

China's New Energy Vehicle Policy Agenda from the Perspective of Green Development: an Application of the Multiple Streams Framework

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Abstract: With the development of China's social economy, people are paying more and more attention to green development. This article applies Kingdon's multiple streams framework(MSF) to analyze China's new energy vehicle subsidy policy agenda. The multiple streams framework includes three mechanisms: problem stream, policy stream, and politics stream. At the stage of the problem stream, bottom-up public opinion pressure and top-down work pressure were formed. At the stage of multi-party action, the problem stream is further fermented, and the policy stream gradually matures as relevant policy recommendations are continuously put forward. In the international environment, China's green development philosophy has a strong political atmosphere, forming a political stream. At the stage of the decision agenda, the coupling of the problem stream, the policy stream, and the politics stream, a series of focus events opened the policy window, and finally completed the introduction of policies. Under the concept of sustainable development, China has proposed a low-carbon economic development model that reduces the consumption of high-carbon energy. It has continued to promote the subsidy policy for new energy vehicles to guide people towards a low-carbon and environmentally friendly life.

1. Introduction

As society progresses and develops, the environment is increasingly damaged and resources are being depleted. As of 2019, global carbon dioxide emissions from the use of fossil fuels and industrial activities reached about 36.8 billion tons, a record high. Motor vehicle exhaust emissions (such as PM2.5 particulate matter, NO₂, NO, CO₂, etc.) are the main source of urban air pollution. Air pollution has seriously affected the quality of life of citizens.[1] In 2013, China became the world's largest oil importer, and oil imports continued to rise. In 2018, China's oil imports reached 400 million tons. Air quality and energy security have long been a topic of common concern in the world. The 2017 United Nations Environment Conference pointed out that 6.5 million people die from air pollution every year, and more than 80% of the world's cities do not meet air quality

standards. The United Nations continues to encourage countries to promote the development of “inclusive” green economies.

New energy vehicles (NEV) have become an option for our environmentally friendly and energy-efficient transportation. At the same time, it also provides an effective way for the world’s green development and low-carbon energy-saving emission reduction. The development of China’s auto energy industry is closely related to the promotion of national policies, and China has also launched a series of new energy subsidy policies. Through in-depth exploration of the evolution and characteristics of China’s new energy policy system to understand how the early new energy vehicle subsidy policy was introduced, and what is the structure of China’s policy network.[2] This is conducive to accurately grasping the development trend of China’s policies and is of great significance to the improvement of China’s policy system.

2. Multiple Streams Framework

The MSF is essentially derived from the garbage can model,[3] which was proposed by Professor John Kingdon, and it is a method used to explain how policies are formulated. The core content of the MSF mainly includes: problem stream, policy stream, political stream, and these three streams are independent of each other, and they are developed according to their own dynamic characteristics and rules. Afterwards, the confluence of the three streams met the opening of the “Policy Window” to analyze the process of formulating the policy agenda in order to open the “black box” of the decision-making process before public policy.

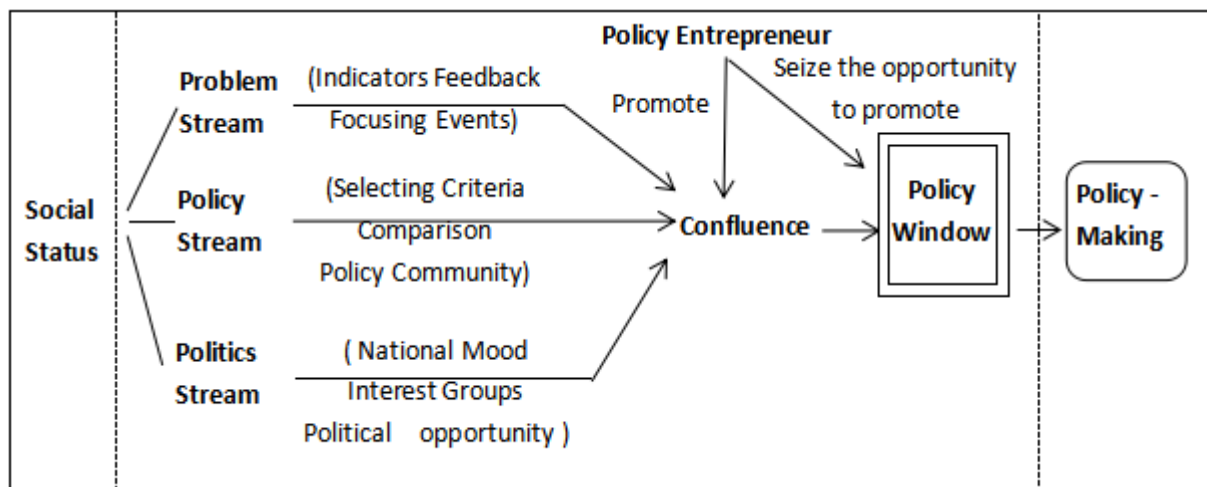


Figure 1: Theoretical framework of the multiple streams. Source: adjusted from[4][14].

