Features and prospects of the electric vehicle in the Vietnamese automobile market

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Abstract. In this scientific paper, the author attempts exploring the notable features and the prospects for the advancement of the electric vehicle in the Vietnamese automobile market. The need for utilizing electric vehicles, the challenges associated with the development and marketing of them, and advantages for the Vietnamese market are broken down in detail. An analysis of reliable data showed that in recent years, the automotive industry in Vietnam has developed quickly. Vietnam has many advantageous conditions for development and success in the electric vehicle market. However, to rapidly effectively execute the strategy of electric vehicles, more preferential policies of the Vietnamese government are required and it is necessary to build close relationships with the world's automobile manufacturers.

1. Introduction
The electric vehicle in the Vietnamese automobile market is young and promising. In Vietnam, motorcycles and electric motorbikes are currently the most famous methods of transportation. Vietnam's economy is growing strongly, interest in new vehicles is developing in the nation. JATO Dynamics Ltd is a global supplier of automotive business intelligence, pointed out that Vietnam's automobile market has become the second fastest-growing market in the world in 2016. Accordingly, the Vietnamese market increases by 11.1 % per year in the period of 2017 – 2021 (BMO research). In 2016, Vietnam spent about US$ 500,000 on electric vehicle purchases overseas, including Japan, China, and the United States. The Ministry of Industry and Trade Vietnam expects new vehicle sales to more than double to 600,000 units per year by 2025 [1].

The number of vehicles in Vietnam is increasing rapidly in recent years. This is the main cause of traffic blockage and environmental pollution in big cities like Hanoi and Ho Chi Minh. In fact, according to the World Air Quality Report 2018, Hanoi is one of the two most polluted cities in Southeast Asia. The concentration of dust in the air in Hanoi in 2018 was 40.8 μg/m3 - four times higher than the annual limit recommended by WHO (10 g/m3) [2]. Meanwhile, Ho Chi Minh City is the main source of greenhouse gas emissions in Vietnam - 38.5 million tons of carbon dioxide emissions each year, accounting for about 16% of national emissions. In particular, the amount of greenhouse gas emissions in the urban transport sector accounts for 45%. Greenhouse gas emissions adversely affect environmental pollution. The Government of Vietnam has set a goal of developing sustainable and environmentally friendly automobile industry. In particular, the research and development of hybrid and electric vehicles are most concerned.

2. Demand for electric vehicles in Vietnam
According to the survey of JATO Dynamics Ltd, based on the number of tourist vehicles, pickup trucks and commercial vehicles among automobile markets in the world People's Republic of China
and the United States of America are the leading countries about the number of vehicles sold, meanwhile owning growth rates of 27.1 % and 48.2 % respectively in 2015 - 2016, Vietnam and Singapore are the leading vehicle markets in the world in terms of growth.

Frost & Sullivan, a global growth consulting company, conducted a study in 2018 titled “The Future of Electric Cars in Southeast Asia”. The study was commissioned by Nissan and is based on 1,800 customer surveys in six ASEAN countries. Of all the countries surveyed, relatively low rates of development of electric vehicles in Thailand and Malaysia (figure 1). Among the respondents interviewed, Vietnam has a high development rate 84% and 33% of the people surveyed said that they would consider electric vehicles when they decided on their next purchase (figure 2) [3].

The report of the Vietnam Automobile Manufacturers Association (VAMA) in December 2018 shows that the entire automobile market in Vietnam with sales of 34,234 units increased by 10.8% compared with the previous month and reached a growth rate of 22.8% compared to last year [4].

The statistics above show that the number of vehicles sold in the Vietnamese automobile market is not too large, but in recent years, Vietnam's automobile market has reached a very high growth rate. Vietnam has significant potential for the development of the vehicle market.

3. Obstacles to the development of the electric vehicle market
In the future, the market for electric vehicles in Vietnam is in great demand and development prospects, but there are still barriers to the expansion of the electric vehicle market.

