Approach to Get Away of the Dilemma in New Energy Vehicles Market—Based on the Analysis of New Energy Vehicles’ Time Sharing-rental Policy in University

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**ABSTRACT:** under the pressures of both energy and environment, the fast development of new energy vehicles attracts much attention from people today. New energy vehicles’ time sharing-rental service arises at the historic moment, and colleges and universities has become the new energy vehicles’ very bullish market, North China Electric Power University as a leader academy of electric power industry, became the first university of Beijing to bring in new energy vehicles’ time sharing-rental service. This article points out the management problems existing in the running mode of polycentric governance theory, and puts forward relevant policy Suggestions by investigating Beijing Automotive Industry Group Corporation, the responsible department of school and the consumer.

1. **THE NEW ENERGY VEHICLES’ TIME SHARING-RENTAL SERVICE IN UNIVERSITIES**

Energy is the basis of production and human life, the important pillar of the modern economy development, also is the important strategic materials of national economic development. As the supply of crude oil remains tense, the main developed countries actively develop new energy sources to seek sustainable development as the primary strategic task of many countries.\(^1\) Institutions and car makers have increased investment in the development of the technology of new energy vehicles to replace oil as the fuel of conventional cars, and important progress has been made. Urban air pollution in China is changing from the first generation of soot type pollution to the second generation of automobile pollution type.\(^2\) Under the support of policy, China’s new energy electric vehicle volume increases year by year. In the first half of 2014, China produce 20692 new energy vehicles, and sells 20477, year-on-year growth 2.3 times and 2.2 times respectively, showing the strong driving force to the development of new energy electric vehicles in our country.\(^3\)

In order to further advocate the concept of energy conservation and emissions reduction, increase the coverage of new energy vehicles, reduce fuel car use, new energy automobile company was carried out by the new energy car rental self-help time-sharing project. Recently, North China Electric Power University, as the pilot, with Beijing Automotive Industry Group Corporation provided new energy vehicles’ time sharing-rental service, using "Internet +" modernization mode. Download the client and pass the authentication, you can rent a car at any time. By doing so, provide t. majority of teachers and students green travel services.

From the survey, we found that a series of problems in the new energy automobile development, mainly concentrated in charge is not convenient to this factor, and the price seems expensive ranked second, third is not equally convenient to take a taxi, other causes such as are slowly and have private cars. This suggests that in the process of promotion of new energy vehicles, we should strengthen the infrastructure - charging piles construction and use, at the same time enhance the core technology, reduce costs and lower rental prices, to gradually reduce the use of private cars, taxi and other fuel cars.

2. **THE NEW ENERGY VEHICLES’ MARKET DIFFICULTIES**

The leading cause of new energy vehicles didn't sell well is the inconvenient charging piles, resulted from its construction cannot get profit. The cost of construction shall be afforded by three parties together, partly borne by consumers, and the state shall practice a certain subsidies, also enterprises shall increase investment. However, countries tries to make prices lower to offset the disadvantage of inconvenience charging, in order to promote the use of new energy vehicles, the way which don’t let the consumers burden the cost—consumers can use...
charging piles in a low price. But the author thinks that the new energy vehicles’ price, the degree of convenience, and the number of users have a complicated relationship, the diagram below:

![Figure 1. Price and convenience’s relationship.](image)

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In the new energy automobile market, the convenience degree depends on the number of charging piles, and funds from government have been put into charging piles construction before new energy vehicles make profit, thus the degree of convenience is E in figure 1. As price increases, which is extracted by government to build charging piles, then convenient degree increases, which is from E to F. When charging piles are widespread, building more charging piles by raising the price does not make any sense, the degree of convenience is the same, that is the period after F.

In the Figure 2, k is the price and the convenience degree of correlation coefficient (convenience coefficient). Point a: assuming that the price of new energy vehicles use money for charging pile construction is 0, the government had already put certain fund charging pile construction, new energy automobile users have a certain amount. Higher price p, ease n also increases, a - b segment due to the high price compared to reduce the number of people because of the ease and increased the number of less, the overall use number is still increasing. As prices continue to increase, the convenience degree has basically no change, higher p cause a decrease in the number of new energy vehicles users more than n increase in the number of people, some consumers quit due to afford high price or buy other vehicles, new energy automobile market make the n b - c section has decline, until the consumer can’t afford to increase out of the market, users of new energy vehicles to stabilize, namely c point of function. At ease than the convenient degree of a point, so using the number n is higher.