First of all, the problem stream is formed by various problems in the social environment, and the problem contains clear and perceivable factors. These situations are gradually defined as problems by the outside world, and the problem is a specific problem that is generally concerned by the public and officials. The policy stream is similar to the process of biological natural selection, where a policy community is composed of scholars, practitioners, and government officials who propose possible solutions or ideas to form a “primeval policy soup” and assess the applicability through certain criteria.[4] These opinions have been tested in various ways. Some opinions remain intact, some form new proposals, and some are cancelled. Only proposals with technical feasibility and acceptability of values may eventually be adopted. Finally, the political stream is special, and

its flow rules are unique. It contains factors such as national mood, pressure group campaigns, and partisan or ideological distribution in Congress, etc. These factors together constitute the main political line.[5]

In Kingdon's model, the characteristic of the multiple streams framework is "combination". The three streams have their own internal rules and operating mechanisms. When the three streams are "coupled" at a critical time point (policy window), policy entrepreneurs establish a decision agenda and filter out Effective alternatives, ultimately complete the decision-making process, and promote the introduction of policies. Kingdon's multiple streams framework provides an effective analytical lens for explaining its complex public policy process. The theoretical framework is shown in Figure 1.

3. Application of Multiple Streams Framework of China's New Energy Subsidy Policy

3.1. Problem Stream

There are various problems in society, and only urgent public issues will attract the attention of the public and policy makers, and then put on the political agenda. Therefore, the public problem is the influence of factors such as changes in related indicators, feedback on the execution of projects, occurrence of series of focus events, and crises.

3.1.1. Changes in Related Indicators

With the development of China's transportation industry, China's car ownership is also growing rapidly. In 2009, China became the largest country in automobile production and sales for the first time. Motor vehicles bring convenience to people's lives and also cause air pollution. From 1980 to 2010, the national vehicle pollutant emissions showed an upward trend year by year, and the total motor vehicle pollutant emissions in the country reached 52.268 million tons in 2010. Since 2010, the total amount of pollutant emissions has decreased, and by 2018, the total amount of pollutant emissions has been reduced to 40.653 million tons. Regional air pollution problems such as acid rain, smog, and photochemical smog occur frequently in some areas of China, and even more than 200 days of smog have occurred in some areas.[6] The occurrence of these problems is directly related to pollutants such as nitrogen oxides and fine particles emitted by motor vehicles. Not only is China facing air quality problems, it is also facing an energy crisis. Global oil exploration and production volume has declined, crude oil supply is in short supply, and oil reserves are continually decreasing. China's total oil consumption in transportation, warehousing, and postal services rose from 150.793 million tons in 2010 to 220.293 million tons in 2017. The total amount of energy consumption is constantly rising, and it has a certain degree of dependence on oil imports.

3.1.2. Series of Focus Events

The reports of the official media in the Internet era have a certain degree of network authority. Continued reports of public issues caused by the series of focus events will arouse public attention. The triggering of the "fraud" incident of new energy vehicles has fueled the new energy subsidy policy. In 2016, CCTV News conducted a series of reports event, which is Suzhou Jimsey Bus Manufacturing Company's attempt to defraud the state financial subsidies of more than 1 billion yuan. The CCTV news report triggered the mass media forwarding, attracting public opinion and attention. On September 8, 2016, the Ministry of Finance announced the results of the verification and disposal of some new energy vehicle promotion subsidies and identified five typical enterprises.

After being exposed and reported by CCTV media and other official media, the “fraudulent behavior” caused netizens’ heated discussion and attention. The State Council attached great importance to it and began to conduct investigations on related enterprises.

3.1.3. Policy Feedback Period

The Internet era has created an atmosphere of “issue network” for the public. These actors can freely discuss, make their own suggestions, and comment on new energy vehicle subsidy policy issues. After the “fraud” incident, the public called on the state to have a more complete supervision and management of the new energy vehicle subsidy policy and urged the government to continuously improve the new energy vehicle subsidy policy. Some experts and scholars and relevant experts of new energy vehicles put forward “heavy quality but no weight” on this incident. We pay more attention to promoting the development of new products and technologies and improving the user experience of products. They believe that passenger cars with high-end products are the direction of policy support. The public and scholars feedback the implementation status of the new energy subsidy policy through the policy network, which can directly reflect the implementation of the policy through information and correct deviations in a timely manner. This has an important role in the commissioning or policy guidance of future policies.

