International Journal of Management and Education in Human Development



International J. of Management & Education in Human Development

UNDER SCHLEM THORSTOLUN DECEMBER PRESERVAT

ISSN: 2775 - 7765 web link: http://www.ijmehd.com

# New Energy Technology Brings Benefits To Human Society -Take New Energy Vehicles As An Example

Lingbo Lyu

Jose Rizal University, Philippines

| _ · _ · _ · _ · _ · _ · _ · _ · _ · _ · | _ · _ · _ · _ · _ · _ · _ · _ · _ · _ · | · — · — · — · — · — · — · — · — · — · — |
|---|---|---|
| Received: 20/08/2021                    | Accepted: 26/12/2021                    | Published: 22/03/2022                   |
|   |   |   |

Representative e-Mail: limbolv6607@gmail.com

----- ABSTRACT

In today's society, in the context of people's increasing need for a better quality of life and the limited total amount of natural resources and increasingly prominent environmental problems. The contradiction between the increase of global automobile demand and environmental protection and resource conservation is becoming more and more prominent. The development of new energy vehicle technology provides a very reliable path to reconcile this contradiction. The development of new energy vehicle technology not only guides the development direction of new energy vehicle technology not only guides the development direction of new energy vehicles, but also indirectly affects the development of many social factors such as system, environment and economy. The academic community has mostly studied the development of new energy vehicle technology from the economic or technological perspectives, and there are fewer philosophical reflections on the development of this technology. In view of this, this paper hopes to deeply reflect on the development of new energy vehicle technology has multiple attributes of society, science and technology, and economy. This paper will analyze the development of new energy vehicle technology has multiple attributes of society, science and technology, and economy. This paper will analyze the development of new energy vehicle technology has multiple attributes of society, and the improvement of China's international competitiveness.

Keywords: New Energy Vehicles Sustainable, Development, Human Contribution

# I. INTRODUCTION

In today's society, in the context of people's increasing need for a better quality of life and the limited total amount of natural resources and increasingly prominent environmental problems. The contradiction between the increase of global automobile demand and environmental protection and resource conservation is becoming more and more prominent. The development of new energy vehicle technology provides a very reliable path to reconcile this contradiction. The development of new energy vehicle technology not only guides the development direction of new energy vehicles, but also indirectly affects the development of many social factors such as system, environment and economy. The academic community has mostly studied the development of new energy vehicle technology from the economic or technological perspectives, and there are fewer philosophical reflections on the development of this technology. In view of this, this paper hopes to deeply reflect on the development of new energy vehicle technology and its social impact from a philosophical perspective.

# **II. RESEARCH METHOD**

Quantitative analysis method. Based on the comparative study of the production and sales of traditional automobiles and the development level of new energy vehicles and technology in the world, we will provide an objective basis for the future development of new energy vehicle technology in China.

# **III. DISCUSSION**

## 3.1 Achieving sustainable development of society

## **3.1.1** Contribute to the construction of social ecological civilization

At present, the global ecological crisis is becoming more and more serious. The rapid popularization of automobiles has improved people's quality of life, but at the same time, it is also a major source of pollutants, which endangers the living environment of human beings. According to the results of the special study on "Atmospheric Haze Tracking and Control", motor vehicle exhaust is the main source of PM2.5 in Beijing, accounting for about 25%

of the pollutants.

The highest vehicle emissions are from traditional fuel vehicles, followed by hybrid vehicles, and finally, pure electric vehicles. Although pure electric vehicles have almost zero emissions during use, China's current energy mix, which is dominated by thermal power generation, has led to the use of pure electric vehicles transferring pollution to power generation. The energy consumption of pure electric vehicles can be further reduced if the country vigorously develops new energy generation technology in the energy structure. Based on the current development trend of new energy vehicle technology in China, it is estimated that if China accelerates the development of pure electric vehicle technology and the use of pure electric vehicles, it can effectively reduce the emission of polluting gases.

By the end of 2017, China had 180 million vehicles registered in private names alone, 90% of which are traditional internal combustion engine vehicles powered by oil. Domestic oil production is becoming increasingly difficult to meet domestic demand, with China's crude oil production of 192 million tons and crude oil consumption of 610 million tons in 2017, making China's oil dependence on foreign countries increasing. Fuel vehicles in China are one of the important channels of oil resource use, and hybrid vehicle technology can reduce energy consumption per vehicle by 70%. By vigorously developing new energy vehicles, China's excessive dependence on oil can be reduced to some extent.

The rapid development and wide application of new energy vehicle technology can effectively alleviate the problems of greenhouse gas emissions and environmental pollution, and has obvious energy-saving and environmental benefits.