The period after F in Figure 1, under the same convenience degree, the market will automatically adjust to the lowest price, namely F. And b in figure 2 is the same point, under this price, the number of users up to the most and consumers get much benefit. So far, the price of new energy vehicles is too low set by government which has not reach the most efficiency point. If the government can raise the price a little up to the highest point, there will be more users at that time.

3. THE POLYCENTRIC GOVERNANCE THEORY ANALYSIS

North China electric power university logistics group, points out that the charging pile in the school is funded by new energy automobile company, the school contact charging pile construction company is established in this paper. When the new energy automobile company found that the potential market of north China electric power university, under the state subsidies, the new energy automobile company evaluate yields, to decide to what kind of preferential policies to attract the teachers and students in colleges and universities, and no longer need to preferential policies such as national uniform price. Second, new energy automobile company signed an agreement with the school consultation, even, conduct propaganda activities. And then to fund new energy automobile company, the charge for the construction of the pile to school logistics services group, and let the construction of the school to decide on their own position, consultation, construction scale, completes the school plan.

According to the polycentric governance theory, public service is administrative, the degree of publicity each are not identical, as shown in the figure below:

![Figure 3. Preference curve.](image)

In case 1, because most people prefer to A, take A
scheme can satisfy the interests of most people. And case 2, the demand for a, b, c programs have roughly the same size, the number of a scheme cannot satisfy everyone's preferences at this time, the different public products and services may involve different benefit community, so the public service of multilayered determines the supply of public service system is not determined by the single center. Polycentric governance theory claims that the polycentric governance body[4], so public goods shall be composed of multiple closest to the consumer, can response group consumer preferences for decision making and supply of services.

3.1 State - the supporters

The polycentric governance mode, the state only responsible for large under the policy of preferential subsidies, no longer interfere in concrete operation, such as the construction of the charging pile, because these new energy vehicle company in order to occupy the market profitably. In that case the market can play the role of the allocation of resources. But the country needs to constantly review in the process of construction, to provide some remote places charging pile construction of preferential policies to analogous some less remote bus routes, in order to facilitate people to travel, and some government regulations bus companies are needed to set up the line. In the primary stage, the new energy vehicle industry is not yet mature. Countries need to finance, by way of franchising transfer rights to the enterprise, but ownership is held by the state, to find a way to ensure the operator no loss, return when the operator is no longer operating management, government bidding again. Under the new situation, the market free competition, evolution, to fit the timing keep several good service, low price of enterprises, to achieve economies of scale.

3.2 Companies —the service provider

New energy vehicle company for market, to provide automobile lease and charging pile construction funds and the particular value of leasing, operation rules. College time-sharing leasing policy market positioning is very accurate. Students can't afford to buy a car, but affordable rental fees, and they like to travel for pleasure, so renting the car is a good choice. In the future, a university can be introduced in the two new energy automobile company competition, and new energy car company requires constant innovation policy, technology upgrading, so as to provide consumers with more secure, more preferential services, to occupy the market. If at community for rental, residents have more traditional vehicles, when buying a car, also may choose better imports.

3.3 School—supervision and coordination

University new energy timeshare lease users are mainly the school teachers and students, and teachers and students as consumers, they scattered forces. They were not associated with new energy automobile enterprises, and their legal awareness is not high, their opinions, preferences to feedback to the service provider, even if a reasonable request, also may be neglected and unable to change the status quo. Logistics services group at this point, the school became the representative of interests between teachers and students, teachers and students will appeal to new energy car companies, for example: to reduce the number of new energy vehicles on school safety hidden trouble, how should vehicles parked, vehicles within the scope of what the control, the vehicle driving route in the school regulations, etc. And as a consumer, college teachers and students in the process of promotion of new energy vehicles, in addition to clear their own related rights and obligations as a consumer, should also be a advocate of green environmental protection. When everybody publicity for the new energy vehicles, especially a familiar propaganda more persuasive, new energy vehicles will attract more consumers.

To sum up, the government and the market are defect. They cannot provide public goods and services. What should do is that they exert their advantages, and the government and the market complement and coordinate with each other. Government and enterprises, and the binding energy reflect consumer demand between teachers and students of school of third party logistics services group, jointly promote the good development of new energy vehicles in colleges and universities.

REFERENCES