry.

To summarize, the challenges facing China's new energy automobile industry under the new quality productivity include policy, technology, market, environment and other aspects. Enterprises need to strengthen their own strength and innovation ability, and improve their core competitiveness in order to cope with these challenges and seize the opportunity to realize sustainable development.

4. China's New Energy Vehicle Future Development Path

4.1. Talent Challenge

The government should continue to play a guiding role in the development of new energy automobile industry by making full use of the relevant policies of new quality productivity, formulating a stable, continuous and predictable policy system, and reducing the uncertainty brought by policy adjustments. At the same time, strengthen market supervision, regulate market order, combat unfair competition, and create a fair competitive market environment for enterprises.

4.1.1. Strengthen Policy Guidance and Regulation to Stabilize Market Expectations

The government needs to strengthen policy intelligence and precise implementation efforts, establish a new energy automobile industry big data platform, collect and analyze upstream and downstream data of the industrial chain, including market demand, technological progress, and enterprise operation status, etc., so as to provide a scientific basis for policy formulation. Through intelligent algorithms to predict the development trend of the industry, to realize the accurate formulation and dynamic adjustment of policies, to reduce the blindness and lag of policy intervention; to innovate the existing policies, etc., and to design data-based incentive mechanisms, such as tax exemption, subsidies or preferential purchasing rights based on the results of enterprise technological innovation, energy-saving and emission reduction, etc., to incentivize enterprises to respond positively to environmental protection policies, and to promote the transformation and upgrading of the industry.

4.1.2. Improving Technology Standardization and Certification Systems

Promote international cooperation, strengthen cooperation with international standardization organizations, participate in or lead the formulation of international standards in the field of new energy vehicles, and enhance China's right to speak in the international market. At the same time, drawing on advanced international experience, accelerate the updating and improvement of domestic technical standards and establish a unified certification platform. Utilizing blockchain technology to establish a transparent and tamper-proof certification system ensures that every aspect of new energy vehicle products, from research and development to production and sales, complies with the established standards. This will not only enhance consumer trust in the products, but also promote mutual recognition in domestic and international markets and reduce international trade barriers.

4.1.3. Cultivating New Businesses and Models

Addressing policy challenges through new business

models and new modes, the Government can make full use of the current sharing economy model and green financial services. Encourage the combination of new energy vehicles and the sharing economy, and develop new service modes such as time-sharing leasing of new energy vehicles and online car rental, so as to improve the efficiency of vehicle utilization and reduce the demand for private car purchases, thereby easing environmental protection pressure. Guide financial institutions to innovate green financial products, such as special loans for new energy vehicles and green bonds, to provide low-cost financing support for enterprises in the upstream and downstream of the new energy vehicle industry chain and accelerate industrial upgrading and technological innovation.

4.2. Increase Investment in Technological Innovation and Enhance Industrial Core Competitiveness

4.2.1. Increase Investment in Scientific and Technological R & D And Innovation

New quality productivity emphasizes the leading role of innovation in productivity development. Therefore, new energy automobile industry should increase investment in scientific and technological innovation, strengthen key technology research and development and achievement transformation, break through the technical bottlenecks in the field of batteries, motors, electronic control, etc.; at the same time, strengthen the cooperation with universities and scientific research institutes, build the integration of production, learning and research of the innovation system, and improve the industry's innovation ability and core competitiveness; the government can also support the enterprise's technological innovation through the establishment of a special fund, tax incentives and other means. The government can also support the technological innovation of enterprises by setting up special funds and tax incentives, etc.; promote international cooperation, and organize international new energy automobile technology forums, seminars and other activities to promote technological exchanges and resource sharing.

4.2.2. Improvement of Basic Charging Facilities

In dealing with the shortage of charging infrastructure, the government should increase its investment in charging infrastructure construction, especially the construction of charging piles in public areas and major transportation routes, and encourage social capital to participate in the construction and operation of charging infrastructure to form a diversified investment model. Rationally plan the layout of charging facilities according to the popularity of new energy vehicles and user demand. Utilize advanced technologies such as Internet of Things and big data to improve the operational efficiency and management level of charging facilities.