#### 3.1.2 Achieving sustainable development of road transport

In the past decade, the world is undergoing greater changes in automotive technology. On the one hand, the pressure of energy and environment brought by road transportation is gradually increasing, calling for the rapid development of new energy vehicles and the formation of sustainable electric road traffic system; on the other hand, the rapid development of information technology, smart grid technology and the change of traffic demand provide good environmental conditions for the rapid development of new energy vehicles and the formation of sustainable electric road traffic system.

China's road traffic has its own rules and development characteristics, to achieve sustainable development, first of all, we must solve the macro transportation strategy, planning and designing China's new transportation system, clarifying the development position of various types of transportation, and optimizing the coordination of transportation demand and road resources. Secondly, it is necessary to address the sustainable development of transportation energy and transportation emissions, to change the status quo of excessive dependence on oil, and to minimize harmful gas emissions and carbon dioxide emissions. Lastly, it is necessary to focus on the over-dependence of the automobile industry, one of the pillar industries of China's national economy, on the foreign automobile industry and its backward technology, to focus on the frontier of the world's automobile technology development, to strive to improve the independent innovation capability and industrial competitiveness, and to control the dominant power of the automobile industry development. [32]

To achieve sustainable development of road traffic, the key is to take sustainable development of transportation as the background, adapt to the change of China's road traffic pattern, rational planning and design of "sustainable electric transportation road network", and on this basis, vigorously develop the interactive cooperation of "new energy vehicles ", "vehicle energy infrastructure", "information technology, intelligent infrastructure" system, and finally build "one application network, three sets of hardware systems" The four-in-one "sustainable electric road transport system". [33]

Today's society is developing extremely rapidly. Transportation has become the "blood path" of a country's economic development, and the smooth flow of the "blood" depends on the organization of the "blood vessels". Nowadays, land, waterways and even air transportation have formed a set of three-dimensional, orderly and complementary transportation pattern, so how to make the whole circuit effectively implement sustainable development is particularly important. The development of new energy vehicle technology has become the key to solving this problem. At present, renewable and sustainable energy applications (electrification applications) have basically been realized in rail transportation, while the internal combustion engine vehicles, which are the most dominant, are still the key to overcome the difficulties of each country. Although some countries have started to use biofuels, the results are not very satisfactory. To improve the safety, convenience, and sustainability of the entire transportation network must start with new energy (sustainable electric roads). In the context of the technological transformation of the international automotive industry, the development of new energy vehicle technology will become an important choice for China's automotive industry to achieve sustainable development.

# 3.2 Second, to promote the synergistic development of science and technology

The development of any technology is inseparable from the social background, and so is the development of new energy vehicle technology. The early development of automobiles was influenced by many social factors, the most important of which was the development of power technology that drove the progress of automobile technology. However, the rapid development of a science and technology in modern society can force the development of other science and technology, and at the same time can promote other aspects of society with the development of automotive progress.

3.2.1 promote the development of new energy vehicles vehicle subsystem technology

#### International Journal of Management and Education in Human Development

The car as a variety of automotive technology compounded products, itself for the comprehensive development of other technologies to provide a platform. In addition to the new energy vehicle power system technology described in this paper, the internal mechanical aspects of the car also include the transmission system, driving system, steering system, braking system, suspension system technology, the car shell involves new materials, car structure involving mechanical principles, etc., collectively referred to as automotive technology subsystems.

As the promotion of sustainable development of new energy vehicle technology, while giving full play to its advantages, do not avoid its shortcomings. The development of new energy vehicles will be standardized and systematized, and the whole will be turned into zero, and the technical difficulties in the production of components will be strictly controlled, in an attempt to promote the progress of new energy vehicles as a whole and the cutting-edge technology of each component. Thus, the overall development of new energy vehicle technology is achieved.

Due to the differences in geographical factors, traffic factors, financial income and other factors, the development direction of new energy vehicle technology should be tailored to local conditions and the development of suitable models of new energy vehicles. However, if the number of models increases and the nature of new energy vehicle technology is neglected, it is easy to create a situation where each one does what it wants. Therefore, it is important to take into account the "integration" and "technology commonality" while developing suitable new energy vehicle subsystems. [34] The development of new energy vehicle subsystems must take into account "integration" and "technology commonality".

