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VIETNAM'S ELECTRIC VEHICLE EXPORT: OPPORTUNITIES AND THREATS

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ABSTRACT

The world is moving towards reducing emissions and converting to green energy, Vietnam is facing a great opportunity to strongly develop the electric vehicle industry. Vietnam has a large market to develop electric cars and electric motorbikes and also has rare earth resources to produce batteries. Vietnam is really strongly applying artificial intelligence in electric vehicle production activities. The world context with the tension of trade wars and tariff wars has changed the economic situation, which has more or less affected the export of electric vehicles. In the article below, the group of authors, with secondary and primary data, has outlined electric vehicles, pointed out the opportunities and challenges of Vietnam's electric vehicle exports, thereby providing solutions and recommendations to promote the export of Vietnam's electric vehicle products in the current context.

KEYWORDS: - Export, electric vehicles, Vietnam, opportunities, threats.

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1.0 THE NECESSITY OF THE RESEARCH PROBLEM

Electric vehicles (EV) will be understood as a type of vehicle that operates by electric motors powered by storage batteries or electric cables. (Collins dictionary, 2022)

There are many types of electric vehicles: electric bicycles, electric motorbikes, and electric cars. In addition to electric vehicles in the world today, there are also hybrid electric vehicles. All are convenient and are the choice of many consumers.

In the past 5 years, the electric motorbike market has had many positive changes. Models imported through unofficial channels and unknown vehicles have gradually been eliminated from the market. Instead, users tend to choose reputable manufacturers and factories in Vietnam. In 2020, there were

7 brands of electric motorbikes produced and assembled domestically in the Vietnamese market. Although the Covid-19 epidemic has caused serious damage to general business activities, the electric motorbike market has continued to heat up with many spectacular breakthroughs. (bnews.vn, 2023)

In December 2021, VinFast launched the first electric vehicle model VFe34 produced in Vietnam and also the first electric vehicle to be sold domestically. This historic moment marked the beginning of a new era for the Vietnamese automobile industry. By August 2022, according to statistics from the Vietnam Register, nearly 3,000 electric cars had been manufactured, assembled and imported nationwide.

The Vietnam Automobile Manufacturers Association (VAMA) forecasts that Vietnam will reach the milestone of 1 million electric vehicles around 2028 and about 3.5 million electric vehicles by 2040.

According to 6Wresearch, the size of the Vietnamese electric vehicle market is expected to reach a compound annual growth rate (CAGR) of 22.9% in the period 2020-2025.

These forecasts also pose a major challenge as electric vehicle sales in Vietnam account for only 0.7% of the entire Southeast Asian region (according to Statista's Q3/2022 data) and policies to encourage electric vehicle consumption from the Government are expected to encourage Vietnamese consumers to use electric vehicles more. (Hoang Lam, 2023)

Typically, Vietnamese brand VinFast owns the most modern electric motorbike factory in Asia with a design capacity of up to 250,000 vehicles/year. With a constantly updated production line, VinFast will increase its capacity to 500,000 vehicles/year in phase 2, aiming to become a large and modern vehicle manufacturing facility in Southeast Asia in the near future. (Binh, 2023)

Global electric vehicle sales increased year-on-year in January 2024, but fell sharply from their peak in December 2023. This change could be due to a number of factors, including subsidy cuts, tighter regulations, or simply seasonal sales declines, which are particularly noticeable in key markets such as Germany, France, and China.

Sharing with Reuters News, Charles Lester, data manager at Rho Motion, said that electric vehicle sales in Germany fell by around 50% in January 2024 compared to December 2023 after the country withdrew its electric vehicle subsidies. A similar decline occurred in France as the country tightened its requirements.

Nevertheless, Lester remained optimistic about the future and predicted that the downturn will be short-lived. He noted that automakers are likely to increase spending on new electric vehicles and PHEVs to meet stricter CO2 limits set by the European Union.

According to Lester, the EU emissions standards in 2025 will really drive sales (Bao Linh, 2024).

Thus, although the global electric vehicle consumption market has grown strongly in recent times due to support policies, air pollution issues, charging infrastructure development and consumption trends, there have also been many challenges recently. Therefore, it is very necessary to study the opportunities and challenges for Vietnam's electric vehicle exports.

2.0 RESEARCH METHODOLOGY

To serve the research, the authors used two methods including desk research (reviewing documents published in the media) and conducting sociological surveys (collecting survey forms).

Using the desk research method, the authors reviewed documents summarizing theoretical studies on electric vehicles (general, role, requirements).

To conduct the sociological survey, the authors formed a survey form to seek information through investigating the subjects: users, manufacturers - traders - exporters and managers.

The data collection method was conducted by the research team based on the convenience sampling method. The survey was built on Google Drive and conducted via the following link:

Survey for electric vehicle users:

<https://docs.google.com/forms/d/1k0wAG4eUCZw8EWDuaRqsYf6wz52aRU6bzjmGJWuP8u8/edit>

Survey for electric vehicle manufacturers - traders - exporters:

<https://docs.google.com/forms/d/1SkzGmrIQuA7vat7OVYDUSf1TiKp1G5x3tDX3w4w30Lc/edit>

Survey for managers:

https://docs.google.com/forms/d/1aO4vZJ10Xsm_Z0IEy_BEW3I2qIFSbsx1TLrvQMMjk-E/edit

The survey was sent to the respondents via social media. Such as: Facebook, Zalo, Email.. in many locations. Total number of survey forms collected: 120 for electric vehicle users, 100 for electric vehicle manufacturers - traders - exporters, 100 for managers. Each question has answers for the survey subjects to choose from (one answer or multiple answers, or choose 1 level/5-level scale).

Data processing method: The research team collected survey data from valid forms (115 forms for electric vehicle users, 100 forms for electric vehicle manufacturers - traders - exporters, 100 forms for managers), then statistically analyzed the data using Excel software, thereby analyzing and demonstrating the research problem.

3.0 OVERVIEW OF ELECTRIC VEHICLES

3.1. Concepts of electric vehicles

Vehicles are vehicles that support human activities, affecting the change of geographical location of people, objects, vehicles, equipment, etc.

If classified by pulling/pushing power, there are primitive vehicles (using physical or human power) and motor vehicles (using electric motors or self-propelled using internal combustion engines, with a pulling head or pushing tail). Thus, electric vehicles are a type of motor vehicle, using electric motors.

Electric motors originated in 1827, when Hungarian pastor Ányos Jedlik built the first primitive but practical electric motor, along with a stator, rotor, and commutator; a year later, he used it for a miniature car.

Mass-produced electric vehicles first appeared in the United States in the early 1900s. In 1902, the Studebaker Motor Company entered the automobile market with an electric vehicle, although it had also been selling gasoline-powered vehicles since 1904. However, with the advent of Ford's low-cost assembly line, the market share of electric vehicles declined significantly.