4.2.3. Enhancement of Telematics System Security and Stability

For the large amount of sensitive data in the Telematics system, it is necessary to strengthen the research and application of data encryption, access control, and privacy protection technologies to ensure the security of data transmission and storage; establish a multi-layered defense mechanism, including firewalls, Intrusion Detection and Prevention Systems (IDS/IPS), and security audits, to detect and respond to potential threats in a timely manner; and ensure the authenticity and legitimacy of the vehicles,

infrastructure, and user identities, preventing unauthorized access and operation. Advanced technologies such as digital certificates and biometrics are used to improve the accuracy and reliability of identity verification.

To address the stability of the IoT system, a highly available and fault-tolerant system architecture is designed to ensure that the system can still operate normally or recover quickly in the event of a partial component failure. At the same time, the network topology is optimized to reduce communication delays and packet loss rates; regular software and firmware updates are released to fix known vulnerabilities and defects, and improve system performance and stability. Establish an efficient update mechanism to ensure that vehicles can obtain the latest security patches and functional upgrades in a timely manner; use big data analysis and artificial intelligence technology to conduct real-time monitoring and prediction of vehicle operating status, identify and resolve potential failures in advance, and reduce parking time and maintenance costs due to system malfunctions; push forward the standardization process of Telematics technology, and ensure that vehicles and infrastructure of different brands and models can seamlessly interconnect and interoperate with each other. It also promotes the standardization process of Telematics technology, ensures seamless interconnection and interoperability between different brands and models of vehicles and infrastructure, and improves the stability and compatibility of the overall system.

To summarize, strengthening the R&D and management of Telematics technology and improving the safety and stability of the system are the keys to the sustainable and healthy development of the new energy vehicle industry. This requires the joint efforts of the government, enterprises, research institutions and other parties to strengthen cooperation and communication and to jointly meet the technical challenges.

4.3. Expand Domestic and International Markets and Enhance Brand Influence

4.3.1. Control Production Costs and Improve the Supply Chain System

Scale production of new energy vehicles, through the expansion of production scale, reduce the production cost per unit of product and improve price competitiveness. Optimize the production process, improve production efficiency and reduce waste. At the same time, enterprises should also strengthen cooperation with suppliers, establish a stable supply chain system, ensure a stable supply of raw materials and components, and optimize inventory management to reduce inventory costs.

4.3.2. Expand Domestic and International Markets and Strengthen Brand Building

In the domestic market, we will make use of differentiated competition strategies to meet the needs of different consumers by optimizing the product structure, improving product quality and service level, etc. In the international market, we will actively participate in the international competition and cooperation, explore the international market, especially in Europe, Latin America and other regions where the penetration rate of new-energy vehicles is relatively low but the potential is huge, and push forward the export of products and the export of technology. Through the provision of cost-effective products and services, enhance the visibility and reputation of China's new energy vehicles in the international market. The government can also support enterprises to expand their markets by organizing

international exhibitions and strengthening international cooperation.

Enterprises should also strengthen brand building and product innovation to attract more consumers and enhance brand influence and market competitiveness. By building core technologies and products with independent intellectual property rights, the brand image and competitive advantages of China's new energy automobile industry will be established. Enterprises need to continuously launch competitive products to meet consumer demand for new energy vehicles in terms of performance, price, service and other aspects. In addition, enterprises need to strengthen marketing and channel construction to increase sales efficiency and market share.

New quality productivity emphasizes the modernization and marketization of productivity. In order to stabilize the market demand for new-energy vehicles, market applications should be expanded to promote the widespread use of new-energy vehicles in public transportation, cabs, logistics and transport. At the same time, the publicity and promotion of new energy vehicles should be strengthened to increase public awareness and acceptance of new energy vehicles and modernize the development of new energy vehicles. In addition, the stable development of the new energy vehicle market can be promoted through a combination of policy guidance and market mechanisms.