3.2. Policy Streams

The deception of new energy vehicles has been a social and public problem and has attracted the attention of all social groups. When determining the issue of new energy vehicle subsidies through relevant indicators, focus events and project execution feedback, etc., it will attract the attention of experts, government officials, and stakeholders (automotive enterprises), and they will make different suggestions and proposals on this issue. Therefore, the policy suggestions of various parties floated around the “primeval policy soup”, so a policy flow was formed.

3.2.1. Policy Recommendations of Experts, Scholars and Government Officials

Experts and scholars, government officials, NPC deputies, and policy entrepreneurs constitute a policy community. They put forward professional proposals in their respective fields and play a key role in promoting the development of the policy stream.[7] Some policy entrepreneurs have a “dual identity”. They are both the elite of the automotive industry and the representatives of the “two associations” in the political world. Through the opportunities of the “two associations”, they express policy recommendations and promote the policy agenda. As shown in Table 1, this article selects different policy entrepreneurs in the policy community, including government officials, entrepreneurs and scholars.

Table 1: Policy primeval soup of new energy vehicle subsidies in China.

Characteristic	Representative	Policy Recommendations
Government Official	Kai Ma	Actively implement green transportation, vigorously strengthen technology research and development, and standardize industry development order.
Government Official	Qiuling Song	The standard should achieve a basic balance in bridging the cost gap and promoting technological innovation, while accelerating the establishment of an Internet-based information supervision platform.

Scholar	Yusheng Yang	To clarify the responsibilities of each automobile production enterprise, to achieve appropriate subsidies, responsibility indicators, and excess rewards, to punish production.
Scholar	Quanshi Chen	1) Relevant departments should issue detailed compilation instructions to interpret the policy guidance through the support of data; 2) The government should assess the possible implementation cost and impact of the policy on the market.
Policy entrepreneur	Dongshu Cui[8]	1) Phased subsidies help increase car sales. 2) Increase the number of automobile purchase limit indicators, implement purchase tax reduction and exemption, and subsidize new energy vehicle subsidies and other comprehensive measures.
Policy entrepreneur	Yang Dong	1) no longer adjust the technical conditions for subsidies for new energy vehicles. 2) subsidize the test products promised in the past, and let the local government mainly use the subsidies for charging pile construction and charging operations.

Content source: Collected from the mass media and CNKI database (www.cnki.net).

3.2.2. Policy Guidance of Government Departments

In addition to the opinions of the policy community, there are also a series of policies and documents that provide certain prerequisites for promoting the introduction of new energy policies. Government departments have continuously issued relevant regulations in response to the policy recommendations of experts and scholars and the expression of the demands of stakeholders. Through top-level design and overall consideration of the interests of all parties, the policy direction is gradually delineated and the new energy vehicle subsidy policy is introduced. The four ministries and commissions of the State Council began piloting the use of new energy vehicles in early 2009, and introduced relevant measures to develop a new energy vehicle market that uses low-carbon and energy-saving standards. In 2011, four ministries and commissions of the State Council issued relevant notices for the implementation of new energy vehicles. In April 2015, the Ministry of Finance issued the “Notice on the Promotion and Application of Financial Support Policies for New Energy Vehicles 2016-2020”. Since 2009, the government has issued a series of policies, which aim to vigorously promote the use of new energy vehicles in a policy-guided manner.

3.3. Politics Stream

In the current environment of China’s political system, the government’s development philosophy, international environment, national mood, interest groups and other factors together constitute the political stream of new energy subsidies.

3.3.1. Government Development Philosophy

Energy security and climate change have gradually attracted the attention of the state and society. In the context of low-carbon economy implementation in countries around the world, China has also begun to attach importance to the development of a low-carbon economy. The concept of “green development” appeared in the “Twelfth Five-Year Plan” in 2010. Later, the Fifth Plenary Session of the Eighteenth Central Committee put forward the five development concepts of “innovation, coordination, green, openness and sharing”. These five development principles have both Chinese

characteristics and world commonality. In December 2016, China issued the “Measures for the Evaluation of Ecological Civilization Construction Goals”, which further guides the transformation of the local government’s governance concept into a green development direction. The new energy vehicle industry meets the requirements of energy saving and emission reduction. To a certain extent, it reduces the consumption of other energy sources such as fossil fuels, which not only promotes the transformation of the energy structure, but also facilitates the development of the ecological environment and society. Therefore, in such a strong political atmosphere, “green development” has become the basic orientation of the country’s economic and social development.