In the late 20th and early 21st centuries, the environmental impact of petroleum-based transportation systems, combined with concerns about peak oil, brought renewed interest in electric transportation infrastructure. Electric vehicles differ from fossil-fueled vehicles in that the electricity they consume can be generated from a variety of sources, including fossil fuels, nuclear power, and renewable such as solar and wind power. The carbon footprint and other emissions of electric vehicles depend on the type of fuel and technology used to generate the electricity. The electricity generated can be stored in the vehicle using batteries, flywheels, or superconductors.

An electric vehicle is a vehicle that uses one or more electric motors for propulsion. Electric vehicles may use a collector, with electricity coming from outside the vehicle, or may be powered autonomously by batteries (sometimes charged by solar panels, or by fuel cells or generators). Electric vehicles include ships and road vehicles, water vehicles and underwater vehicles, electric aircraft, and electric spacecraft.

Electric vehicles first appeared in the mid-19th century, when electricity was the preferred method of propulsion for road vehicles, with its comfort and ease of operation compared to the gasoline-powered vehicles of the time. Internal combustion engines became the dominant power train for cars and trucks for about 100 years, but electric motors became popular for other types of vehicles such as trains and small cars.

In the 21st century, electric vehicles have seen resurgence due to technological advances and a focus on renewable energy and reducing the impact of transportation on climate change, air pollution, and other environmental issues. Project Drawdown describes electric vehicles as one of the 100 best modern solutions to address climate change.

Most electric vehicles use lithium-ion batteries (LIBs). Lithium-ion batteries have a higher energy density and longer life than most other types of batteries. Some factors to consider include safety, durability, fire risk, environmental impact, and cost. Lithium-ion batteries need to be kept within safe temperature and voltage ranges to operate properly and efficiently. The longer the battery life, the more expensive it is. One way to increase battery life is to use only part of the battery at a time and switch to another part when necessary.(<https://vi.wikipedia.org/>)

3.2. Characteristics of electric vehicles

Electric vehicles have characteristics and major differences from other motor vehicles.

Electric vehicles do not use combustion fuels such as gasoline to run the engine, but instead use electricity supplied by batteries. Therefore, electric vehicles can run smoothly due to the use of electric motors. The transmission system of electric vehicles is much simpler than gasoline vehicles; electric vehicles do not require gearboxes, crankshafts and other parts of gasoline vehicles.

Electric vehicles are not only environmentally friendly but also equipped with new features, different from other motor vehicles, bringing users interesting experiences. Modern electric vehicles are often combined with artificial intelligence technology, helping the vehicle operate optimally, ensuring safety and saving costs, much more convenient.

When surveying electric vehicle users, the research team evaluated the advantages of electric vehicles as follows:

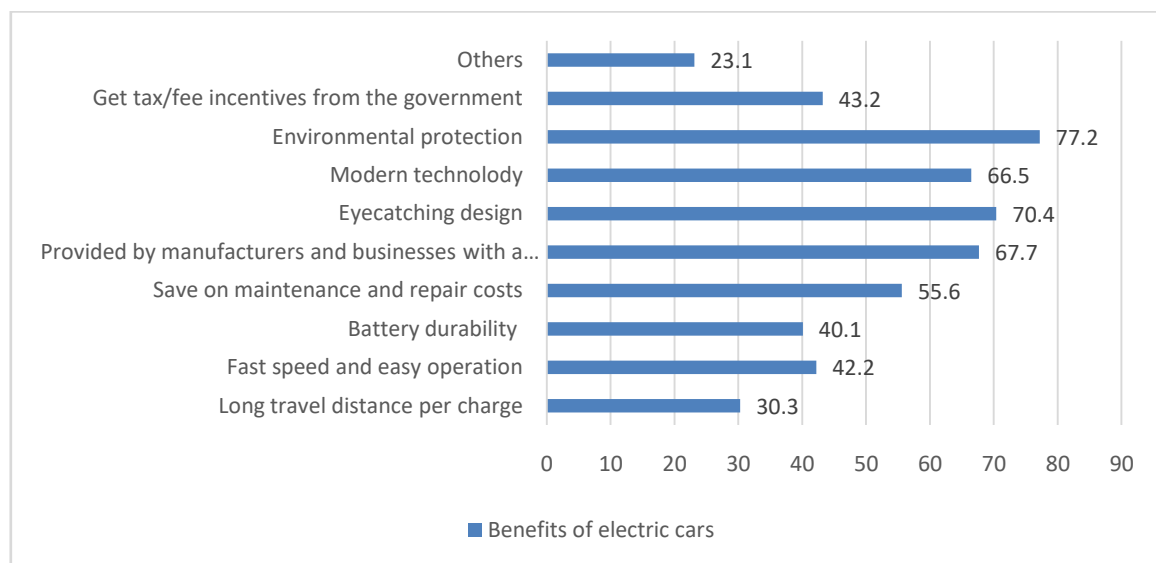


Figure 1. Results of survey on the advantages of electric vehicles
(Source: Survey results)

Thus, the subjects who were electric vehicle users evaluated the biggest advantage of electric vehicles as environmental protection (up to 77.2% of opinions), followed by beautiful and stylish design (70.4% of opinions).

The advantage of electric vehicles compared to conventional gasoline vehicles is always assessed as the amount of emissions into the environment for electric vehicles will be almost zero. Meanwhile, environmental experts say that 99% of CO₂ emissions in urban areas are caused by motorbikes and other gasoline-powered vehicles. The battery of an electric vehicle can be charged many times to provide energy for the vehicle without affecting the environment when electricity is now generated by solar energy, winds, etc. The battery life of an electric vehicle is about 160,000 km, and it is estimated that it does not need much gasoline for about 8 years. With an electric motorbike, when the battery life reaches about 300 charges, this number will be lower, equivalent to a usage time of nearly 2 years. Not only is it good for environmental protection, if electric vehicles are used more widely and popularly, it will contribute to reducing the dependence of fuel-deficient countries on foreign countries. Moreover, electric vehicles can run more smoothly than conventional vehicles,

helping to reduce noise pollution that is harmful to our hearing and making travel more comfortable. (baothanhhoa.vn, 2022)

However, electric vehicles also have disadvantages. The biggest disadvantage when wanting to use an electric vehicle is the cost of buying an electric vehicle. Although there are some programs to reduce taxes and fees, and support credits, the initial purchase price of an electric vehicle can be beyond the reach of consumers. In addition, the infrastructure for electric vehicle charging stations in rural areas is still limited, as well as residents living in apartments because there is no place to charge or if charging, there are many risks such as fire and explosion. The speed of electric vehicles is also limited, along with the actual distance traveled after the vehicle is fully charged compared to the manufacturer's announcement, which causes a lot of inconvenience for users... When surveyed, electric vehicle users also rated the distance traveled after each charge as not being long (only 30.3% of opinions rated it as long travel).

