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Analysis of New Energy Vehicles Industry Policy in China's Cities from the Perspective of Policy instruments

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Abstract

This paper selects five China's cities, Beijing, Shanghai, Shenzhen, Hangzhou, Wuhan, respectively as research objects, where demonstration project of new energy vehicles are progressing fast. Meanwhile, framework for policy analysis of the industrial innovative chain and "demand - supply" policy is established. Based on this, content analysis is applied to study 95 new energy vehicles policies systematically during recent five-year data. In addition, this paper research the characteristics of new energy vehicles industry policy using policy instruments via comparing the differences among cities, furthermore, revise and improve the policy formulation.

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Keywords:new energy vehicles; industrial policy; policy instruments; content analysis

1. Introduction

Development of new energy vehicles industry is a major national strategic in China. Chinese government has promulgated a large number of industrial policies to deal with the problems of energy security, environmental pollution and achievement of leapfrog promotion, in order to develop new energy vehicles industry rapidly. The process of new energy vehicles industry encounters many difficulties and bottlenecks, while only relying on self-running market cannot reach the ultimate goal of industrialization. On the one hand, the core technology requires large-scale capital investment which beyond enterprise capability, especially in the fields of battery technology and power control system. On the other hand, consumers need appropriate subsidies from government when they buy new energy vehicles. Additionally, charging station and other market supports needed as well. It is important to establish the advanced industrial development model [1]. Therefore, to solve the new energy vehicles industry problems, government should provide appropriate support and tilt on policies particularly.

Domestic and foreign scholars carried out a number of relevant policy researches. Most scholars concentrate on importance of new energy vehicles industry policy, the existing problems and

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recommendations. Zhang Zheng and Zhao Fei (2014) had analyzed and summarized policies of China's new energy vehicles industry to provide a reference. [2] Chen Yantai (2013) analyzed policy problems of new energy vehicles industry in-depth and made policy recommendations in future. [3] However, there are some scholars introduce policy instruments, comparing developed countries with China's on the similarities and differences. Originally, policy instruments are utilized in the field of public management. Hoogerwerf considered that the policy instruments are something that can be used for present or potential situation to achieve one or more targets; [4]Owen .E. Hughes defined policy instruments as the behavior of government and the mechanism to regulate behavior of government by some ways. [5] Chinese researcher, Zhang Chengfu defined more clearly. That is mechanisms of the path when the government want to achieve the target and change its actions. [6]Policy instruments has been widely used in the field of environmental and low-carbon industries. New energy vehicles belongs to the low-carbon industry that use for the policy instruments to achieve a specific goal, further, help government to take effective measures through systematic analysis. In addition, domestic scholars took policy instruments into account of Chinese new energy vehicles, such as: Wei Shuyan and Guo Suilei (2014) suggested that China's new energy vehicles industry policy instruments should select markets and social policy instruments to optimize organizational forms of government. [7] Lu Chao (2013) found the electric vehicle industry in support of existing industrial policy configuration and distribution problems at home and abroad. [8]In this paper, it will compare urban policies promoting the development of new energy vehicles for cities. Chinese government put forward a series of new energy policies recent years, especially policies of promotion and demonstration. However, compared with Europe, the United States, Japan and South Korea, there are still some gaps in business model, key technical, and development and investment. [9] Only to improve and implement policies, will the demonstration of new energy vehicles be successful.

In order to fully understand the characteristics of policies and guide policy choices, this paper selects five China's cities, Beijing, Shanghai, Shenzhen, Hangzhou, Wuhan as research objects and establishes dimensional framework for policy analysis of the industrial innovative chain and "demand - supply" policy. Subsequently, related policies are analyzed via content analysis systematically. Finally, recommendations for promoting of China's new energy vehicles put forward.

2 Policy analysis framework of new energy vehicles

It is essential to establish a reasonable policy analysis framework to analyse whether the policy system is perfect or not. Three stages of industrial innovation selected as X-axis, namely public R & D and demonstration, commercialization and marketing; Y-axis presents basic policy instruments, classified into supply instruments, demand instruments. A policy analysis framework of new energy vehicles is established.

2.1 X dimensions: Industrial Innovative Chain

Industrial innovation is a complex process. Technology-driven and market-drive should be considered as the powerful source for industry innovation. This paper will use the point of Grubb (2004), who hold the view that the industrial innovative chain consists of public R & D and demonstration, commercialization (generalized) and marketing three parts [10].

2.2 Y dimensions: Basic "Supply - Demand " Policy Instruments

General policy instruments stimulating new energy innovation can be divided into two categories [11]. One is technology-driven policy that pointing to the supply policies (science and technology, intellectual property, tax incentives, financial support and standardize regulations, access rules, goal planning, public services, infrastructure), which is mainly used to promote R & D and production. The other is demand-driven policy that pointing to the demand policies (subsidies, government procurement, platform