

Should the Electric Vehicle Market Diversify

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Abstract: The new energy automotive sector is on the verge of The Times due to the ongoing depletion of natural resources. Future gasoline-powered automobiles could be fully phased out thanks to the increasing development of electric vehicles. Additionally, several businesses are actively working to manufacture electric cars. This study looks at consumer preferences for electric cars based on their various performance levels. Furthermore, employ the multiple-argumentation angle to describe the effect. This essay will also examine the sales and reputation of the market leaders Tesla and BYD through a comparative comparison. Additionally, additional research should be done on the electric car industry to determine if it should be controlled by a small number of major firms or grow more diverse. We shall provide the future perspective and planning for the market for electric vehicles in this article's conclusion in light of its content.

Keywords: Electric Vehicle, New Energy, Market

1. Introduction

In modern society, people usually travel by car. Today, the automobile market is divided into three categories: fuel, hybrid, and pure electric vehicles. In a community 20 years ago, the number of people using fuel cars was almost 90%, but with the development of society and the increase in population, many fuel cars travel, which has seriously affected the living environment. Automobile exhaust contains carbon monoxide, nitrogen oxide, and some other solid particles, and the haze caused by automobile exhaust emissions is a massive threat to people's health. For example, in Beijing, China, the smog caused by the massive emission of automobile exhaust caused the inclusion of PM2.5 in the air, which had a great impact on the lives of Beijing citizens. Beijing's air condition has gradually improved after the city government decided to reduce the number of fuel cars on the road to reduce vehicle emissions. The impact of fuel vehicles on the environment is too significant. Due to the development of the current society and the innovation of science and technology, new energy vehicles have gradually appeared in everyone's vision. The emergence of new energy vehicles has solved the problem that the exhaust emissions of fuel vehicles impact the environment. Now, the government is also vigorously supporting and promoting the development of energy vehicles, and the people are gradually beginning to accept new energy vehicles.

People's demand for vehicles is rising along with the middle class, and the debate over whether to buy gasoline or electric cars has gained popularity. From the consumer's perspective, purchasing an electric car is more cost-effective. Electric car maintenance is relatively inexpensive for consumers. Electric vehicles require less maintenance because they have fewer moving parts. Furthermore, the comfort of electric vehicles is undeniable. For instance, many electric cars come with sophisticated driver assistance features that can improve comfort and control for the driver. From a national point of view, the scarcity of oil dooms people to choose more new energy vehicles. Oil is known as the "blood of industry". Oil is an essential fuel in the land, sea, air, and in the production process of modern factories. This is why Europe and Asia are vigorously developing new energy vehicles today, but they want to gradually reduce their dependence on oil and avoid being stuck one day. Furthermore, the development of artificial intelligence technology can also help the country control the international voice and establish itself as a key tool to attract customers. For instance, Tesla has had AI capabilities for a very long time. These technologies can greatly improve the stability of the car. Therefore, promoting the development of the EV industry benefits individuals, but also for mastering the most advanced technology, and ensuring that it is among the top in the world.

Several car companies led by electric vehicles, Tesla of the United States and BYD of China, have gradually dominated the electric vehicle market. However, with the development of electric cars, more and more electric vehicle companies are competing with each other, slowly affecting the market of the entire electric vehicle industry. Electric cars are known for being affordable, but sales of other electric vehicles are declining due to the ultra-low prices of electric vehicles such as Tesla. Maintaining a balanced market can allow more electric vehicles to have a good space for development and increase the public's choice of electric vehicles. Rather than allowing one or a few electric car companies to monopolize the market.

We will propose solutions to the equilibrium problem in the electric vehicle market, to make the electric vehicle market more efficient and diversify the electric vehicle brand. Diversified electric vehicle brands can better improve the utility of electric vehicles, and at the same time allow customers to have more choices. Diversifying electric vehicles can make the electric vehicle market become the dominant position in the automotive market.