3.3. Benefits of electric vehicles

With awareness of the advantages of electric vehicles, electric vehicle manufacturers - traders - exporters have assessed with 53.2% of opinions that it is really necessary to produce and trade electric vehicles.

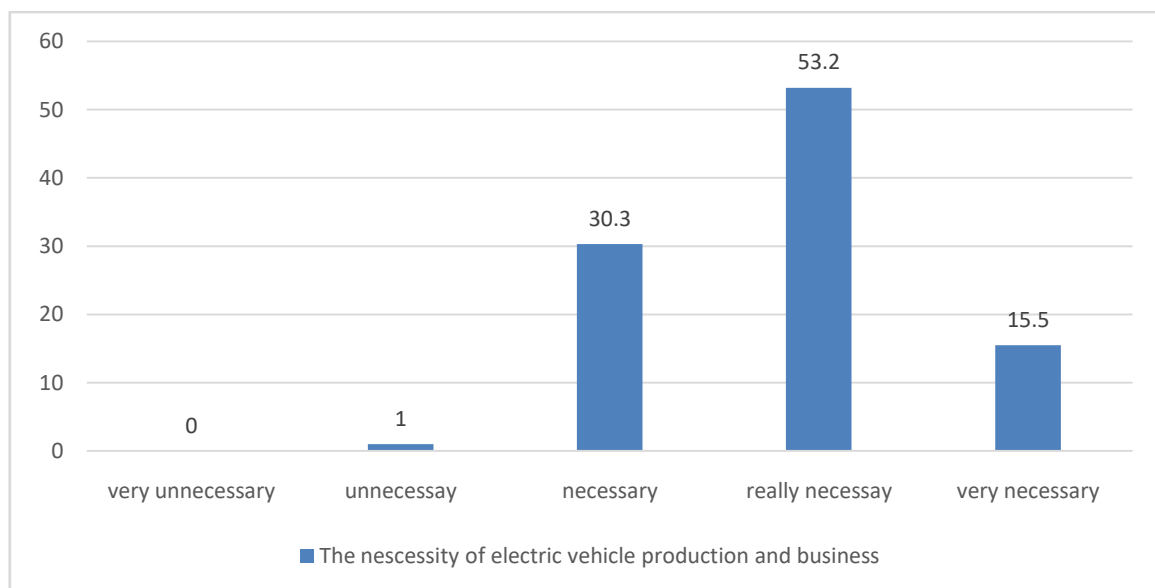


Figure 2. Survey results on the necessity of electric vehicle production and business

(Source: Survey results)

For electric vehicle users, when asked about the purpose of using electric vehicles, 30.3% of opinions were that electric vehicles are used to go to school; more than 40% of opinions were that electric vehicles are used for going out.

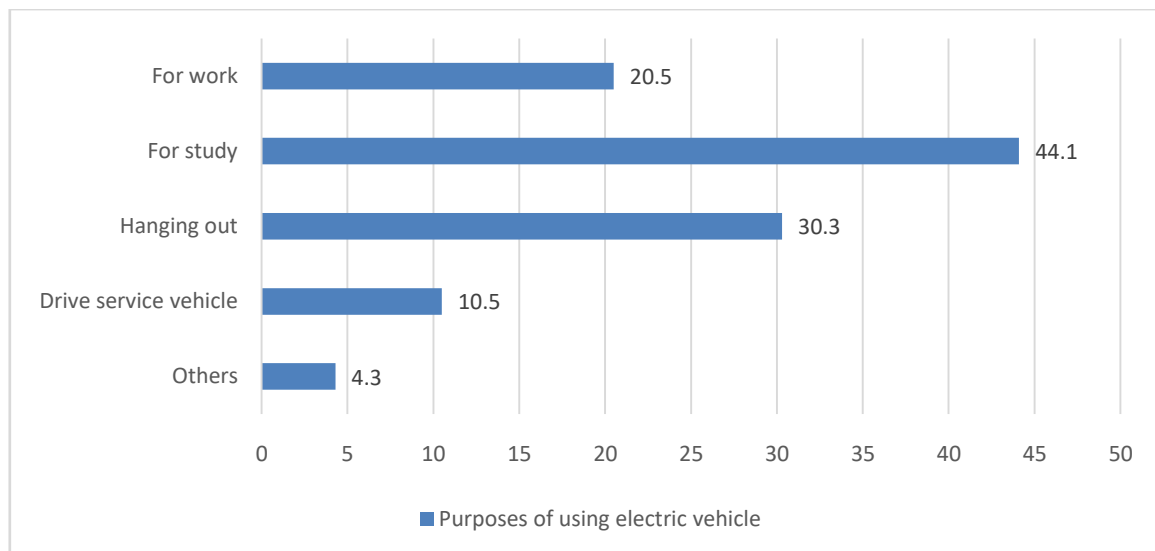


Figure 3. Survey results on the purpose of using electric vehicles
(Source: Survey results)

Electric vehicles really have many benefits and roles when used, or when producing - trading - exporting, which are:

+ Electric vehicles contribute to protecting the environment, protecting human health: The structure of electric vehicles does not have exhaust pipes, thereby contributing to limiting emissions into the environment, helping to reduce local air pollution, especially in large, densely populated cities. Thanks to the use of electric motors, electric vehicles operate smoothly, without making noise. This is considered an effective solution to clean air quality, reduce noise pollution, improve the quality of life and health of people. The greener and cleaner the environment, the healthier people are, limiting respiratory and skin diseases. This also reduces the burden on the health of individuals, families and communities.

+ Electric vehicles are safe, contributing to reducing accidents and less damage: The energy of electric vehicles comes from batteries, so during the operation of the vehicle, there is absolutely no combustion process, thereby minimizing the risk of fire and explosion. In addition, intelligent automatic equipment effectively supports the driving process and the standard safety system has the ability to minimize accidents. Electric vehicles run on batteries and do not need a mechanical engine to run. In addition, electric vehicles do not need to be equipped with components that come with an internal combustion engine. This helps reduce costs related to parts such as spark plugs, oil filters, pumps, valves, and other related equipment. Instead, battery maintenance will be the main concern of users.

+ Electric vehicles help save costs: the benefit of electric vehicles compared to vehicles using internal combustion engines is assessed as the ability to save overall costs. Electric vehicles have significantly lower operating costs, including operating, fuel and repair costs. In addition, with modern, convenient equipment and many support features, driving a new energy vehicle will bring an interesting and superior experience to users. Moreover, the amount of electricity consumed by electric vehicles is much cheaper than the price of gasoline. The benefits of electric vehicles such as

limiting negative impacts on the environment, ensuring safety for users... help save the State budget in handling emissions, minimizing overload caused by traffic accidents on the health system...

4.0 OPPORTUNITIES FOR VIETNAM'S ELECTRIC VEHICLE EXPORTS

In 2024, electric vehicle sales hit a record high of 25% globally, with strong growth in China but slowing in Europe.