4.3.3. Taking Advantage of Favorable Policies

The emergence of new quality productivity, so that the development of new energy automobile industry further enhancement, based on a certain amount of research and development costs and technology needs, new energy vehicles are also relatively high prices, dissuade a lot of consumers, in order to enhance the market competitiveness of new energy automobile enterprises, enterprises in the production and sale of new energy automobiles should make full use of the national and local government subsidies for the purchase of cars, tax incentives and other incentives to reduce the cost of consumer purchases, enhance the Market demand, to attract more consumers to buy.

4.4. Guiding the Participation of The Entire Population to Find "New Outlets" For Waste Batteries

4.4.1. Recovery and Recycling of Used Batteries

In order to solve the problem of environmental pollution by used batteries in new energy vehicles, i.e., to find a reasonable place for used batteries, it is necessary to establish a sound recycling network for used batteries, including the establishment of recycling stations, cooperation with dealers in recycling, and encouraging consumers to participate in recycling, etc., so as to ensure that used batteries can be recycled in a timely and effective manner. Secondly, it is necessary for enterprises and others to upgrade recycling technologies, develop efficient and low-cost technologies for dismantling and reusing used batteries, and improve the recovery rate and purity of valuable metals in used batteries. Through advanced separation, purification and remanufacturing technologies, waste batteries are transformed into new battery materials or other high value-added products. Establish a recycling industry chain for used batteries and promote cooperation and win-win situation between upstream and downstream enterprises. Promote the scale and professional development of the waste battery recycling industry through resource sharing, technology

exchange and market development.

4.4.2. Public Education and Participation

Publicize and educate consumers and every citizen, and strengthen the publicity and education on the knowledge of environmental protection of new energy vehicles through a variety of channels and methods. Improve the public's knowledge and understanding of the environmental performance of new energy vehicles, and enhance the public's environmental awareness and sense of responsibility. And encourage consumers to choose new energy vehicle products with good environmental performance, and advocate a green way of traveling. Promote the popularization and application of new energy vehicles in the market through policy guidance and the role of market mechanisms.

Establish a public participation mechanism to encourage the public to actively participate in the environmental protection work of the new energy automobile industry. Through the establishment of a reporting reward system and the development of environmental public welfare activities, the public's enthusiasm and enthusiasm for participation will be stimulated. Strengthen communication and interaction with the public, and respond to public concerns and demands in a timely manner. Continuously improve the ideas and measures for environmental protection of new energy automobile industry by listening to public opinions and suggestions.

4.4.3. Improvement of the Relevant Policy System

The government needs to formulate and improve environmental protection regulations and policies related to the new energy automobile industry, and clarify the relationship of rights and responsibilities between industrial development and environmental protection. Through legislative means, formulate standards and policies for recycling used batteries, clarify the main body of recycling responsibility, recycling process, recycling price and other key elements, regulate and constrain the environmental behavior of the whole life cycle of new energy automobile production, use, recycling, etc., and promote the standardized development of the recycling market of used batteries; establish and improve environmental protection supervision system of the new energy automobile industry, and strengthen the supervision and inspection on the enterprise's production, emission, and recycling links. Supervision and inspection. Through regular spot checks, online monitoring and information disclosure, we ensure that enterprises comply with environmental regulations and policy requirements.

Appropriate incentive policies have been introduced to enhance the environmental protection initiative of enterprises, encouraging them to increase environmental protection investment, research and develop green technologies and improve the environmental performance of their products. For example, new energy vehicles that use environmentally friendly materials and energy-saving technologies are given preferential policies such as tax breaks and subsidies. Finally, there are rewards and penalties to increase penalties for violations, and enterprises that violate environmental regulations and policy requirements are severely investigated and publicly exposed. By strengthening law enforcement and deterrence, we will promote the healthy and sustainable development of the new energy automobile industry.

4.5. Improve the Talent Training System and Broaden the Talent Introduction Channels

4.5.1. Strengthening Talent Development Efforts

Adjust the education system and add new energy automobile-related specialties. Educational institutions should adjust their curricula according to the needs of industrial development, add new energy automobile engineering, intelligent automobile technology and other related specialties, and cultivate composite talents with specialized knowledge and practical abilities. At the same time, vocational education and continuing education should be strengthened to provide skills training and knowledge updating courses for incumbents to ensure that the knowledge and skills of industry talents are synchronized with the latest technology.

