Study on the Impact of Withdrawal of Subsidy Policy for NEV Enterprises and Coping Strategy

Hongwei Li¹, Huanhuan Ren¹

¹China Automotive Technology & Research Center Co., Ltd., Tianjin, 300300, China
*Corresponding author’s e-mail: lihongwei@catarc.ac.cn

Abstract: Against the backdrop of rapid withdrawal of the NEV subsidy policy, the paper has built a calculation model to evaluate the price increase pressure upon NEV under different levels. The study has found that BEVs are confronted with greater pressure of price increase than their plug-in hybrid counterparts, and SUVs will get rid of price increase pressure more quickly than sedans. In response to the upcoming non-subsidy era, enterprises are actively planning strategies such as building high-end brands, building product platform, conventional energy vehicles and new energy vehicle sold on different networks, surrendering part of the profits, joint promotion by governments and enterprises, innovative business models, etc. At last, the study has also proposed different strategic suggestions for different types of enterprises.

1. Introduction
In order to alleviate the increasingly severe energy crisis and environmental pollution in China, the new energy auto industry, i.e. one of the 7 strategic emerging industries, is highly valued by the government, enterprises and scientific research institutions. Since the officially launch of the demonstration and promotion of new energy vehicles in 2009, the new energy auto industry has experienced such 3 stages as Demonstration and Promotion, Promotion and Application and Comprehensive Promotion. The implementation of the subsidy policy has greatly promoted the development of the new energy auto industry, and also had a greater influence on the structure of NEV products.

Since 2009 as of now, there have been 10 NEV subsidy related policies issued, which has basically guaranteed the continuity of policy implementation. In accordance with the different development stages of new energy vehicles, the subsidy targets, policy implementation objectives, forms of subsidy issue and scope of models eligible for subsidy have been adjusted in time in order to promote the industrialization of new energy vehicles.

The rapid withdrawal of subsidies has a huge impact upon the R&D, sales, price setting, etc. of NEV enterprises. In 2019, the subsidy amount of new energy vehicles under various levels was 47%-100% lower than that of 2018, the maximum reduction of subsidies for various models as high as RMB 27,000.

Figure 1 NEV Production Trend 2008-2019
Table 1. Summary of Changes in NEV Subsidies

| Technology Type | E-range (km) | Amount of subsidy (RMB 10,000) |
|-----------------|--------------|---------------------------------|
|                 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| EV              |      |      |      |      |      |      |      |
| 80≤R<150        | 3.5  | 3.325| 3.15 | -    | -    | -    | -    |
| 100≤R<150      | 3.5  | 3.325| 3.15 | 2.5  | 2    | -    | -    |
| 150≤R<200      | 5    | 4.75 | 4.5  | 4.5  | 3.6  | 1.5  | -    |
| 200≤R<250      | 5    | 4.75 | 4.5  | 4.5  | 3.6  | 2.4  | -    |
| 250≤R<300      | 6    | 5.7  | 5.4  | 5.5  | 4.4  | 3.4  | 1.8  |
| 300≤R<400      | 6    | 5.7  | 5.4  | 5.5  | 4.4  | 4.5  | 1.8  |
| R>400          | 6    | 5.7  | 5.4  | 5.5  | 4.4  | 5    | 2.5  |
| PHEV            | R≥50 | 3.5  | 3.325| 3.15 | 3    | 2.4  | 2.2  |

2. Measurement on Price Increase Pressure of Enterprises in the Future

Due to the different subsidies for different types of models, the price increasing pressure upon them will be also different in the future. The Section focuses on the measurement of price increasing pressure confronting the NEV models of different types and with different technologies.

The formula for measuring the price increase pressure is shown as below:

\[ P_t = \left[ \left( S_0 - S_t \right) - \left( P_{0,B} - P_{t,B} \right) \right] \times \left( \sum_{i=1}^{n} E_i \times V_i \right) \div \left( \sum_{i=1}^{n} V_i \right) \]

Among them, \( P_t \) refers to the price increase pressure faced by the model in the t year; \( S_0 \) refers to the current subsidy amount; \( S_t \) refers to the subsidy amount available in the t year; \( P_{0,B} \) refers to the price of the current power battery; \( P_{t,B} \) refers to the price of power battery in the t year; \( E_i \) refers to the price of power battery for i model, and \( V_i \) refers to the sales of the i model.

In order to facilitate the measurement of the price increase pressure upon various models, the study selects 1 model as the basic model, as shown in Table 2.