China continues to lead the world electric vehicle market, with 11 million vehicles sold, up 40% compared to 2023. Electric vehicle sales also increased in the US and Canada, up 9% to 1.8 million vehicles. Meanwhile, in Europe, sales fell 3% to 3 million vehicles, after 4 years of strong growth. (tuoitre.vn, 2025)

In recent years, Vietnam's socio-economic development has been relatively stable and showing signs of improvement, making Vietnam a potential market for the development of electric motor vehicles. Vietnam also has many opportunities for electric vehicle exports.

According to a survey of manufacturers - traders - exporters, evaluating the advantages in the production - trading - exporting of electric vehicles, more than 40% of opinions said that the advantages are due to large market demand and modern technology support, while the opportunity does not come from the brand (because only more than 10% of opinions assessed).

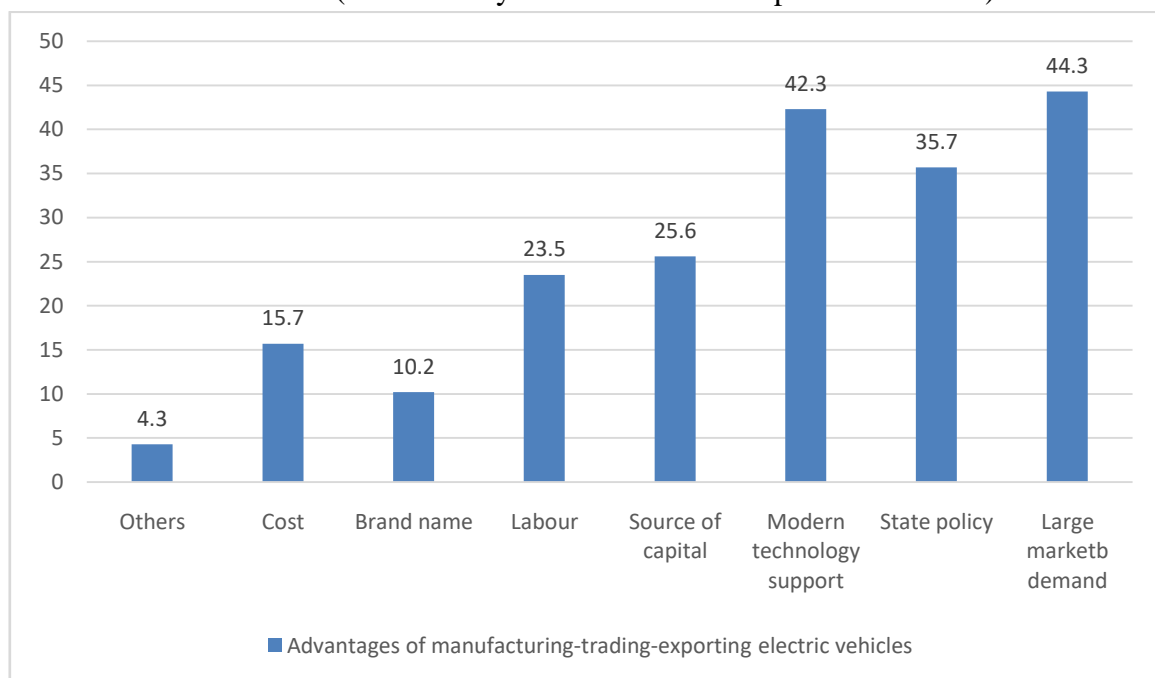


Figure 4. Survey results on advantages in production - business - export of electric vehicles
(Source: Survey results)

First, the demand for electric vehicles in the world remains high.

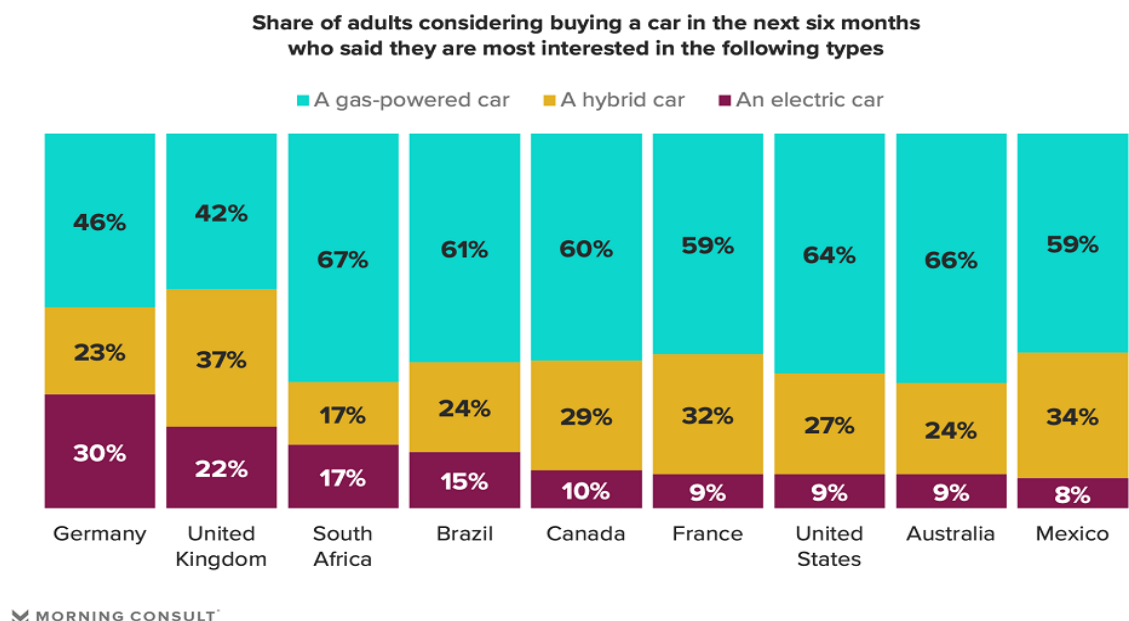
Demand for electric vehicles, including battery-powered vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), continues to increase despite economic flows. Global output increases by 35% year-on-year in 2023, reaching 14.2 million units, equivalent to a market share of 16.7%,

up from 13.6% in 2022. For the first time since 2020, PHEVs (up 47%) grew faster than BEVs (up 30%).

Using electric vehicles is becoming a global trend and the main direction in the future due to its environmental friendliness, technological improvements and is receiving great attention from governments of many countries. Many European countries aim to completely replace internal combustion engine vehicles with electric cars in the next 10 years.

A survey by Morning Consult from April 28 to May 11, 2021 of people planning to buy a car in the next 6 months in 9 countries: Germany, UK, Australia, USA, USA, France, Mexico, Canada, South Africa shows that the rate of choosing to use electric cars in countries has quite a big difference.

