Sino-US Electric Vehicle Policy Coordination and Cooperation Under the Goal of Carbon Neutrality

Yujing Zhang
Zhangzhou Number3 Middle School, Zhangzhou, China

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Abstract: In the context of increasingly severe global climate change and environmental problems, the goal of carbon neutrality has become the core policy orientation of various countries. With its significant advantage of "zero emission", electric vehicles (EV, Electric Vehicle) have become an important tool to promote the transformation of the green economy. As the two largest economies and major carbon emitters in the world, China and the United States, the coordination and cooperation of their electric vehicle policies have important leading and demonstration significance for realizing the global carbon neutrality goal. Based on the background of global climate change, this article deeply discusses the current situation of electric vehicle policies between China and the United States, analyzes the necessity and feasibility of policy coordination between China and the United States, and proposes paths and policy suggestions to promote cooperation between the two countries. Research results show that policy coordination between China and the United States in the field of electric vehicles has accelerated the widespread promotion of green technologies around the world, providing examples and references for the global response to climate change.

1 INTRODUCTION

Global climate change has caused major threats to the human living environment and ecosystems. Rising temperatures, rising sea levels, and frequent extreme weather events have intensified the frequency and severity of natural disasters. According to a report by the Intergovernmental Panel on Climate Change (IPCC), a subsidiary of the United Nations Panel on Climate Change, if effective emission reduction measures are not taken, the global average temperature may rise by more than 2°C by 2100. It is predicted that it will directly lead to serious damage to the ecological balance, mass extinction of species, and profound socioeconomic crisis (Qu, 2008). The concept of carbon neutrality was proposed to deal with climate problems caused by greenhouse gas emissions. Carbon neutrality refers to achieving "net zero emissions" of greenhouse gases by reducing carbon emissions and increasing carbon sinks within a certain period. In 2020, China made a commitment to “peak carbon emissions in 2030 and achieve carbon neutrality in 2060” (Wu, 2022). The United States has committed to achieving carbon neutrality by 2050. This goal promotes industrial transformation in China and the United States and provides a clear direction for the development of the global green economy. Electric vehicles are considered a key means to reduce carbon emissions and achieve green travel. The emissions of traditional internal combustion engine vehicles account for 20%-30% of global greenhouse gas emissions, while electric vehicles have become the preferred choice for green travel due to their "zero emission" characteristics. The popularization of electric vehicles can also reduce air pollution, reduce energy dependence, optimize the energy structure, and promote the use of clean energy. As the world's largest producers and consumers of electric vehicles, policy coordination between China and the United States will directly affect the stability of the global electric vehicle industry chain and the development direction of the market.

In summary, the coordination and cooperation between China and the United States on electric vehicle policies will help promote the research development, and application of electric vehicle technology, promote the construction of a global green transportation system, and promote the standardization and integrated development of the

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global market. Sino-US cooperation will help accelerate the market penetration of electric vehicles, reduce greenhouse gas emissions, help achieve the temperature control goals set out in the Paris Agreement, and provide feasible cooperation examples and paths to address climate change.

This article aims to analyze the current situation of electric vehicle policies in China and the United States, sort out the policy framework, incentive measures, and market development status of China and the United States in the field of electric vehicles, and clarify the similarities and differences between the two sides' policies and the entry point for coordination. On this basis, this article discusses the necessity and feasibility of policy coordination, analyzes the key interests of China and the United States in policy coordination, explores the possibility and cooperation paths of policy docking between China and the United States, and proposes policies for cooperation between China and the United States in the field of electric vehicles. suggestion.