3.3.2. National Mood

With the development of society, people’s awareness of ecological and environmental protection has gradually increased, and public sentiment is an important factor influencing the formation of policies.[9] In the 2016 National Survey Report on Public Ecological Awareness, the Chinese public’s awareness of ecological civilization reached 96.3%,[10] and effective participation of the entire population in ecological environmental protection can promote the mature development of society. In the era of the Internet, the powerful information transmission power of the network and the spread of public focus events allow every netizen to express their attitudes within the first time that a public event occurs. According to the 2013 National Public Ecological Civilization Awareness Survey Report, the respondents’ knowledge of smog reached 99.8%. In the context of building a “beautiful China”, the public’s appeal for ecological and environmental protection has forced the introduction of new energy vehicle policies. At the same time, the increased awareness of environmental protection has increased the public’s acceptance and urgency of green transportation, which has promoted the introduction of new energy vehicles to some extent.

3.3.3. International Environment

In the era of global environmental governance, countries are promoting the demonstration of new energy vehicles, which has put pressure on China. The international community is paying more and more attention to environmental protection, and countries have successively introduced relevant policies for environmentally friendly vehicles. The Japanese government introduced an eco-car promotion policy in the 2009 fiscal tax reform bill to stimulate the sales of eco-car.[11] As a country with a developed automobile industry, Germany is subsidizing the research and development of new energy vehicles and building special markets to improve the technology and performance of new energy vehicles.[12] Britain and France continue to stimulate the market by adjusting policies to increase sales of new energy vehicles. In addition, the United Nations has played a very important role in global environmental governance. At the first UN Environment Conference in 2014, the organization encouraged governments to formulate standards and policies for related industries to reduce pollutant emissions and control air pollution. Under the appeal of the United Nations, a global environmental governance pattern has been formed. The demonstration of the developed countries’ effective experience in new energy vehicle subsidy policies is worthy of reference for China, and it has created demonstration pressure on China at the same time. As one of the world’s most populous countries and one of its permanent members, China should shoulder the responsibility of a big country for solving environmental pollution and energy security issues, and it should actively promote global green development.

4. Coupling of the Three Streams and the Opening of the Policy Window

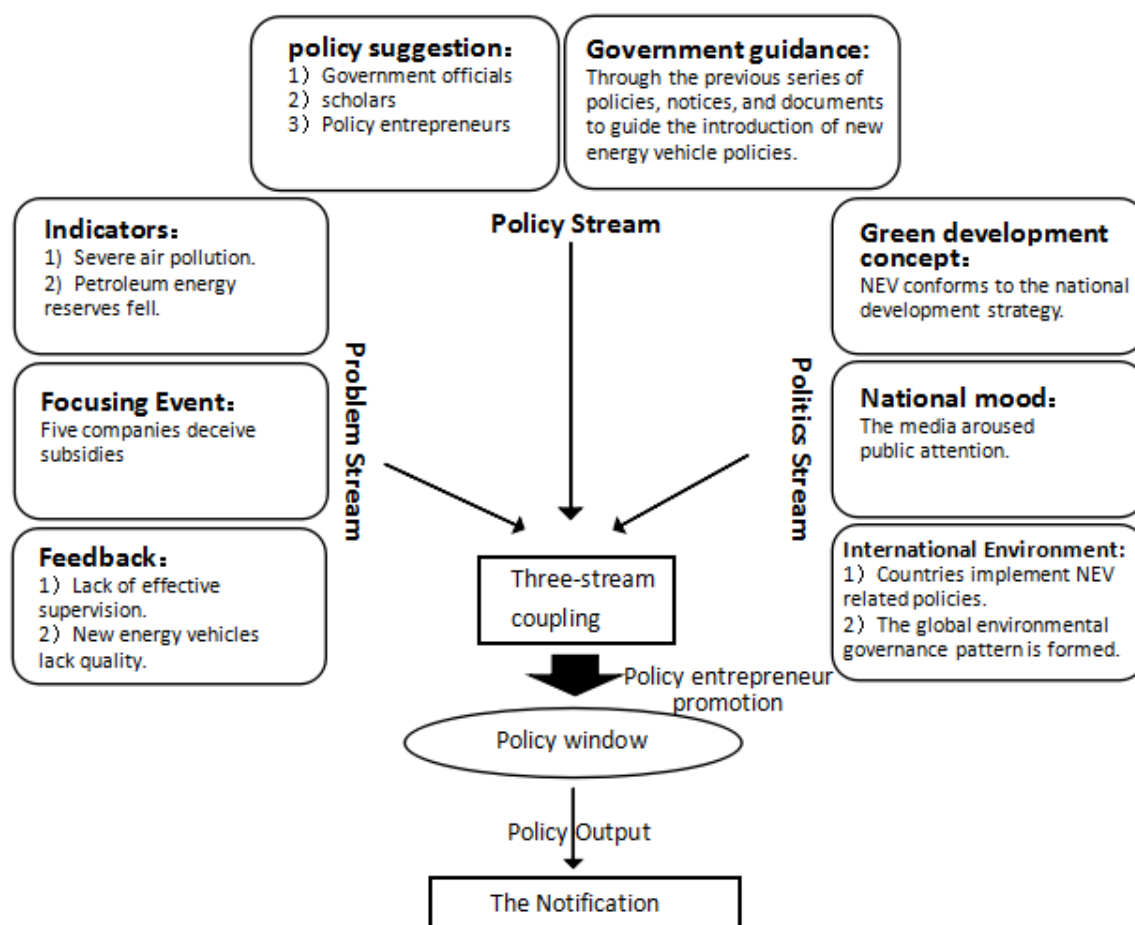
In the agenda of the new energy subsidy policy, it is not just the convergence of the three streams of the problem stream, policy stream, and political stream, but the interweaving of the pressure, thrust, and power generated by the stream itself and various public energy sources. When the three streams are coupled, the window of opportunity for policy is captured, and policy entrepreneurs promote the final formation of policy.[13]