3 in 10 Germans Considering an Upcoming Car Purchase Would Choose an Electric Car Over Other Types



Polls conducted April 28-May 11, 2021, among between 201 and 667 adults likely to purchase a car in the next six months in each country, with margins of error ranging from +/-4% to +/-7%. Figures may not add up to 100% due to rounding.

Figure 5. Rate of electric vehicle usage in countries
(Source: vinfastauto.com)

Although fossil fuel vehicles are still dominant because they are chosen by more people, the rate of willingness to use electric and hybrid vehicles is increasing rapidly in many countries around the world. In particular, Germany is the country with the highest rate of electric vehicle usage among the 9 countries mentioned above, with 30% of Germans willing to buy a new electric car.

Global electric vehicle sales are forecast to more than double in the coming years. According to the latest data, this number will increase from 14 million units in 2023 to 29 million units in 2027 (vneconomy.vn, 2024).

According to HSBC, Southeast Asia's annual electric vehicle sales are calculated and predicted as follows:

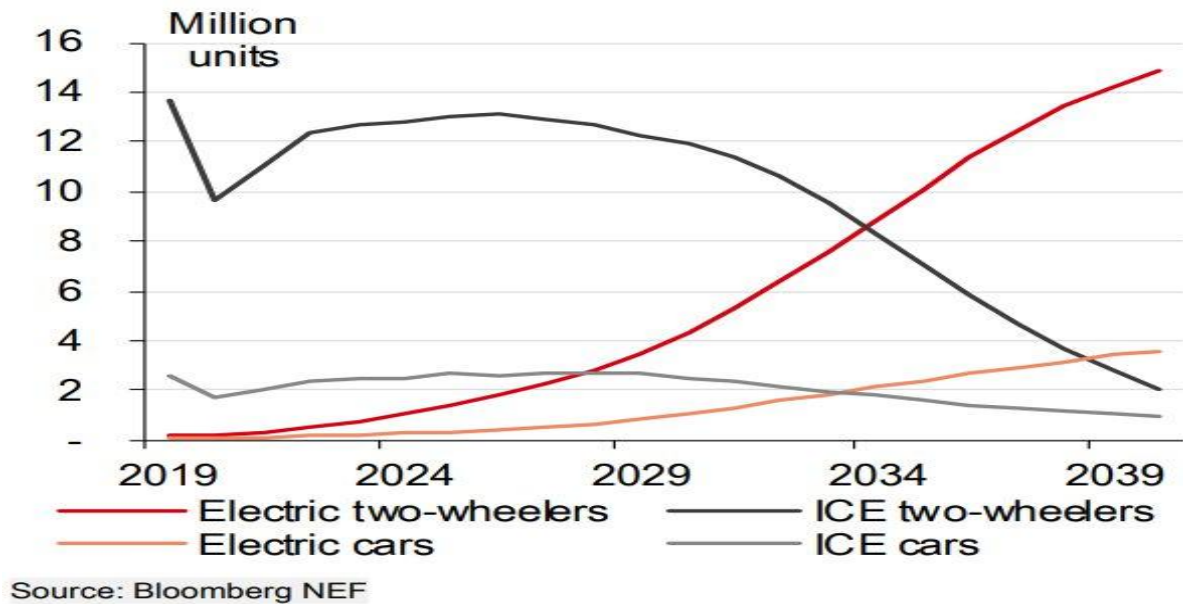


Figure 6. Estimated annual electric vehicle sales in Southeast Asia
(Source: *cafef.vn*, 2024)

Second, many Vietnamese enterprises have now produced and accessed the world electric vehicle market.

Automotive industry experts at S&P Global Mobility forecast that global pure electric vehicle sales could increase by 29.9%, from 11.6 million units in 2024 to 15.1 million units in 2025. Electric vehicles are expected to account for about 16.7% of global light vehicle sales, a significant increase from the 13.2% market share in 2024.

China is expected to end 2025 with the world's largest EV market share at 29.7%. However, growth is likely to slow. Among major economies, China is expected to see the smallest year-over-year increase in market share at 19.7%, according to S&P Global Mobility.

The United States is next on the list, with an expected EV market share of 11.2% by the end of 2025, up 36% from 2024. Central and Western Europe, despite some difficulties this year, is expected to end 2025 with an EV market share of 20.4%, up 43.4%. Notably, India will double the number of electric vehicles on the road next year, with a market share expected to be 7.5% by December 2025 - an increase of 117% compared to 2024. (*thesaigontimes.vn*, 2025) According to the survey of electric vehicle manufacturers - traders - exporters, more than 50% of respondents said that the Asian market is a potential electric vehicle import market, while only 20% said that the African market. Currently, Vietnam has 3 large enterprises manufacturing and assembling electric cars, including: Vinfast (belonging to Vingroup Corporation) from 2021; TMT Automobile Joint Stock Company (a joint venture with General Motors (USA) and Wuling (China) launched a mini electric car assembled in Hung Yen, Vietnam in June 2023; Thanh Cong Group Joint Stock Company and Hyundai Motor also introduced some Hyundai electric car models - these are products assembled in the industrial park in Ninh Binh.

Table 1. Some prominent electric car manufacturers in Vietnam today

Manufacturer	Capacity (Unit)	Origin	Model	Price (Million VND)
Vinfast	250,000 (phase 1)	Hai Phong	VF5 Plus	538
			VF e34	830
			VF8	1,200 –1,500
			VF9	1.600 –2.100
TMT Motors (joint venture with General Motors (GM) – SAIC – Wuling)	30,000 (phase 1)	Hung Yen	Wuling HongGuang MiniEV	150 - 350
Thai Hung (joint venture with Roding Mobility –Germany)	5,000	Thai Binh	2025 debut	
Hyndai Thanh Cong Viet Nam	10,000 (expected)	Ninh Binh	Hyndai Ioniq5	1,300
			Kia EV6	1,300 –1,600
Mercedes-Benz Viet Nam		Germany	Mercedes-Benz EQS	4,800 –5,900
Porsche Viet Nam		Germany	Porsche Taycan	5,700 -9,500

(Source: Kirin Capital synthesis)

Assessing the opportunities from the electric vehicle market, at the end of 2018, VinFast (under Vingroup Corporation) participated in the production of electric motorbikes and launched the first products to the market. Also in 2018, another Vietnamese electric vehicle startup was born, Selex Motors.

It can be seen that domestic electric vehicle manufacturer VinFast is dominating the electric vehicle market in Vietnam with a variety of vehicle models while the price is also reasonable compared to the general level - this is a big advantage for VinFast when exporting. On the morning of November 25, 2022, at MCP Port, Hai Phong city, VinFast held a ceremony to export the first batch of 999 VF8 electric cars to the international market. This event marks a special step forward for the Vietnamese automobile industry, the first time that technology automobile products owned and manufactured in Vietnam have officially entered the world market.... In the Philippines, VinFast has also taken strategic steps by exporting the first batch of electric vehicles in October 2024, including the VF e34, VF5 and VF9 models. The Philippines is strengthening tax support policies for electric vehicles and promoting investment in renewable energy, which makes it easy for VinFast to integrate and develop in this market. In early 2025, nearly 2,500 VinFast electric cars left Mippec - MPC Port (Hai Phong - Vietnam) for Jakarta (Indonesia) on the dedicated ship Silver Queen. This is the fourth ship and the ship carrying the largest number of cars to Indonesia just one year after VinFast officially entered the market. (nguoiquansat.vn, 2025).