2 ANALYSIS OF THE CURRENT SITUATION OF ELECTRIC VEHICLE POLICIES IN CHINA AND THE UNITED STATES

Table 1 compares the current status of electric vehicle policies in China and the United States, covering six key elements: policy objectives, incentives, infrastructure construction, market supervision, technical support, and representative companies. Both countries attach great importance to the development of electric vehicles, have formulated clear policy goals and incentives, and at the same time promote technological innovation. Among them, the United States' target was achieved five years earlier than China's, showing the United States' urgency to accelerate the promotion of electric vehicles. Both China and the United States have set "50%" as the target ratio, showing that they attach equal importance to the development of electric vehicles. The focus of incentives between China and the United States is different. China's incentives cover car purchases and technology research and development, while the United States focuses on direct economic subsidies, with clear and highly targeted tax incentives. China's construction direction is more inclined to privatization and diversification (such as power replacement), while the United States is biased toward public facilities and power grid upgrades. In terms of supervision, China directly intervenes in the market through the "double points" policy to force companies to meet the proportion of new energy vehicles; the United States is relatively flexible and indirectly encourages the development of electric vehicles by improving fuel economy. In terms of technical support, China focuses on improving the performance of core components of electric vehicles; the United States focuses on future trends, such as the Internet of Vehicles and autonomous driving. Both Chinese and American companies have world-renowned brands in the field of electric vehicles. Chinese companies focus more on battery production and emerging brands, while the United States focuses on the transformation of traditional automobile giants and Tesla.

Table 1. Current status of electric vehicle policies in China and the United States

policy elements	China	USA
policy objectives	New energy vehicles will account for 50% of new car sales in 2035	By 2030, electric vehicles will account for 50% of new car sales
Incentives	Car purchase subsidies, purchase taxes, R&D subsidies, etc	$7,500 car purchase tax credit,infrastructure subsidies
infrastructure construction	Vigorously build public and private point piles and promote the power exchange model	Build 500,000 charging piles and upgrade power grid facilities
market supervision	Implement a “double points” policy for new energy vehicles	Improve fuel economy and emissions standards
Technical support	Support the research and development of batteries, battery replacement and networking technologies	Support innovation in intelligent networking and autonomous driving technologies
Representative enterprise	BYD, Future, Xiaomi Auto, etc.	Tesla,Ford, General Motors, etc.

2.1 China’s Electric Vehicle Policy

Focusing on the national strategic goal of "carbon peaking in 2030 and carbon neutrality in 2060", China's electric vehicle policy focuses on promoting the popularity and technological innovation of electric vehicles through policy incentives, market supervision, and technical support. The Chinese government has adopted a variety of policy tools to promote the development of the electric vehicle market. First, China’s car purchase subsidy policy played a key role in the early stages. Although subsidies are gradually declining, tax exemptions and operating subsidies are still important incentives for the electric vehicle market. The reduction of purchase tax has made the price advantage of electric vehicles more prominent and increased consumers' willingness to purchase. Secondly, China’s “double points policy” has become an important means to promote the transformation of automobile companies. (Hu, 2024) According to this policy, car companies must achieve a balance of points in the sales of new energy vehicles and fuel vehicles, and companies that do not meet the standards need to purchase the surplus points of other companies to form a market-oriented incentive mechanism. Finally, China strongly supports the construction of electric vehicle infrastructure, especially the construction of charging piles and battery swap stations. In terms of technological innovation, China's power battery industry has demonstrated global competitive advantages, with companies such as CATL and BYD leading the world in market share in the field of power batteries.

2.2 Electric Vehicle Policy in the United States

The electric vehicle policy in the United States is mainly oriented towards market incentives and technological innovation, with the federal and state governments jointly promoting the development of the electric vehicle market. In 2022, the United States passed the Inflation Reduction Act (IRA), providing comprehensive policy support for the production and consumption of electric vehicles. First, on the consumer side, the United States has implemented a car purchase tax credit policy, and consumers can enjoy tax credits of up to US$7,500 for purchasing qualified electric vehicles. (Xiao, 2018) Secondly, the US Infrastructure Investment and Jobs Act plans to invest US$7.5 billion to build a network of 500,000 charging piles nationwide. Different from China's "battery swap model", the United States mainly improves the convenience of using electric vehicles through the construction of fast charging networks. In addition, zero-emission vehicle (ZEV) policies have been actively promoted in California, New York, and other states in the United States. These states have set stricter electric vehicle sales targets for car companies and mandated car companies to sell electric vehicles within a certain period. The sales ratio of cars has increased to a certain level. The United States also leads the world in electric vehicle technological innovation. Tesla, Ford, General Motors, and other companies have technological advantages in intelligent driving, autonomous driving, and Internet of Vehicles technologies.