2. Literature Review

2.1. The Major Trend of Electric Vehicles

"The rise of greenhouse gas levels in the atmosphere is a severe climate change concern. A significant part, such as CO₂ emission, comes from internal combustion engine-driven vehicles, incited the automotive sector to focus more on the sustainable electric transportation system." [1]. The serious environmental impact also reduces the environmental quality of people's lives. The government must start promoting electric vehicles to improve the environmental impact caused by automobile exhaust emissions. "Electric vehicles (EVs) are considered one of the premium solutions in the land transportation system because they can significantly reduce the dependency on crude oil and minimize transportation-related carbon dioxide emissions along with other pollutants." [2]. Gradually, society began to popularize electric vehicles, and the demand for electric vehicles is also increasing. "As the present trend suggests, this mode of transport is likely to replace internal combustion engine (ICE) vehicles shortly." [3]. The electricity required for electric vehicles is far cheaper than the oil required for fuel vehicles, and the price is also cheaper than the price of conventional fuel vehicles. In the process of gradual improvement, electric vehicles will improve charging time and charging infrastructure. Ultimately, it will increase global market sales, to replace the dominant position of fuel vehicles.

2.2. The Advantages of Electric Vehicles

Compare this with two major electric vehicle brands, Tesla in the United States and BYD in China. The advantage of both brands of electric vehicles is that the price is cheap and close to the people, and the cost performance is higher than the others [4]. BYD, as a Chinese domestic brand, has not only achieved success in the Chinese market but also in the world's best-selling electric car [5]. BYD has always focused on technological innovation and quality assurance [6], and the most important thing is that BYD has been more successful in expanding the global market than Tesla. At the same time, Tesla also has a strong competitive advantage. Tesla's Model series has a good appearance, which makes it highly ornamental and generally large storage space and the power system is lighter and faster [7-8]. These also make it popular with buyers. The market is also gradually appearing with more and more electric car brands such as BYD and Tesla, which makes the number of electric cars rise.

2.3. The Disadvantages of Electric Vehicles

As the number of electric vehicles increases, the problems contained by electric vehicles in the province are gradually amplified. Due to limited battery storage, electric vehicles generally have much less mileage than fuel vehicles. "Charging the growing number of EVs in use requires a robust network of stations for both consumers and fleets. The Alternative Fueling Station Locator allows users to search for public and private charging stations." (Alternative Fuels Data Center: Developing Infrastructure to Charge Electric Vehicles, n.d.). Charging stations play a crucial role in providing the flexibility of electric vehicles. "First, the charging stations need to anticipate important parameters of the incoming vehicles, e.g., time of arrival/departure, state of energy at arrival/departure. Second, it interacts with vehicles only when connected to a specific charging station, thus overlooking the arbitrage opportunities when they are connected to other stations." [9]. "The need for electric vehicle charging stations [known as electric vehicle supply equipment (EVSE)] in industrial and commercial facilities is growing and will continue to grow as the number of PEVs increases." [10-12]. Charging stations are becoming increasingly visible in almost any corner of a city, such as underground parking lots, near shopping malls, and on street sides. There will be a lot more charging piles installed, making them as thick as oil car gas stations. People will inevitably decide to purchase trams because they can be charged anytime, anywhere on the roadside, on the road, or even on the highway. They also do not need to worry about the electric vehicles' short endurance. The resulting excess of charging stations has made it easier for EV owners to find a place to charge, but it has also left most charging stations idle.

2.4. How to Improve the Adoption of Electric Vehicles

"The large penetration of electric vehicles (EV) charging stations in existing utility grid is bringing up many power-quality problems which highly affect the load performances at the large and small consumer ends.". The establishment of a large number of charging stations makes a city or even a country needs to provide a large amount of electric energy. At present, society has begun to build solar and wind power stations to provide enough electricity to charge electric vehicles. But as the number of electric vehicles increases, the general price is gradually decreasing. For example, the excessively low price of Tesla when it was imported into China squeezed the price of electric vehicles in China, forcing the price of electric vehicles in China to be reduced. At present, there is no corresponding better solution. We will not complete this loophole in the article so that our article is effective.

