

Strategies for better popularization of new energy vehicles

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Abstract: Presently, energy restrictions are tightening, automotive energy technologies are diversifying, and electric vehicle development and popularity are the largest issues in Japan, the US, Europe, China, and other growing nations. Nonetheless, electric vehicles have been introduced as clean technology since cars were first utilized, but they have not been extensively applied for myriad reasons. By 2025, 12 countries and 25 areas will ban petrol vehicles which need individuals and nations must work together to grow electric vehicle sales. Based on the foregoing, initiatives for better popularization of new energy vehicles will include electronic vehicle technological advancement and national infrastructure with policy support.

Keywords: Electric Vehicles (EV); battery; low carbon; Low-carbon development

Under the premise of the rapid development of modern science and technology, with the wide application of microprocessors and integrated circuits such as computers in the automotive industry, automobile is gradually evolving from mechanical product performance to electronic product performance. As one of the key options to realize the change of transportation mode, electronic vehicles are becoming more and more important (Teng et al., 2016). Therefore, despite many automobile manufacturers scramble to expand the share of electric vehicles in the automotive market, their adoption has always been challenging due to core technology of Electric Vehicles (EV) Maker and lack of charging infrastructure, etc. Even with those problems, electric cars are still becoming more and more popular in the current car market, maybe it is a trend that electric vehicles will become the mainstream of the automobile industry in the future. In order to better popularize electric vehicles, the promotion will be embodied in the following two aspects: the advancement of technology of electronic vehicle and the national infrastructure with policy support.

In order to popularize electric vehicles to the public more comprehensively, relevant electric vehicle manufacturers can make corresponding adjustments and changes in terms of technology. First, Electric vehicle manufacturers can improve core technologies related to batteries to let consumers understand and choose it. Tschiesner et al. (2020) revealed that the scale of electric vehicle models is more comprehensive than before, by improving battery technology, large vehicles with larger batteries and longer service life will also make it more acceptable to the public. After the reform of its battery core technology, it can reduce the concerns of new energy vehicle owners about mileage and battery replacement to a certain extent. Second, Electric vehicle manufacturers can also improve the popularity of electric vehicles by improving the safety performance of batteries. The proportion of failures related to the power battery of electric vehicles is relatively high (Sun et al., 2020). So, Xinhua News Agency (2020) recommended that for the safety accidents of electric vehicles, all enterprises can strengthen cooperation, management innovation and data connectivity, then form a mechanism to analyze the causes of accidents to improve safety. Therefore, the best way for electric vehicle manufacturers to expand the market share is to improve the relevant battery core technology. But it is not enough to only require the new energy vehicle industry to make changes, and the relevant government departments should also make correlative adjustments, so as to achieve the purpose of better popularization of electric vehicles.

Countries can also strengthen the popularity of electronic vehicles by adjusting relevant infrastructure and policies. First of all, the state can vigorously strengthen the construction of the number of new energy vehicle charging piles. Potdar, Batool and Krishna (2018) indicated that the number of charging piles problems could be solved by building an intensive charging website and one of the successful cases is that Australia government are building fast direct-current charging stations along the highway, which is being implemented through the remote southwest of Western Australia, successfully connected several other towns. When the number of infrastructures such as charging piles is gradually increased in the country, it can really let consumers allay all kinds of worries about inconvenient charging, and to a certain extent, it will add new vitality to the new type of travel. Second, the state can introduce relevant policies to reduce the cost of purchasing new energy vehicles, which encourage consumers to buy new energy vehicles, so as to better popularize electric vehicles. In order to let more consumers, buy electric vehicles, the government should establish a special incentive business model for consumers, reduce the consumption of electric vehicles, and let more consumers choose electric vehicles (Potdar, Batool and Krishna ,2018). One example of this is that Hawaii State Energy Office managed \$4.5 million through the Department of Commerce, economic development and Tourism Administration for tax rebates and financial incentives to encourage early adoption of electric vehicles and deployment of charging stations in 2010, And finally received the majority of Hawaiian People's pursuit (Ku,2015). It can be seen that the government plays a great decision-making role in the process of popularizing electric vehicles, so the government and relevant departments can introduce more relevant policies to encourage hesitant consumers to buy electric vehicles. Although the popularization of electric vehicles could be effectively solved with the support of new energy vehicle manufacturers and relevant national departments, it is not easy to really overcome the above-mentioned challenges.