Table 2. Information of Basic Model for Measurement

| Technology Type | Vehicle Type | Class | Range(km) | Electricity(kWh) |
|-----------------|--------------|-------|-----------|-----------------|
|                 |              | A00   | 302       | 34.9            |
| Sedan           |              | A0    | 302       | 35.2            |
| EV              |              | A     | 460       | 60.2            |
|                 |              | A0    | 305       | 42.0            |
| SUV             |              | A     | 460       | 59.5            |
|                 |              | B     | 520       | 82.8            |
Among factors affecting the price increase pressure of various models, one is the pre-judgment on the amount of subsidy available for models, while the other is the pre-judgment on the price of battery.

1) Pre-judgment of Subsidy Amount. The thoughts on the adjustment of subsidies in 2020 is the technical indicators to remain unchanged, amount of subsidies to be halved, and subsidy policy abolished after 2021. Based on such thoughts, enterprises are able to meet the subsidy requirements for 2020 without making too many changes to existing products, but the amount of subsidies will be reduced.

2) Pre-judgment on the Price of Power Battery. The price of power battery is studied via the learning efficiency curve. By virtue of the study on historical matching volume of power battery and price of power battery, the learning efficiency of power battery in 2015-2020 was within the range of 13-21%. Given that the cost proportion of raw materials for power battery is relatively large, the study sets the learning efficiency in between 2020 and 2025 at 13%.

Via the measurement results, it is found that:

1) The pressure of price increase upon BEV is greater than that upon PHEV. At present, the amount of subsidy provided for BEVs is higher than that for PHEV, and no subsidies will be available for the two models at the same time since 2021.

2) Notwithstanding acquiring higher subsidies may lead to more pressure of price increase, a big car can get rid of the price increase pressure faster than a smaller one, and SUVs can get over the price increase pressure more quickly than sedans, mainly thanks to their higher battery capacity, more sensitivity to the price drop of power battery, and faster reduction of cost.

3. Study on Coping Strategies of Enterprises
In response to the aforesaid price increase pressure, various enterprises have adopted or planned to adopt multiple combination strategies in a bid to size more market share.

3.1 Product Strategy

3.1.1 Strategy for Building High-end Brand. Since the new energy auto industry is still in transition from the starting period to development period, it is confronted with cost pressure. During the early stage, the products officially launched by local enterprises tend to be smaller with lower price, and their product levels are distributed between the A00 and A class, and price segment at RMB 50,000-150,000. The
consumer group for such products is generally sensitive to price, and once the price goes up, a loss of market share can be seen. In order to cope with the pressure of price increase in the post-subsidy era, some local enterprises have proposed the strategy of establishing premium brands and premium products and adhere to the principle of building high-end brands in the NEV field. Adhering to the position of establishing premium brands and premium products is mainly to enhance the added value of a brand and ability of a product to create premium, so as to buffer the impact of profit decline caused by subsidy withdrawal.

3.1.2 Platformization. With the concept of the popular MEB platform gaining more attention, domestic auto enterprises have started developing the pure electric platform one after another. Platformization can offer certain values for reducing the time required for repeated model development and enhancing components versatility. In accordance with the platformization experience of conventional energy vehicles, the cost per vehicle may be decreased by 20-30%.

3.1.3 Optional Configuration. With the application of the dedicated platform and popularization of the system modularization concept, the optional range of new energy vehicles has gradually become a strategy for enterprises to cope with the subsidy withdrawal. For the same model, consumers can choose the appropriate range based on different application scenarios, thus getting rid of the problem of large battery and high energy consumption in daily short-distance travel in the long run. In addition, some enterprises are also taking into account the mode to install the short-range small-capacity battery pack for daily use and switch to the large-capacity one for long-distance travel via battery changing.

3.2 Price Strategy
In terms of price strategy, 3 strategies are usually adopted by enterprises: 1) Price Increase. At the beginning of 2019, under the expectation that the subsidies would be declined to a larger extent, SITECH, GWKULLA and Changan increased the prices of their products by RMB 5,000-10,000 at first. The models increasing their prices are all the Class-A00 ones, which further proves the study results that the smaller cars are facing more pressure of price increase. Some other enterprises adopted the strategy of disguised price increase, such as: upgrading product configurations, but the extent of price increase exceeding the cost of the new configurations. 2) Price Remaining Unchanged. Although the cost reduction rate is lower than the extent of subsidy decline, some NEV enterprises are still adhering to the strategy of unchanged prices, and instead, they ask the upstream suppliers for lower purchase price. 3) Price Reduction. In 2019, the new G3 produced by Xiaopeng Auto, the new force in car manufacturing, reduced its price by RMB10,000 though with its range enhanced by 100km, thus gaining widespread attention in the market.