For 2-wheel electric vehicles, in addition to VinFast, there are also manufacturers: Pega, Anbico, Yadea, Detech, DK bike. Of which, Yadea has a very large market share, with a system of production, research and development, marketing, distribution and service, serving over 30% of

output for export to other countries in the Southeast Asia region, including the Philippines, Thailand, Malaysia, Laos... (dantri.com.vn, 2024).

In 2025, Kim Long Motor Hue Company and Daon Mobility Company (Korea) officially signed a Sales Contract, according to which Kim Long Motor will provide 200 buses of various types under the Kim Long brand for export to Korea to serve the exploitation of tours and pick up and drop off students in Korea.

This contract marks an important step in Kim Long Motor's international market expansion strategy, while affirming the production capacity and superior quality of Kim Long brand products, contributing to putting "made in Vietnam" automobile products on the world automobile industry map. (baochinhphu.vn, 2025).

Third, the Vietnamese government is introducing many incentive policies to promote the development of the domestic and foreign electric vehicle market.

According to the survey results of manufacturers - traders - exporters, up to 35.7% of opinions said that the advantages for the production - trading - export of electric vehicles come from the state's policies. (According to Figure 4)

According to the survey results for state management agencies, more than 60% of opinions said that the State currently encourages the production/use/export of electric vehicles, and more than 50% of opinions assessed that the current State policy on electric vehicles is enough to encourage people and businesses to switch from gasoline vehicles to electric vehicles.

In fact, the State's support policy for electric vehicles has been creating a big push for the automobile industry in Vietnam.

One of the most important policies is the exemption of import tax on electric vehicle components and spare parts. This policy not only helps reduce the total cost of production and assembly of electric vehicles in Vietnam but also creates opportunities for domestic enterprises.

In addition to import tax exemptions, the government has also implemented a policy of reducing the use tax for electric vehicles, such as: Exemption of registration tax and special consumption tax.

Among the state support policies for electric vehicles, charging infrastructure plays an extremely important role in promoting the transition to green transportation. The government not only sees the importance of developing the electric vehicle fleet, but also clearly recognizes that a strong charging infrastructure system is necessary to support consumers in this transition.

The government not only invests in financial policies and infrastructure, but also focuses on education and information, so that people can better understand the benefits and potential of electric vehicles.

In order to promote the sustainable development of the electric vehicle industry, state support policies for electric vehicles have been established to encourage enterprises to participate in the research, development and production of electric vehicles. These policies not only support large manufacturers but also create opportunities for startups and small and medium-sized enterprises to participate in this potential field. (Stouch.vn, 2024)

In addition, member states of the European Union (EU) have adopted policies to encourage the transition to electric vehicles through a series of specific measures. All 12 EU countries offer incentives for purchasing electric vehicles, often in the form of tax credits or bonuses. In the UK, the discount is up to £3,500, with the potential to rise to £6,000 in the future. In Germany, there is a €4,000 bonus for battery and fuel cell vehicles. Several countries and major cities are also starting to introduce local bans on internal combustion engines (ICEs). Norway plans to ban the sale of new ICE vehicles by 2025, Sweden by 2030, the UK is expected to do so by 2035, and France by 2040. The Netherlands is proposing a ICE ban by 2030, while Athens, Madrid and Paris are all planning to ban diesel cars. (vista.gov.vn, 2024)

5.0 THREATS FOR VIETNAM'S ELECTRIC VEHICLE EXPORTS

Besides the opportunities and advantages for electric vehicle exports, Vietnam also faces some difficulties and threats.

According to a survey of businesses, the production - business - export of electric vehicles faces some challenges in terms of capital costs, raw materials, technology, human resources, market demand, supply chain, state management, etc. Of which, more than 40% of opinions said that the difficulties come from the supply chain, as well as from market demand, followed by technical factors in electric vehicle production (33.2% of opinions), the least challenge is in terms of raw materials (15.6% of opinions).

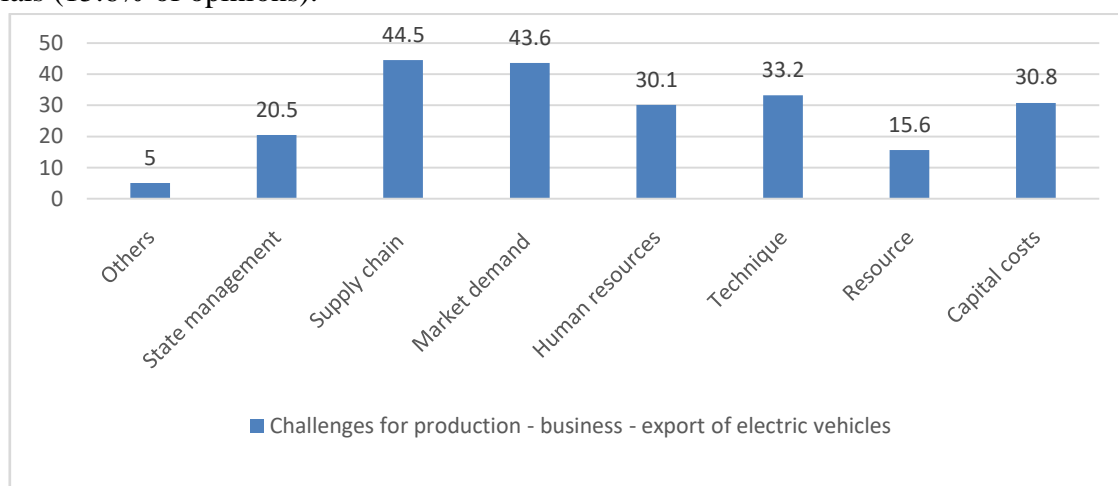


Figure 8. Survey results on challenges for production - business - export of electric vehicles
(Source: Survey results)

When surveying managers, these survey subjects assessed the difficulties in exporting electric vehicles from Vietnam such as technical requirements, quality for electric vehicles of the importing country, or difficulties in tax policies for electric vehicles of the importing country, Vietnam's

electric vehicle export policy or due to the demand for electric vehicles and understanding of the people of the importing country. In which, according to the assessment of managers, the most difficult is still the requirements for electric vehicles of the importing country (with more than 60% of opinions choosing) followed by difficulties due to tax policies for electric vehicles of the importing country (more than 40%).