2.3 Comparison of Electric Vehicles Between China and the United States

There are some commonalities between China and the United States in the formulation of electric vehicle policies, but there are also significant differences in policy objectives, market supervision methods, incentives, and market environment. In terms of policy goals, both China and the United States have set clear goals for the popularization of electric vehicles. China's goal is to achieve 50% of new car sales with new energy vehicles (including electric vehicles) by 2035 and to achieve full electrification. The United States has proposed a goal of electric vehicles accounting for 50% of new car sales by 2030. (Wei, 2022) In terms of market supervision, China’s “dual-point policy” requires car companies to sell a certain proportion of electric vehicle points, and companies that do not meet the standards need to purchase points. The "Zero Emission Vehicle Policy (ZEV)" in the United States requires car companies to achieve a certain proportion of electric vehicle sales in specific states, otherwise, they will face high fines. In terms of incentives, China's electric vehicle purchase subsidies have gradually declined, but purchase tax exemptions and corporate research and development subsidies continue. The tax credit policy in the United States is more direct. Consumers who purchase compliant electric vehicles can receive tax credits of up to $7,500 (Xiao, 2018). In addition, the US subsidy policy focuses more on supporting the local manufacturing of power batteries and the localization of the industrial chain of electric vehicles (Wang, 2022). In terms of market environment, China's electric vehicle market is policy-led, the market environment is driven by policies, and the supportive policies of local governments have also promoted the rapid development of the local market.

The market environment in the United States is more market-oriented, and companies have a more dominant position in the market.

3 PATHS FOR SINO-US ELECTRIC VEHICLE POLICY COORDINATION AND COOPERATION

3.1 Current Status of Tariff Policy

The Sino-US trade friction has caused the import and export of electric vehicles and related parts to face high tariff barriers. In 2018, the United States imposed high tariffs on electric vehicles and their parts exported from China, and China also adopted reciprocal tariff countermeasures on auto parts imported from the United States. The increase in these tariffs not only increases the cost of electric vehicles but also inhibits the mutual circulation of the Chinese and American electric vehicle markets, affecting the stability of the global electric vehicle supply chain. China and the United States each have advantages in key technical fields of electric vehicles. China is in a leading position in power batteries, battery replacement technology, and intelligent network connectivity. Companies such as CATL and BYD have significant international competitiveness in the field of power battery technology (Ou, 2016). The United States has a leading position in autonomous driving, the Internet of Vehicles, and control software. Tesla and Google's Waymo have achieved world-leading technological breakthroughs in autonomous driving and intelligent driving systems. However, technological cooperation between China and the United States still faces issues such as "technical barriers" and "data sovereignty", especially when it comes to the transfer of key technologies, and the policies of both parties are inconsistent. The Sino-US trade friction has led to rising tariffs on electric vehicles and their parts, which has directly affected the stability of the supply chain and the market access of companies. To reduce barriers to the circulation of electric vehicle parts, China and the United States can negotiate to reduce tariffs on electric vehicles and their core components, especially in key areas such as power batteries, chips, and electronic control systems. By establishing the "China-U.S. Electric Vehicle Tariff Coordination Mechanism", the two sides can launch policy dialogues on multilateral platforms (such as the G20 and APEC), reduce trade barriers, and ensure the stability of the supply chain.