3. Analysis

Electric vehicles reduce the environmental impact of vehicle exhaust from gas-powered vehicles. Electric cars are generally affordable, which makes them affordable for many ordinary people. Electric cars are not perfect. Because of the charging factor, the range of electric vehicles is much shorter than fuel cars. Most cities have begun to build many charging stations, which solves the problem of short-range electric vehicles. However, new problems also appear. In addition to many charging stations, which require huge power support, some charging piles are built in remote locations, and electric vehicles do not often charge them, resulting in the shallow utility of some charging stations. Idle charging stations have a certain impact on the environment. The cost of establishing charging stations is very high, and it will cost a lot of money to remove idle charging stations, resulting in negative effects on the environment and regional economy. Some efficient systems for electric vehicles are solving this problem, in terms of battery upgrades that can increase the mileage of the trolley itself, reducing reliance on charging stations. At present, Tesla and BYD, the leaders of the electric vehicle industry, are deeply loved by the public. (Inc, n.d.).

They all have strict quality assurance and strong safety performance. The car content space is large and the car appearance is very nice, which allows ordinary people to have a cost-effective car at the lowest price. However, BYD still has a first-class presence in electric vehicles in some ways. batteries, models, and motors are all created and produced by BYD itself. BYD currently uses its research and development of blade batteries as a good solution to the problem of spontaneous combustion of batteries. BYD's high-efficiency motor combined with blade batteries effectively improves the vehicle's formal mileage and power utilization. High safety is also one of the conditions that lead to BYD sales worldwide. In addition to systems such as airbags that other cars are equipped with, BYD's high-quality brake assist system and the stability of electric vehicles are also key to their safety. Compared with BYD, Tesla has advanced technology and a sense of science and technology. Tesla's AI service system is very powerful and often can provide owners with a variety of road help. The only deficiency is that Tesla's AI system needs to charge, and the annual cost is not low. In contrast to BYD's stability, Tesla pursues the research and development of electric vehicles with speed, which makes the Tesla series of electric vehicles as fast as sports cars. What makes Tesla more technological than other electric vehicles is its unique driverless technology, which is reflected in Tesla's futuristic technology. Each type of electric vehicle has its advantages, which provide more choices.

Because the tram industry is not yet mature, the problems of trams are endless. Still, BYD cars and Tesla, to compare, both do have problems. For example, in recent years, Tesla has frequently had problems with "ghost brakes" [13], and when the vehicle has turned on the driver assistance system, the vehicle will suddenly brake without warning in some circumstances that do not need to brake. This is one of the criticisms of autonomous driving systems. If the car suddenly brakes when the driverless mode is used on the road, then the safety hazard will be very large. This case also involves Tesla's false promotion of its artificial intelligence, making the user experience extremely poor and Tesla's reputation decline. BYD cars have had similar accidents. BYD has had problems with vehicles catching fire [14]. Research suggests that BYD's blade batteries may be responsible for vehicle fires. Windows did not, as the official propaganda, automatically drop half the window after an accident. This also shows that BYD cars still have a big flaw in handling emergency hazards [15].

This is also a common problem with electric vehicles, and the safety problem has become a major factor preventing consumers from choosing electric vehicles.

The so-called "hard truth" is that, in addition to worries about electric car safety, people are still quite concerned about the cost of electric cars. Tesla, a seasoned manufacturer of electric vehicles, is continually advancing its technology and performance. In terms of global sales, BYD, a rising star in the electric vehicle business, has eclipsed Tesla, creating a new standard for the trolley sector. This