Firstly, the traditional vehicle market in Vietnam has been developing for a long time. But the infrastructure for servicing electric vehicles, such as electric charging stations, service stations, is not keeping up with the growing demand.

Secondly, vehicle manufacturers and builders in Vietnam have very little experience in electric vehicles. The fact is that electric vehicles located in Vietnam are imported from the USA, Japan, and China. Finally, the government does not have advantageous preferences to help development for the electric vehicle market [5]. In addition to import duties on electric vehicles shipped to Vietnam, special consumption tax rates range from 15% to 70%, which raises the prices of vehicles to 20%. According to free trade agreements in which Vietnam is a signatory to the Convention, some electric vehicles are shielded from taxes since 2018. These include electric vehicles from Korea and China. Electric vehicles from Japan are taxed at 4%, while Tesla electric vehicles from the USA are taxed at 70% under the most favoured nation status.

4. Advantageous conditions for the development of the electric vehicle market
In Vietnam, there are many advantageous conditions for the development of the electric vehicle market. The population of Vietnam is about 97 million people, which occupies the 14th place in the world. The population aged 24 years to 64 years makes up more than 69% of the total population of the country. From 2008 to 2018, the annual GDP is constantly increasing from 5% to 7% per year. This population and economic characteristic is the basis for the development of the automotive industry in general and electric vehicles in particular.

Besides, automobile manufacturers in the world have long been working in the Vietnamese market. In 2017, Mitsubishi Motors Vietnam completed the installation of the first charging station for electric vehicles in Hanoi, located at the headquarters of the Ministry of Industry and Trade, and also referred to the use of this agency electric car. Mitsubishi Motors Vietnam is developing new charging stations in Da Nang and Hoi An (Quang Nam). In 2019, the Fuso trademark (Germany) introduced light trucks using electric motors to the world market, including in Vietnam. This electric vehicle only uses an electric motor and does not discharge pollutant emissions into the environment. This vehicle can carry 2-3 tons of cargo and the range without recharging is about 100 km, charging time takes only one hour to charge 80% of the battery capacity, battery life is 10 years [6, 7].

In 2017, the participation of the automotive industry of VIN Group, the country's largest private conglomerate, raised new hope for the industrialization of Vietnam. VIN Group is chaired by Pham Nhat Vuong, Vietnam's first billionaire with a net worth of $8 billion as of March 21, 2019. The company aims to become a leading automaker in Southeast Asia with an annual capacity of 500,000 units and a localization rate of 60% by 2025 [8, 9, 10].

VinFast has certain advantages in the domestic market, including the potential of the Vietnamese automobile market. VinFast’s task, as a new automaker, is to determine their business strategies without encountering inherited problems; good business and financial results of VIN Group and its ecosystem; strong support from the Vietnamese government; and nationalistic sentiment that will encourage Vietnamese buyers to choose their products.

During the year, VinFast managed to develop two prototypes, sedan, and SUV, which debuted with great success at the Paris Motor Show in 2018. VinFast plans to launch its first vehicles on the market in 2019.

Finally, following the ASEAN Free Trade Agreement (AFTA), import duties on manufactured vehicles in ASEAN countries were abrogated from the beginning of 2018 [11, 12]. Given the advantageous conditions outlined above, the Vietnamese government and experts believe in a bright future for their automotive industry.

5. Conclusion
In recent years, Vietnam's vehicle market has experienced significant growth. This is the main reason leading to severe environmental pollution in large cities. Electric vehicles are an excellent solution to the pressing problem of environmental pollution the depletion of fossil fuel reserves. Based on advantageous conditions for the operation of electric vehicles, the market for electric vehicles in Vietnam will grow rapidly in the near future. However, to successfully implement the electric vehicle strategy in Vietnam, the electric vehicle market needs more preferential policies from the Vietnamese government and better relations with vehicle manufacturers around the world.

6. References
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