New energy vehicles are diverse, to electric vehicles, for example, on the common technology platform for electric vehicles, divided into electronic control, motor drive, electric steering, electric air conditioning, electric auxiliary brake, brake feedback, high voltage safety, inverter converter, wiring plug-in, material structure, data management, information technology and other aspects of the technology module. Subsequently, it is divided into: large commercial vehicle electrification technology platform, medium commercial vehicle electrification technology platform, light vehicle electrification technology platform, and micro vehicle electrification technology platform. Large commercial vehicle electrification technology platform. Large commercial vehicle electrification technology platforms are subdivided into large fuel cell commercial vehicle product platforms (for FCEV large-seat buses, FCEV heavy-duty trucks), large pure electric commercial vehicle product platforms (for BEV large buses, EREV large buses), large hybrid commercial vehicle product platforms (for HEV large-seat buses, PHEV large (supplying BEV medium-sized seat bus, BEV medium-sized bus, BEV medium-sized van logistics vehicle, BEV medium-sized pure electric commercial vehicle product platform (supplying BEV medium-sized seat bus, BEV medium-sized pure electric commercial vehicle product platform (supplying BEV medium-sized seat bus, BEV medium-sized van logistics vehicle, BEV medium-sized seat bus, BEV medium-sized van logistics vehicle, BEV medium-sized seat bus, BEV medium-sized van logistics vehicle, BEV medium-sized municipal sanitation vehicle); medium-sized pure electric commercial vehicle product platform (supplying BEV medium-sized seat bus, BEV medium-sized van logistics vehicle, BEV medium-sized municipal sanitation vehicle), medium-sized pure electric commercial vehicle product platform (supplying BEV medium-sized seat bus, BEV medium-sized van logistics vehicle, BEV medium-sized municipal sanitation vehicle), medium-sized pu

(supplying PHEV medium-sized seat bus, PHEV medium-sized van logistics vehicle); general passenger vehicle electrification technology platform is subdivided into: pure electric general passenger vehicle product platform (supplying BEV general passenger vehicle, EREV general passenger vehicle), fuel cell general passenger vehicle product platform (supplying FCEV general passenger vehicle), hybrid general passenger vehicle product platform (supplying FCEV general passenger vehicle), hybrid electric vehicle product platform (supplying FCEV general passenger vehicle), hybrid electric vehicle product platform (supplying FCEV general passenger vehicle), hybrid electric vehicle product platform (supplying HEV general passenger vehicle, PHEV general passenger vehicle). The light vehicle electrification technology platform is subdivided into: light pure electric passenger car product platform (for BEV light passenger car, EREV light passenger car), light pure electric truck product platform (for BEV light truck); micro vehicle electrification technology platform is subdivided into: micro electric passenger car product platform (for BEV micro passenger car), micro pure electric truck product platform (for BEV light form (for BEV micro passenger car), micro pure electric truck product platform (for BEV micro for BEV micro passenger cars), and micro electric van product platform (for BEV micro vans). [These technologies complement each other and share resources and expertise to further promote the development of "common platform, integration, and standardization" of new energy vehicle technologies and products.

Furthermore, the energy supply of new energy vehicles mainly involves two types of vehicle energy infrastructure subsystems, namely "intelligent charging and discharging infrastructure" and "hydrogen energy infrastructure". The "intelligent charging and discharging infrastructure" includes charging pile group system, charging and switching monitoring system and smart grid two-way interaction system, etc.; the "hydrogen energy infrastructure" includes industrial oxygen production system (industrial by-product gas, natural gas reforming, fluctuating renewable energy pyrolysis, etc.), hydrogen transmission system, natural gas reforming on the station, wave valley electrolysis hydrogen production system, and hydrogen filling station system, etc.

As the battery system of new energy vehicles has strong bi-directional access and dynamic control management capability of electric energy, with the construction of smart grid and the large-scale application of new energy vehicles, the pure electric vehicles with a large number of power batteries will become the decentralized

#### International Journal of Management and Education in Human Development

energy storage units of smart grid. Due to the technical feasibility of interconversion of hydrogen and electricity and interconversion of hydrogen and gas, fuel cell vehicles that carry and use hydrogen in large quantities will be considered to make full use of the existing fuel oil, gas and power grid in the construction of smart grid and natural gas subsystem, respect the consumers' wishes and usage habits, coordinate the relevant gas station network, gas station network, hydrogen refueling station network and charging station network, and take into account the complementary and transition. [36]

#### 3.2.2 Promoting the development of new energy industry

Looking back at the growth process of automobile technology development, it is easy to see that every major technological and product change in automobile development is closely related to the change of power system and vehicle energy system. During the development of China's road traffic and automobile technology industry, the rapid growth of personnel and material transportation, the rapid growth of the number of traditional fuel cars, large size and large displacement have all brought a heavy burden to the supply of non-renewable energy and the management of automobile emissions in China.