In addition, enterprises should strengthen cooperation with universities and research institutions. By building laboratories, joint R&D projects and internship and training bases, they can realize resource sharing and complement each other's advantages. Universities and research institutes can provide cutting-edge technical support and talent training for enterprises, while enterprises can provide universities and research institutes with practice platforms and market demand information.

4.5.2. Energizing Talent

Energize talents through incentive mechanisms. The government and enterprises can set up special reward funds, equity incentives, title evaluation and other mechanisms to recognize and reward talents who have made outstanding contributions in the field of new energy vehicles. This can not only attract more excellent talents to join the new energy automobile industry, but also stimulate the innovation power and work enthusiasm of existing talents.

4.5.3. Broadening Channels for Talent Introduction

Attract overseas high-level talents through international cooperation and talent introduction policies. New energy automobile industry is a global competition field, enterprises should actively cooperate with international enterprises to introduce advanced technology and management experience. At the same time, the government should introduce preferential policies to attract overseas high-level talents to return to their home countries to inject new vitality into the new energy automobile industry.

The government side can establish a talent pool and exchange platform for the new energy automobile industry, and promote exchanges and cooperation among talents through industry forums, seminars, technical exchanges and other forms. At the same time, the establishment of talent information base, to provide enterprises with convenient channels for talent recruitment and introduction.

4.6. Strengthen Industry Chain Synergy and Cooperation to Realize Resource Sharing and Complementary Advantages

New quality productivity requires the realization of a significant increase in total factor productivity. Enterprises upstream and downstream of the new energy automobile industry chain should promote exchanges and cooperation between enterprises upstream and downstream of the industry chain through the establishment of new energy automobile industry alliances or associations, form close industry chain partnerships, jointly formulate industry standards and technical specifications, and promote synergistic

development of the industry.

With regard to the financing pressure faced by enterprises at the tail end of the industrial chain, supply chain finance model can be introduced to provide financial support to these enterprises through accounts receivable financing, inventory financing and other means to alleviate their financial pressure, while promoting the stable operation of the industrial chain. Encourage the upstream and downstream enterprises of the industry chain to realize scale expansion and resource integration through integration and merger and acquisition to improve the overall competitiveness of the industry chain and anti-risk ability. The government can introduce relevant policies to support the development of industrial integration and M&A activities.

Establish and improve the quality standards and supervision system of the new energy vehicle industry chain, strengthen the supervision of product quality and safety performance, ensure that the products and services of each link of the industry chain meet the relevant standards and requirements, and enhance the overall image and credibility of the industry chain. Enhance the competitiveness of the whole industrial chain by optimizing resource allocation, improving production efficiency and reducing costs. At the same time, it strengthens information sharing and communication and collaboration between enterprises upstream and downstream of the industry chain, promotes technological innovation and industrial synergistic development, and focuses on breakthroughs for short boards and bottlenecks in the industry chain, so as to enhance the development level of the overall industry chain.

5. Summary

New quality productivity provides new opportunities and challenges for the development of China's new energy automobile industry. Facing the problems of policy adjustment, insufficient technological innovation, fierce market competition and insufficient industry chain synergy, China's new energy automobile industry needs to adopt corresponding strategies to cope with the challenges. By strengthening policy guidance and supervision, increasing investment in technological innovation, expanding domestic and international markets, and strengthening industry chain synergy and cooperation, China's new energy automobile industry can be promoted to develop healthily. At the same time, we call for the participation of all people to deal with environmental problems in the development of new energy automobiles through environmental protection measures such as recycling of used batteries and adhering to green development while promoting scientific and technological upgrading to make a contribution to realizing high-quality development and new quality productivity enhancement.

In the future, with the further aggravation of global climate change and environmental issues, the importance of the new energy automobile industry will become more prominent. Its development also brings many opportunities. For example, the research and development and application of battery recycling technology will give rise to a new industrial chain; smart grids, distributed energy and other areas will also usher in new development opportunities. China should continue to increase its investment and support in the field of new energy vehicles, promote industrial innovation and development, and make greater contributions to global green development and sustainable development.

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