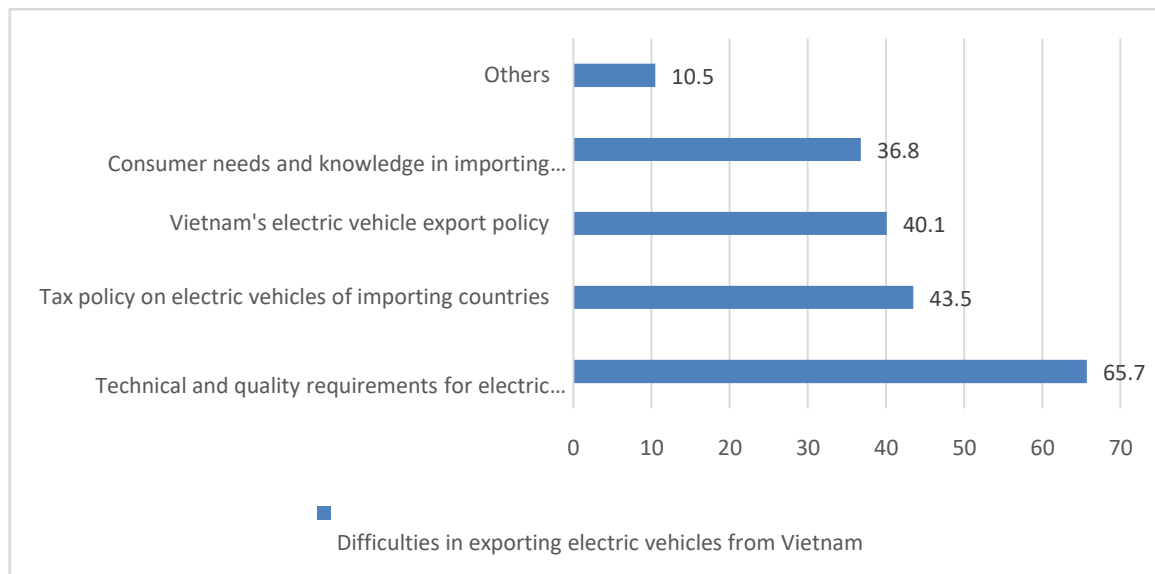


Figure 9. Survey results on difficulties in exporting electric vehicles in Vietnam
(Source: Survey results)

Thus, it can be seen that some challenges for exporting electric vehicles in Vietnam are:

Firstly, strict requirements on quality and service from electric vehicles in foreign markets.

Recently, some electric vehicle manufacturing corporations in Vietnam have exported electric motorbikes to some markets to explore and find distributors, but also found many barriers to exporting electric motorbikes. In the Myanmar market, due to the policy on electric vehicles not being favorable enough, new businesses are in the introduction stage in this market. In Japan, businesses can only export electric motorbikes without batteries due to strict regulations on transportation and import of batteries. To sell electric motorbikes in Japan, businesses must buy batteries from this country to install in the vehicles at a very high price but are not compatible. (nld.com.vn, 2024)

The European Union (EU) stipulates that electric vehicles must be equipped with devices that emit noise similar to normal gasoline vehicles. Electric vehicles must emit noise when reversing and when running below 20 km/h.

Electric vehicle (EV) engines often operate quite quietly at low speeds, making them a potential threat to pedestrians, especially the visually impaired.

The European Union (EU) Parliament has ruled in favor of reducing CO2 emissions by 100% from 2035 onwards, while further tightening current emission standards. This agreement means that 100% of internal combustion engine vehicles, both gasoline and diesel, will no longer exist in Europe by the middle of the next decade, including hybrid and plug-in hybrid vehicles. By 2030, the EU will also end all existing policy incentives and tax subsidies for electric vehicles. (tuoitre.vn, 2022)

Second, fierce competition in the world electric vehicle market.

The global electric vehicle industry is very dynamic, with efforts to consolidate the leading position of many companies and countries, notably China. A report by the International Energy Agency (IEA) shows that China accounts for nearly 60% of new electric vehicle registrations globally in 2023, followed by Europe with 25%, the US with 10% and the rest of the world with 5%. The EU's import tax on Chinese electric vehicles is an opportunity for Southeast Asian electric vehicle manufacturers - traders - exporters, including Vietnam.

Vietnam is one of the 10 main suppliers of electric bicycles to the EU market. In 2022, the export value of Vietnam's electric bicycles reached 174.4 million USD and accounted for 6.3% of the total import turnover of electric bicycles in the EU. In 2023, the export value of this item in Vietnam decreased slightly and reached 174.2 million USD, accounting for 8.4% of the total import turnover of the same type of item in the EU. In 2024, the total export turnover of Vietnam's bicycles continued to decrease compared to the previous year and reached 138 million USD, accounting for 8.2% of the total import turnover of this item in the EU. In general, in the period from 2022 to 2024, Vietnam is one of the 10 countries with the largest total export turnover of electric bicycles to the EU market.

Meanwhile, in 2023, China took the lead in total electric bicycle exports to the EU market, reaching 891.7 million USD, accounting for 43.1% of the EU's total imports of similar products. In 2024, China's electric bicycle exports to the EU market reached 906.5 million USD, up 1.7% over the previous year, continuing to hold the first position among the main suppliers of electric bicycles to the EU market.

On August 20th, 2024, the EC (European Commission) announced plans to impose import tariffs of up to 36% for 5 years on Chinese electric vehicles, unless China can provide an alternative solution to the trade dispute related to state subsidies. (vneconomy.vn, 2024).

When the US imposes a tax of up to 100% on electric vehicles originating from China, it is very likely that this country will choose to use fraudulent origin measures. The European Bicycle Manufacturers Association has also expressed concern about a Chinese enterprise showing signs of fraudulent origin of Vietnam to avoid the EU's trade defense measures applied to Chinese products.

Third, difficulties in production and export capacity of Vietnamese electric vehicle companies and electric vehicle export policies.

To develop electric cars or electric vehicles in general, the biggest difficulty is capital costs (accounting for more than 30% of survey opinions that this is a challenge for the production - business - export of electric vehicles - According to Figure 8). Investing in electric car production requires billions of USD, this is a big challenge for electric car businesses in Vietnam. Therefore, when surveying managers, more than 50% of opinions said that there is a need for more tax incentives or financial subsidies to encourage the use/production/trade/export of electric vehicles. However, accessing capital from banks is still difficult, especially for enterprises producing and trading electric vehicles and charging station infrastructure.

However, accessing capital from banks is still difficult, especially for businesses that manufacture and trade electric vehicles and charging station infrastructure. This industry requires large investment capital and long loan terms, while market risks are high. Therefore, many banks are still hesitant to invest in these projects. (baotintuc.vn, 2024)

Vinfast is a famous brand in Vietnam, but when participating in exporting electric vehicles, the biggest challenge that Vinfast faces is building a brand and distribution network. While competitors such as Tesla or Ford already have a solid ecosystem, VinFast needs time to develop. Another big problem is the awareness of American consumers (according to the survey, up to 36.8% of respondents said that the needs and understanding of consumers in the importing country are difficulties for Vietnam's electric vehicle exports - According to Figure 9). They tend to choose brands that have been around for a long time, making it difficult for VinFast to build its reputation.