3.3 Channel Strategy
In terms of channel strategy, there are 2 coping strategies used by enterprises at present. 1) Strategy of Selling on Different Networks. Such a strategy is mainly adopted by conventional energy auto enterprises. The current mode of selling on the same network have led to the ICEV and NEV models of same series being exhibited on the same stage at 4S stores. The 2 products with a huge price difference are targeting the same target customers, which will bring difficulties for customers to choose their favorite cars, so not conducive to the sale of new energy vehicles. Selling in different networks is to sell ICEV and NEV in independent channels. 2) Online Sales + Offline Experience Store Mode. Such a strategy is mainly adopted by the enterprises known as new force in car manufacturing with genes of the Internet, which is characterized by eliminating the offline dealership channels and establishing experience stores for direct sales, and the products are mainly sold online. Such a strategy boasts the advantage of reducing the cost of entity channel construction, and is also very consistent with the characteristics of light assets of the Internet enterprises.
3.4 Promotion Strategy
Since enterprises need to deal with the CAFC and NEV credit policy, manufacturing new energy vehicles may help them earn credits, and trading such credits may generate benefits, so some of the enterprises tend to adopt the strategy of surrendering profits to customers. The 2 PHEV models of SAIC Volkswagen, i.e. the Passat and Tiguan L, are typical examples for the application of such a strategy. Due to the lack of cost advantages, the two PHEVs are priced higher than ICEVs. However, during actual sale, SAIC Volkswagen, in order to realize credit compliance, offers consumers greater discounts, so that the price actually paid by customers when they buying the car is equivalent to that of an ICEV.

3.5 Other Strategies

3.5.1 Innovative Business Model In response to the pressure of price increase in the post-subsidy era, enterprises are actively exploring the feasibility of power battery changing mode. BAIC is greatly promoting the change of power battery in the taxi field, while NEXTEV exploring the business mode for battery changing in the private sector. Meanwhile, some enterprises are also actively introducing new modes as finance leasing, selling replaced by rental, etc. to try to reduce the sensitivity of customers to price via financial means and achieving a win-win result for both enterprises and customers.

3.5.2 Joint Promotion by Government and Enterprises Such a mode is based on the supportive polices officially enacted by local governments to provide a convenient environment for use, and on the technologies, standards and products provided by enterprises. The mode has been successfully verified in 2 cities, i.e. Liuzhou, at Guangxi province and Baoding, at Henan province.

4. Conclusion
Via the study, we have found that the traditional auto makers, joint ventures and new force in car manufacturing tend to adopt the different combination strategies.

1) As for the traditional auto makers, since they are mainly limited to the product segment with lower prices during the initial stage, and usually adopt the platform of change from oil into electricity when coping with the frequent changes of subsidy policy, they are suggested to adopt the strategies as product platformization and high-end brands, selling at different networks, joint promotion by government and enterprise, etc.

2) As for joint ventures, since they have already acquired significant brand advantages, they are suggested to adopt the combination strategies as product platformization, selling at different networks, innovative business mode.

3) As for the new force in car manufacturing, since there is no basis of conventional energy cars and huge dealer teams, and they boast huge advantages in software, Internet and human-computer interaction, they are suggested to adopt the strategies as optional configurations, online sales + offline experience stores for direct sale and innovative business mode.

Reference
[1] Xiao Fei. In the Post-subsidy Era, How do Domestic Car Makers Assume the Cost of Subsidy Declining? Automobile & Parts, 2019 (07): 34-35.
[2] Zhao Jindan. Development of New Energy Auto Industry in the Post-subsidy Era. Industrial & Science Tribune. 2017(07)
[3] Tan Xinqu, Wu Xing, Wu Liping. Exploring the Marketing and Promotion of “Liuzhou Model” for New Energy Vehicles in the Post-subsidy Era. Journal of Nanning College for Vocational Technology, 2019, 24(01): 70-73.
[4] Zou Yuluo, Zhu Yanyang. An Empirical Study on the Development Path of New Energy Auto Industry in the Post-subsidy Era. Contemporary Economics, 2017(16): 13-15.
[5] Zhang Jianbin, Wang Lixiang, Li Mengying. Research on the Negative Effect of NEV Subsidies and Expected Impact of Subsidy Decline. Review of Economic Research, 2018(05): 85-89.
[6] Ma Liang, Zhong Weijun, Mei Shue. Research on the Problem of NEV Subsidy Decline. Soft Science, 2018, 32(04): 26-30.

[7] Weng Sha. BYD Moving Forward in the Second Half of 2019 under Pressure after Subsidy Decline. Automobile & Parts, 2019 (17): 36.

[8] Cai Enze. New Energy Vehicles: Moving from Policy Advantages to Consumption Advantages. Property Rights Guide, 2019 (05): 5-7.

[9] Lai Xianghong. Thinking about the Decline Policy of NEV Subsidy. Co-operative Economy & Science, 2018(20): 162-164.

[10] Feng Xiaodan. Research on Financial Subsidy of New Energy Vehicles. Wuhan University, 2018.

[11] Yang Yusheng. Suggestions on How NEV Responds to New Industrial Policy. Auto Review, 2017(12): 52-53.