3.2 Technical Cooperation and Research and Development

The complementary advantages between China and the United States in key electric vehicle technologies provide the possibility for technical cooperation between the two parties. China has competitive advantages in power batteries, intelligent connectivity, and battery swapping technologies, while the United States has outstanding performance in the fields of autonomous driving and electric vehicle software control (Fu, 2023). By establishing the "China-US Electric Vehicle Technology Cooperation Platform", the two parties can carry out joint research and development in areas such as power batteries, autonomous driving, and the Internet of Vehicles, and promote the unification of technical standards. In addition, the two parties can establish an "electric vehicle big data sharing platform" to realize the sharing of autonomous driving data and algorithms, reduce research and development time, and optimize the path of technological innovation. Driven by the goal of carbon neutrality, technical cooperation and R&D cooperation on electric vehicles between China and the United States have become an important direction for the coordinated development of both parties (Wu, 2016). Technical cooperation pays more attention to the "now" and mainly solves the current bottlenecks in market promotion. For example, China and the United States can reduce barriers to technology adaptation by unifying charging pile interfaces and battery standards, thereby accelerating market penetration. In addition, by integrating the existing technologies and resources of both parties, companies can significantly reduce development costs and achieve rapid application of existing technologies. R&D cooperation focuses on the “future” and aims to promote technological breakthroughs and innovations (Zhang, 2021). The two countries can jointly solve technical problems in the industry and seize the forefront of the global electric vehicle market through cooperation in the research and development of high-efficiency batteries, new energy technologies and intelligent vehicle systems. Technical cooperation focuses on efficiency and short-term results, while R&D cooperation is based on the long term and seeks technological breakthroughs. The combination of the two will make China and the United States more competitive in the global electric vehicle field, while also making an

important contribution to the realization of the carbon neutrality goal. This dual-path collaboration not only promotes the accelerated development of green industries in both countries but also provides a reference for global sustainable development.

3.3 Market Access and Mutual Recognition of Standards

There are large differences in market access standards for electric vehicles between China and the United States, especially in terms of power battery certification, battery replacement technology standards, and vehicle safety testing standards. To solve this problem, China and the United States can negotiate and sign the "Mutual Recognition Agreement on Electric Vehicle Market Access" to achieve certification docking of electric vehicle products and reduce market entry costs for companies. In addition, China and the United States can also unify the technical standards of charging interfaces to ensure the compatibility of charging networks for electric vehicles in the Chinese and American markets and reduce the adaptation costs of enterprises.

Coordinated path for market access; broad market access for new energy vehicle industries in China and the United States requires path adjustments from three perspectives. First, in the bilateral agreement on mutual market recognition, China and the United States can negotiate and sign the "Mutual Recognition Agreement on Electric Vehicle Markets" to promote the simplification of the certification process for electric vehicles and reduce the testing process before products enter the market. Second, in unifying electric vehicle certification and testing standards, China and the United States should establish unified certification and testing standards in terms of charging pile interface standards, power battery testing standards, and vehicle operating system compatibility to reduce market barriers. At the same time, it is also very important to strengthen policy communication and dialogue mechanisms. China and the United States should establish a "China-US Electric Vehicle Market Dialogue Group" in multilateral cooperation platforms such as the G20 and APEC to regularly coordinate electric vehicle market access standards to ensure the docking and integration of standards. consistency.

As shown in table 2, the policy coordination path of China and the United States on electric vehicles is specifically reflected in tariff adjustment, technical cooperation, market access, and multilateral cooperation. China and the United States can save a lot of costs for enterprises by reducing tariffs on electric vehicles and parts, especially those with high dependence on production and exports. This measure will directly improve the circulation efficiency of the market and allow more electric vehicles to enter each other's markets. By establishing a "zero tariff zone", the two countries can also encourage more companies to participate in cross-border trade and promote the further integration of the electric vehicle-related industrial chain. Such adjustments are not only directly beneficial to enterprises but also help expand the global market share of electric vehicles. At the same time, China and the United States can jointly establish a joint R&D center to concentrate on solving technical problems in the field of electric vehicles. Under this cooperation model, the two countries can share key technical data and jointly explore core areas such as battery performance optimization, charging efficiency improvement, and vehicle networking technology. This technical cooperation will further promote the standardization of technology and make Chinese and American companies more competitive in the global market. Through resource integration, the two sides can take advantage of each other's strengths, accelerate technology iteration, and contribute to the global upgrade of electric vehicle technology. China and the United States can simplify the certification process for enterprises to enter each other's markets through market mutual recognition agreements. Such measures can not only significantly reduce the operating costs of enterprises, but also shorten the time to market for products and help technology land faster. The two countries can also eliminate technical barriers caused by differences in standards by coordinating testing standards. This facilitation of market access will promote the deep integration of the electric vehicle markets of China and the United States, while also providing consumers with more choices. China and the United States can establish a special electric vehicle policy dialogue mechanism on international platforms such as the G20 and APEC. In international cooperation, the cooperation between China and the United States will not only help strengthen the leadership of the two countries in the field of new energy, but also promote the sustainable development of the electric vehicle industry by formulating a global policy framework. Through such multilateral cooperation, China and the United States can further strengthen their voice and influence in the international arena.