At the beginning, cars used steam engine power systems, with coal as the main on-board energy source. Then came the internal combustion engine power system, which was replaced by fuel oil as the on-board energy source. After the outbreak of the world energy crisis, improving the efficiency of internal combustion engines and reducing the weight of automobiles became a new round of technology development hotspots.

To ensure the stable construction of new energy vehicle energy supply system and promote the close integration of new energy vehicle power sources with renewable energy generation. We should plan ahead, develop standards, discuss business models, establish energy storage systems to support renewable energy power generation, ladder power battery systems, save investment in energy storage systems, and maintain sufficient good interaction to lay a good foundation for the upcoming large-scale application of new energy vehicles. [37] In addition, the construction of hydrogen storage using fluctuating power from large wind and solar power bases in the "three northern" and "western" parts of China will provide a direct and effective means to smooth out fluctuations in renewable energy generation. [38] The hydrogen produced will be consumed by local hydrogen energy networks or transported over long distances to economically developed regions and cities where energy is scarce for the operation of fuel cell vehicles and their intelligent interaction with the power grid.

#### 3.3 Improving China's international competitiveness

The automobile market has always been a must for all countries in the world, and all countries value the leading role of automobile manufacturing for the development of other industries in their countries. The development of new energy vehicle technology is undoubtedly a catalyst for the automotive industry to take off. At present, China is already a large country in automobile production and sales, but not a strong country in automobile industry. However, there is no doubt that the development of new energy vehicle technology in the field of automotive development has contributed to the development of the national economy to a certain extent, and also has a certain influence on social development.

Throughout the development of China's automotive industry, Chinese automotive enterprises have mainly developed through the introduction of foreign capital, technology from advanced countries, and joint cooperation in the field of traditional automobiles. [39] Only a few enterprises, choose to compete in the market by establishing their own brands and through independent innovation. In general, Chinese traditional automobile enterprises generally lack core technology, insufficient independent innovation ability and low brand recognition, etc. In recent years, China has failed to get rid of the situation of being a large automobile producing country and a small automobile technology country by establishing joint ventures with foreign capital, and has never been able to establish technical and market competitive advantages in the traditional automobile industry. [40]

However, in the field of new energy vehicle technology, which is very different from traditional vehicle technology, the world is currently in the initial stage of technology development and industrialization. Although there is still a gap between China and the most advanced countries in terms of core technology and overall level of R&D strength, China has reached the world's advanced level in some specialized fields and has obvious advantages, and its comprehensive capability is developing rapidly under the guidance of policies. The vigorous development of new energy vehicle technology can make use of China's advantages in some new energy vehicle technologies, shorten the gap between China and the world's advanced level, and prevent China's auto industry from falling behind again in the process of industrialization of new energy vehicles in the future. [41]

### **IV. CONCLUSION**

This paper analyzes the social impact of the development of new energy vehicle technology and draws the following conclusions: First, the development of vehicle technology is conducive to the realization of sustainable development of the whole society, on the one hand, it is conducive to the construction of social ecological civilization and the reduction of energy dependence on foreign countries, on the other hand, it is conducive to the realization of sustainable development of road traffic. Secondly, the progress of new energy vehicle technology will promote the synergistic development of science and technology, on the one hand, to promote the development of new energy vehicle subsystems, on the other hand, to force the development of new energy industry. Finally, in the economic aspect, new energy vehicle technology will become the focus of international competition, and an important means

for the country to achieve "overtaking" in the future international competition.

#### REFERENCES

- Cui YF. Yang Qing. Zhang Linshan. Wang Jun. Research on the development status and charging technology of electric vehicles at home and abroad[J]. Yunnan Electric Power Technology,2010.38(2)
- Cui Mengjia. Dai YN. Yao Yaochun et al. Research overview of power batteries for electric vehicles[J]. Journal of Kunming University of Science and Technology: Science and Engineering Edition, 2004,29(6):122-126.

Editorial Board of this journal. Automotive and engine industry information[J]. Modern cast iron, 2010, 30(S1):89-95

Feng Fei. Ecological and environmental crisis and the scientific concept of development [D]. Fuzhou: Philosophy of Science and Technology, Fuzhou University, 2004.36-40.

Jiang Yiren. Energy conservation and sustainable development[J]. Journal of Power Engineering, 2010(1):1-4.

- Song YH. Current status and development trend of electric vehicle battery[J]. Power Grid Technology,2011,35(4):1-5.
- Wang Q. From technology following to strategic layout [M]. Shanghai Far Eastern Publishing House. 2012(08):89-94.

Yan ZJ, et al. Study on the development strategy of new energy vehicles [M]. Science Press, 2016(08): 56-60.82-86. 410-412.