

The Advantages and Disadvantages of Electric Vehicle Production and Its Future Prospects

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Abstract: Continued research and innovation on its technology can promote the development of the new energy vehicle industry and strengthen the rapid development of economy. China needs to import a lot of oil from abroad, posing risks of oil resources exhaustion in the future. In this context, it is particularly important to reduce dependence on oil resources and vigorously develop new energy vehicle technologies. This paper describes the development status of new energy vehicles, the advantages and disadvantages of the development of new energy vehicles. It emphasizes the development drawbacks of new energy trams and the feedback of the masses. The paper argues that, with the breakthrough of battery technology, the improvement of charging infrastructure and the popularization of intelligent networking functions, new energy vehicles are not only a means of transportation, but also an important part of intelligent travel solutions. New energy vehicles and their drive motor technologies will remain to be the main path toward the green revolution in the field of transportation and contribute to the construction of a low-carbon and environmentally friendly society.

Keywords: Electric cars, advantages, disadvantages, technology.

1. Introduction

To protect the environment and conserve resources, automobile enterprises should strengthen the research of new energy vehicle technology. Compared to cars driven by traditional internal combustion engines, new energy vehicles offer significant advantages, including reduced emissions, environmental sustainability, and lower noise pollution. Although the current development of new energy vehicles faces some challenges, such as infrastructure limitations and high production costs, the sector holds tremendous potential. Continued research and innovation on its technology can promote the development of the new energy vehicle industry and strengthen the rapid development of economy.

China, with its relatively limited oil resources, needs to import a lot of oil from abroad, posing risks of oil resources exhaustion in the future. In addition, with the gradual reduction of global oil resources, the global energy crisis is becoming more and more serious. In this context, it is particularly important to reduce dependence on oil resources and vigorously develop new energy vehicle technologies. This shift will not only help to adjust the energy structure of China, but also promote the sustainable development of its economy.

Electric vehicles produce zero tailpipe emissions, which means they do not emit any harmful exhaust gases or soot in densely populated areas. Likewise, with cleaner electricity sources becoming

a larger part of the power grid, modern electric vehicles contribute minimally to air pollution. In contrast, the exhaust emissions from vehicles with internal combustion engines are significant sources of CO₂ emissions that contribute to global climate change and air pollutants that harm people's health at a local level. Air pollution is often described as a public health emergency, with urban air pollution for many UK towns and cities exceeding safe pollution limits. Road transport is the primary contributor of harmful gases and particulate matter. Thus, transitioning to electrified transportation is a critical step in mitigating these impacts and improving air quality for urban populations.

2. Advantages of Electric Vehicles

Taking the new energy vehicle industry as an example, experts widely believe that the automotive industry needs to integrate a variety of transformative technologies. This includes advancements in the "three power" system of batteries, motors, electronic controls, as well as "dual intelligence" technologies such as intelligent driving and smart cabins. Additionally, optimizing charging infrastructure to achieve integration and innovation, improving production processes, reducing costs, and enhancing the competitiveness and profitability of the industry are essential goals [1].

New energy vehicles can bring more convenience to daily life, and the cost of charging is much lower than refueling expenses. Moreover, new energy vehicles can positively impact air quality. For example, in China, fuel-powered vehicles are often subjected to daily traffic restrictions to mitigate serious air pollution. New energy vehicles, free from such restrictions, offer a practical solution to these challenges. Furthermore, new energy vehicles have many technologies that fuel vehicles cannot reach, such as automatic parking, intelligent voice system, 360-degree rotation capabilities. As new energy vehicles do not rely on engines, their prices can also be more competitive than those of fuel-powered cars.

China's new energy automobile industry should enhance its global management capabilities to expand internationally. For automobile enterprises, they should adopt a multi-pronged approach through international trade, cross-border mergers and acquisitions, greenfield investment, authorized operation. By learning from their international ventures, companies can constantly enhance their international management capabilities and industrial chain integration capabilities, and realize the global operation of supply chain, human resources, and marketing network [2].

There are also some small and medium-sized enterprises in the cooperation network, which usually play a passive role in the cooperation, but they also have a certain ability of technological innovation and market expansion and can obtain more resources and technical support through cooperation with leading enterprises. Therefore, by analyzing the position and role of enterprises in the cooperation network, we can better understand the strategic and resource advantages of enterprises and help enterprises to make more scientific and effective strategic planning and resource allocation [3]. In the automotive field, China has made sufficient technical groundwork and has a good research foundation through technical learning and enterprise mergers and acquisitions [3].

The development of new energy vehicles has promoted battery, motor, electric control, and intelligent technologies, improving the overall performance and reliability of new energy vehicles. It has also promoted the transformation and upgrading of the entire automobile industry. New energy vehicles are usually equipped with advanced intelligent systems and equipment, such as automatic driving, intelligent navigation, vehicle networking, etc., which improves the convenience and safety of driving. These innovations provide strong support for the future intelligent transportation and smart city. Additionally, the development of the new energy automobile industry has driven the progress in intelligent manufacturing and technological innovation, boosting national scientific and technological capabilities and enhancing industrial competitiveness.

3. Disadvantages of Electric Vehicles

The battery manufacturing cost of electric vehicles is very high, accounting for a large part of their production costs, especially the price fluctuations of lithium batteries and battery materials, resulting in the high overall cost of electric vehicles. Although the cost is gradually decreasing with the progress of technology and scientific effects, some cost waste is inevitable. The range of electric vehicles is not as high as that of fuel-powered vehicles, so they need the support of timely charging facilities. However, in many areas, the coverage and number of charging stations are still insufficient, especially in remote areas, which will cause many trams to break down on the road, which also affects traffic and safety issues.