Table 2. Overall path of policy coordination

Path latitude and longitude	Key measures	Expected effects
Tariff adjustment	Reduce tariffs on electric vehicles and parts, establish a "zero tariff zone"	Reduce corporate costs and expand market circulation
Technical cooperation	Establish a joint R&D center, share data, and cooperate on technical standards	Accelerate technological progress and promote technical standardization
Market access	Market mutual recognition agreement, simplify market certification processes, and coordinate testing standards	Accelerate technological progress and promote technical standardization
Multilateral cooperation	Establish a China-US electric vehicle policy dialogue mechanism in the G20 and APEC platforms	Promote policy coordination and communication

4 CONCLUSION

The coordination and cooperation of China-US electric vehicle policies is an important path to promote the global green economic transformation and the realization of carbon neutrality goals. China and the United States should promote the alignment of rules and standards in the electric vehicle market, reduce market barriers, and reduce the operating costs of enterprises through policy coordination, technical cooperation, and standard docking. China and the United States can also set up a "China-US Electric Vehicle Policy Coordination Group" on multilateral platforms such as the G20 and APEC to ensure policy communication and dialogue between the two sides on market access, technical cooperation, and tariff policy adjustments. Specifically, China and the United States should sign the "Electric Vehicle Market Access Mutual Recognition Agreement" to achieve the docking of market rules, ensure the unification of power battery and charging standards, and reduce market fragmentation. In addition, the two sides should jointly promote the standardization and normalization of the global electric vehicle industry and promote the healthy development of the international electric vehicle market. Through policy coordination and cooperation between China and the United States, the standardization and unification of rules in the global electric vehicle market will make substantial progress, and the transformation of the global green economy and the realization of carbon neutrality goals will be more promising.

REFERENCES

Fu, X.Y., Zhong, Z.Y., Xia, D., et al. 2023. Transformation and development of the automobile industry under the background of carbon neutrality. Sustainable Development 13: 124.

Wan, G. 2016. Focus on innovation-driven and accelerate transformation and development - Development trend and prospect of new energy vehicles. Science and Technology Review 34(6): 1-2.

Hu, W., Xia, B.L. 2024. Disruptive technology policy - Construction and empirical analysis of technology roadmap framework - Taking China's new energy vehicle industry as an example. Science and Technology Progress and Countermeasures 41(2): 25-34.

Wang, J.F., Su, L.Y., Tan, X.C., et al. 2022. Carbon neutrality strategic orientation, policy measures and enlightenment of major economies. Bulletin of the Chinese Academy of Sciences 37(4): 479-489.

Wu, F. 2022. The status and role of nuclear energy in the process of carbon neutrality. Nuclear Science and Engineering 42(4): 737-743.

Wei, Y.F., Han, X.B., Lu, L.G., et al. 2022. Prospects of new energy vehicles and vehicle-grid interaction technologies for carbon neutrality. Automotive Engineering 44(4): 449-464.

Ouyang, M.G. 2016. Research and development and prospects of new energy vehicles in China. Science and Technology Review 34(6): 13-20.

Qu, J.S., Zhang, Z.Q., Zeng, J.J. 2008. Analysis of the international development trend of climate change science.

Xiao, J. 2018. Research on China's new energy vehicle policy. Southwest University of Finance and Economics Press.

Zhang, X., Li, K, Ma, Q. 2021. CCUS under the goal of carbon neutrality Positioning and prospects of technological development. Chinese Population, Resources and Environment 31(9): 29-33.