6.0 PROPOSE SOME SOLUTIONS AND RECOMMENDATIONS TO PROMOTE VIETNAM'S ELECTRIC VEHICLE EXPORTS IN THE COMING TIME.

According to the survey, electric vehicle manufacturing - trading - distribution enterprises have proposed future orientations including: increasing safety for electric vehicles; expanding the scope of use for electric vehicles; increasing the lifespan of electric vehicles; adding charging stations; increasing individuality for electric vehicles; increasing the reusability of electric vehicles and electric vehicle equipment; expanding the market for use; reducing the price of electric vehicles; registering product brands... In which, the most chosen orientation is to increase the safety of electric vehicles (45.6% of opinions), followed by the orientation of increasing the lifespan of electric vehicles (41.3% of opinions) and the orientation that is least chosen by electric vehicle enterprises is to reduce the price of electric vehicles (10.2%).

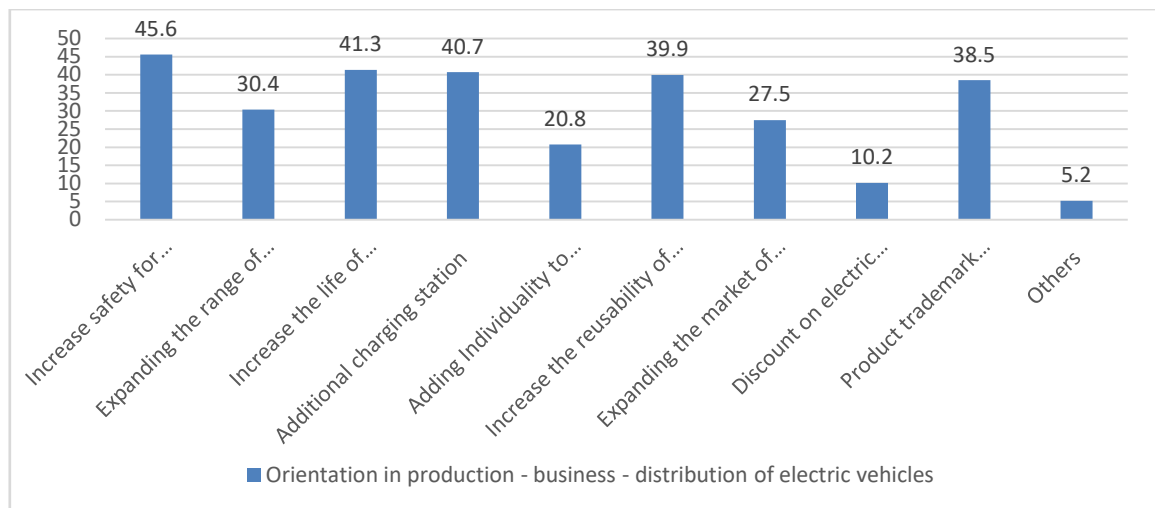


Figure 10. Survey results on orientation in production - business - distribution of electric vehicles

(Source: Survey results)

With the survey subjects being electric vehicle users, when asked about what electric vehicles need to improve, with the suggestions given being: battery and charging time, charging stations, customer service, smart features, product price, design... the choice that needs to improve on smart features is rated highest (more than 45% of opinions), followed by battery and charging time (more than 40% of opinions) and the lowest is design (more than 20% of opinions).

Thus, to promote Vietnam's electric vehicle exports, turn opportunities into reality to improve and solve some difficulties and challenges, the research team, through surveys as well as reality, proposed a number of solutions and recommendations as follows:

Firstly, to promote electric vehicle exports, policies to promote technology development of departments and manufacturing companies Vietnamese electric vehicles must be truly innovative and effective.

Electric vehicle manufacturers who want to expand their markets and promote exports must be substantial, that is, they must provide a quality product that adapts to users by integrating artificial intelligence features and technology in each exported electric vehicle product, thereby increasing the safety of electric vehicle users and further upgrading the lifespan of electric vehicles. According to a survey of users, it can be seen that the demand of users for electric vehicles to improve in terms of smart features is the greatest (with more than 45% of opinions choosing this). The technology for manufacturing electric cars for export needs to pay attention to: electric vehicle screens, virtual assistants, interiors, entertainment... suitable for people in the importing country. Electric vehicle manufacturers need to improve battery technology and thermal management technology. Improve lithium-ion batteries, making them safer and more explosion-proof. Advanced battery management systems play a central role in monitoring and managing battery health, improving safety and optimizing energy efficiency, or producing electric vehicles using solid-state batteries, which can reduce the risk of fire compared to traditional lithium-ion batteries and halve the weight, size and cost of electric vehicle batteries. To limit overheating, electric vehicle manufacturers need to invest

in advanced thermal management technology, including liquid cooling systems that help dissipate heat generated during charging and discharging.

Second, Vietnamese electric vehicle manufacturers need to promote marketing communications activities, especially focusing on promoting their brands in the international market as well as product quality.

In 2022, it marks a historic milestone for the first time that Vietnamese electric vehicles, manufactured by Vietnamese people, have officially entered the global automobile market after a series of previous promotional activities. Following that success, other electric vehicle manufacturers also need to make efforts to improve product quality, participate in international electric vehicle exhibitions, carry out launch campaigns, promote their brands, or cooperate in the production and export of electric vehicles with famous car manufacturers, which are known to many consumers in other countries. In order to have international electric vehicle product promotion campaigns, businesses need to prepare very carefully in terms of scenarios, funding sources as well as have a long-term marketing strategy.

Third, it is necessary to have the cooperation of state agencies and units with electric vehicle manufacturing and exporting enterprises.

In addition to international capital in electric vehicle manufacturing joint ventures, electric vehicle manufacturing and exporting enterprises also need financial incentives - loan capital; energy policies; policies to reduce: electric vehicle export tax, corporate income tax for enterprises implementing new investment projects in electric vehicle manufacturing and assembly and especially the state's initiative in promoting the export of "made in Vietnam" electric vehicles in the international market. Implementing commitments on international integration, commitments on international environmental issues, the state also needs to deploy, disseminate, and guide electric vehicle manufacturing and exporting enterprises so that Vietnamese electric vehicle products can approach the world market.

7.0 CONCLUSION

Electric vehicles are becoming products that are promoted for production, consumption and export in Vietnam as well as some other countries. In the context of promoting production and use based on green energy in the world, Vietnam's electric vehicle export has many opportunities, but also faces many challenges and difficulties that require the efforts and cooperation of many individuals, organizations as well as the state in the coming time.

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