4.1. Stage One: the Opening of the Policy Window

When the coupling of multiple sources is when the policy window opens.[14] In 2015, the Fifth Plenary Session of the 18th CPC Central Committee put forward the concept of green development. The meeting recommended the development of a green and low-carbon industrial system and low-energy transportation, insisting on the path of sustainable development and accelerating the construction of a beautiful China. The meeting opened a “policy window” for the change of new energy vehicle subsidy policies, which provided an important political opportunity for the new energy policy agenda. Subsequently, in March 2016, CCTV News reported on the “new energy vehicle film taking state subsidies” event, and reported on the fraudulent subsidies of five companies such as Suzhou Jimsey Bus Manufacturing Enterprise, etc. This event has aroused the attention of the relevant state departments and caused a heated discussion among the masses on the Internet. The occurrence of the focus event prompted the opening of the window of opportunity for the change of the subsidy policy for new energy vehicles, making it smoothly put on the policy agenda.

4.2. Stage Two: Policy Entrepreneurs Promote Policy Output

In the process of formulating new energy policies, not only the simple coupling of the three streams, but also the interweaving of multiple forces (pressure, thrust, gravity) at the social level, that is, policy entrepreneurs play an important role in promoting the policy agenda. Policy entrepreneurs come from different fields to make recommendations for new energy vehicle subsidy policies. They push policy recommendations into the “window of policy” and make the policy come out. For example, the representative of automobile entrepreneur Zhong Faping made suggestions on the technical requirements of new energy vehicles; Ma Kai, represented by officials, paid attention to the problems arising from the new energy vehicle subsidy policy to promote China and New Energy Vehicle industry; Yang Yusheng, represented by scholars Suggestions were made on the new energy vehicle subsidy policy and the development of the new energy vehicle industry. The suggestions of representatives from various circles have formed a powerful force through online media reports and publicity. The composition of multiple forces has promoted the key force for the change of subsidy policies for new energy vehicles. Policy entrepreneurs have become promoters of the coupling of multiple streams. They seize the window of opportunity and successfully promote the adjustment of new energy vehicle subsidy policies into the policy agenda, making them the mainstream of the situation.



Source: summarized by the authors.

Figure 2: The framework in processing the notification as a New energy vehicle subsidy policy.

5. Conclusion

The multiple streams framework provides a better perspective for analyzing changes in new energy vehicle subsidy policies in the context of green development. The national new energy vehicle subsidy policy was introduced because the policy has been implemented through long-term investigations, expert investigations, and pilots in many cities. However, some limitations still exist in this paper. For example, at the problem stream level, many scholars have paid attention to the subsidy content of new energy vehicles, but have paid little attention to the implementation of their policies. These restrictions point to new directions for future research. Therefore, in future green development, the introduction of policies should pay more attention to the implementation of policies, protect the environment with practical actions, and build a community of human destiny.

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