study compares the cost performance of the BYD Seal Champion Edition and Tesla Model 3 using both as examples. The two automobiles cost around the same (\$200,000), so we must compete on the quality and performance of the cars while keeping the pricing the same. In terms of comfort, the Byd is superior because of its greater overall height and width of the car, better soundproofing, softer suspension, and improved comfort. This automobile also increases the legroom in the backseat, making for a more enjoyable trip. Due to the Tesla Model 3's limited interior, back passengers may experience some discomfort when traveling. Some customers can choose not to purchase because of the car's comfort issue. Tesla has shifted its attention to the creation of hardware. A superior driving experience for drivers is provided by Tesla's longer battery life and zero acceleration. Through the aforementioned comparison, it can be seen that both the Tesla Model 3 and the BYD Seal Champion Edition have their benefits and drawbacks. The cost of the BYD Haibao champion edition is more affordable, and customers can also benefit from 2 years of free car maintenance and 2 years of free car flow rights and interests. The Tesla Model 3 has a leading edge in AMD vehicle systems and assisted driving. These two cars have unique features, and users can buy their favorite models according to their preferences and budgets. Because the two cars have their own "black technology" in all aspects of their strengths, but also to prevent a dominant, unbalanced market situation.

4. Discussion

The EV market should be more diversified. According to the investigation of BYD and Tesla, each electric car brand has its corresponding advantages. Then, the conditions that contribute to this advantage are to promote the balance of the market to promote the competitiveness of electric vehicle brands. Tesla is the most representative brand in the electric vehicle industry, but in the global market, BYD is the first in sales [15]. The most important reason is that while competing with Tesla, it continues to strengthen and update the technology that creates BYD's electric vehicles. The average development of the market allows all-electric vehicle brands to have a certain space for development, which can promote the utility of all-electric vehicles to keep up with the pace of The Times. A variety of electric vehicle brands are not limited to Tesla and BYD, which can make the entire electric vehicle industry become a dominant position but also increase user adoptions.

Due to the cost-effective problem of electric vehicles such as Tesla, more people are willing to buy electric vehicles, the main reason being cheap and easy to use [16]. This has seriously affected the balance of the electric vehicle industry. In China, the government has issued relevant policies to control the phenomenon. The Chinese government has pushed up the price of cheap electric cars and increased import taxes to get electric car users to choose other brands [17]. This approach has indeed effectively improved the market equilibrium problem. Still, the deficiency is that many electric car users began to dislike this policy, which increased the demand for electric cars such as Tesla. We guess that if we increase the export and publicity of other unknown electric vehicle brands, we can reduce the cost while ensuring quality. This can make the global electric car users better rid of Tesla, BYD, and other well-known electric car brands, and increase the total sales of electric vehicles. Let users compare and choose for themselves. Under the premise of the same cost performance and utility, it not only solves the problem of the development space of electric vehicles but also diversifies the electric vehicle market.

Shortly, electric vehicles will completely replace the dominant position of fuel vehicles, and the environment will be greatly improved. Even if Tesla and other electric vehicle brand giants are still in the top spot in the future, the diversified electric vehicle market makes other electric vehicle brands develop well. All electric vehicle brands promote each other while competing with each other, which makes them pay more attention to the continuous improvement and innovation of their own brand electric vehicle technology. It could even solve problems common to existing electric vehicles, such as the spontaneous combustion of batteries. Users can also compare different electric vehicles, and

the choice becomes broader, increasing the benefit of electric vehicles while increasing the user experience.

5. Conclusion

The development of electric vehicles has effectively improved the environment, from limited resources of fuel to the use of renewable resources of electricity, which is also one of the reasons why electric vehicles gradually dominate the automobile market. The gradual increase in the number of electric vehicles has also brought some problems to society, such as the country's needs to provide a large amount of power for electric vehicles to run the problem. The government has established wind and solar power stations to solve this problem, to solve the problem of electric vehicle charging. The gradual development of electric vehicles has also led to the emergence of more and more electric vehicle brands. To improve the utility of electric vehicles and the choice of users, we consider equalizing the market, which will not only affect the development of the electric vehicle market but also enable the development of various electric vehicle brands to be faster and more effective under the influence of competition between many electric vehicle brands. Eventually, the market for electric vehicles will become more widespread, and electric vehicles will have better utility and adoption.

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Zhichu Fu and Zheyu Zou contributed equally to this work and should be considered co-first authors.

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