Charging speed and ease of use are also key factors affecting the experience of electric vehicles. Electric vehicle batteries require a large number of rare metals, such as lithium, cobalt, nickel, etc. The exploitation and supply chain of these resources may face certain environmental, political and economic risks and also cause great damage to the environment, leading to changes in the ecological environment. In addition, the limitation of mineral resources may become a bottleneck for the continuous growth of the electric vehicle industry, because mineral resources are limited on earth and not renewable resources.

Although electric vehicles have zero emissions during use, the production and recycling of batteries may cause environmental pollution. Moreover, the value of electric vehicles in the second-hand market is very low, and the value of fuel cars is not preserved, because due to the gradual ageing of electric vehicle batteries, the safety index of electric vehicles is not as high as that of fuel vehicles, so the residual value of second-hand electric vehicles is very low, which affects consumers' desire to buy. Due to China's underdeveloped traditional internal combustion engine vehicles, the capacity of key automotive components is weak, and the low level of product technology still exists, the overall development of new energy vehicles is still significantly restricted in technology. Some of the key technologies, key raw materials, and key components required for the development of new energy vehicles have not yet been truly mastered. In the key battery, motor and control system, the technical level and product maturity of Chinese enterprises, there is a considerable gap with foreign enterprises [4].

For plug-in hybrid and pure electric vehicles, consumers do not buy the reason is that charging is very inconvenient, compared with the gas stations all over the country, the construction of charging stations has just started. Even if big cities may be able to build charging networks first, it will take a long time for them to cover urban and rural areas as well as gas stations, which limits consumers' freedom of movement [5]. Battery is a key component in new energy vehicles, but also one of the most important failure points of new energy vehicles. From the current production and use of new energy vehicles in China, the service life of new energy vehicles largely depends on the service life of the battery [6].

4. Suggestions

The sustainable development of new energy vehicle drive motors has become the focus of common concern inside and outside the industry, which is not only related to technological innovation, but also involves environmental protection and social responsibility. In the selection of materials, the industry is committed to reducing its reliance on rare earth elements, turning to the research and application of non-rare earth permanent magnet materials such as ferrite, and exploring the replacement of traditional metals with high-performance composite materials to reduce weight and improve efficiency. Greening production is also a key component, with many companies investing in renewable energy facilities such as solar and wind, reducing fossil fuel consumption, and introducing

low - or zero-emission manufacturing processes. At the policy level, governments have introduced encouraging measures [7].

In the process of the development of trams, the industry needs to promote technological innovation, promote the progress of battery technology, and improve the endurance range and charging efficiency of trams. Developing cutting-edge technologies such as solid-state batteries and graphene batteries to improve energy density, safety and cycle life at the same time, using lightweight materials to reduce vehicle weight, improve energy efficiency and overall performance. The government should introduce more incentive measures, such as car purchase subsidies, exemption of purchase tax, priority of right of way, parking concessions, to promote the popularity of trams and enhance consumers' understanding and acceptance of new energy vehicles. Through market expansion activities, infrastructure construction should increase, including public charging networks, charging piles in residential areas and fast charging stations in expressway service areas, completely eliminate the "range anxiety" of consumers. At the same time, the country should standardize the construction of charging piles to solve the problem of long charging time. Promote the integration of intelligent driving and vehicle networking technology, provide personalized driving experience, such as automatic driving, intelligent path planning, voice control operation and other functions, improve driving safety and convenience.

Meanwhile, more attention needs to be paid to the impact of environmental factors, the use of environmentally friendly materials and battery recycling, reduce carbon emissions in the production process, and practice green travel through detailed regulations and industry standard management to improve the safety and practicability of electric bicycles. With the continuous innovation of technology and large-scale production, reducing the manufacturing cost of trams will make sure that more consumers can afford. At the same time, optimize battery quality standards and scrap limits to ensure safe use.

At the same time, the paper examines the accumulation of resources, technology and other aspects. It is expected to occupy a sustainable competitive advantage in the field of lithium battery vehicles for a long time in the future. Due to the characteristics of the lithium battery itself, the high demand for lithium ore and rare earth resources of lithium battery cars, and the waste generated by scrapping will continue to cause a certain degree of pollution to the environment. Therefore, it is not possible to achieve complete clean and environmental protection [8].

5. Conclusion

The main content of this paper investigates the development of new energy vehicles. It indicates that the automotive field will experience many systematic changes, and it is a rare opportunity to develop from an automobile power to an automobile power. However, due to the high cost, technical difficulty, and low safety problems of hydrogen fuel cells, lithium battery vehicles will still be the mainstream new energy vehicle types in countries for a long time to come.

With the breakthrough of battery technology, the improvement of charging infrastructure and the popularization of intelligent networking functions, new energy vehicles are not only a means of transportation, but also an important part of intelligent travel solutions. As one of the core components of this transition, the continuous advancement of the drive motor technology is essential to improve vehicle performance, reduce costs and improve user experience. Through continuous R&D investment and cross-field cooperation, new energy vehicles and their drive motor technologies will continue to lead the green revolution in the field of transportation and contribute to the construction of a low-carbon and environmentally friendly society.

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