Admittedly, many readers may challenge the view that it is not easy to really solve the core technical problems of battery, and these bottleneck problems often exist in the development of electric vehicles in so many ways. One problem Zhang et al. (2016) mentioned that the battery of EVs cannot maintain a reasonable size and meet the storage capacity, the limit of charging times also leads to a short life span for EV's battery. BBC (2019) also reported another problem is that EV itself has no exhaust emissions, but the indirect pollution from its batteries cannot be ignored. At present, one of the reasons why electric vehicles are not well popularized may be that the battery's

endurance is not strong, and the safety performance is not effectively guaranteed, and such a problem will be difficult to be solved in the future development of science and technology. This point might be true but with the progress of modern high-tech life, many researchers have made major breakthroughs in the field of new energy vehicle batteries, and some of the existing problems could be solved easily in the future. IEA (2020) reported that the cost of electric vehicle battery is decreasing significantly. The industry report shows that the average sales price of battery pack in 2019 is US \$156 / kWh, which is significantly lower than US \$1100 / kWh in 2010, and the average size of battery pack continues to show an upward trend. This will promote the emergence of electric vehicles with longer driving range, and the subsequent demand will be increasing. On the whole, although all kinds of new energy vehicles are facing different degrees of core technology problems, it is not difficult to see that although the time from the advent of electric vehicles to now is short, the development is amazing. Hence, many tough problems may be solved quickly in the future.

This proposed solution does have some disadvantage, although many countries have issued a wide variety of relevant policies to vigorously promote new energy vehicles, the state intervention in new energy vehicles is limited, and the preferential treatment given by the government cannot be sustained for a long time. From 2018 to the first half of 2019, Chinese government is continuing to reduce fiscal subsidies (the purchase price subsidies have been decreasing every year since 2014), the sales of electric vehicles will continue to increase, but most likely at a lower rate (Tschiesner et al., 2020). This also means that the promotion of electric vehicles will gradually tend to be stable in the future, and the national policy of reducing subsidies year by year will gradually disappear in the future popularization. Even if the government has a time limit for the implementation of policies on new energy vehicles, many countries headed by China have announced that they will achieved carbon neutrality in the middle of this century. As far as the new emission reduction targets are concerned, the transition from fuel vehicles to electronic vehicles will be an inevitable trend. According to incomplete statistics, more than 12 countries and 25 regions have announced or formulated schedules for banning the sale of fuel vehicles. Norway, for example, plans to sell all new cars with zero emissions from 2025. Denmark, Iceland, Ireland, and other countries plan to ban the sale of fuel vehicles after 2030 (Zhu,2021). Besides, Gual et al. (2017) also said that by 2050, about five million EVs will be on the road all over the world and European climate policies aim to significantly reduce CO₂-emission from sector by 60% by 2050 and to reduce the use of “conventionally fullend” vehicles in urban transport by 50%. In other words, in the future development of the automobile industry, it might will be the international trend to shift from traditional ordinary fuel vehicles to new energy electric vehicles. Although it will take a long time to popularize electric vehicles, it can still see that the potential value of electric vehicles is huge.

Electric vehicles are promoted faster and better by individuals and nations. For EV producers aspire to increase their market share, then need make appropriate modifications and improvements at the relevant level of electric vehicle manufacturers and the country. Electric vehicles are anticipated to continue to develop and grow in a short time. Electric car producers may focus on core tech, while countries can emphasis on infrastructure. As electric vehicles are organically combined and constantly improved, there will have a better future.

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