Vietnam Electric Bus Market By Propulsion Type (BEV, PHEV, FCEV), By Range (Less than 200 miles, More than 200 miles), By Battery Capacity (Upto 400 kWh, Above 400 kWh), By End Use (Public, Private), By Region, Competition, Opportunities and Forecast, 2019-2029F

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Report description:

The Vietnam Electric Bus market was valued at USD 42.75 Million in 2023 and is expected to reach USD 152.22 Million by 2029 with a CAGR of 23.57% during the forecast period. The electric bus sector in Vietnam is witnessing significant expansion, largely attributed to robust governmental backing for sustainable transportation initiatives. The Vietnamese authorities have implemented a range of programs aimed at encouraging the uptake of electric vehicles (EVs), including tax breaks, financial assistance for electric bus acquisitions, and the development of EV infrastructure such as charging stations. These vehicles present an environmentally friendly alternative that supports the nation's objectives to lower greenhouse gas emissions and enhance air quality, particularly in densely populated urban areas.

Technological progress also plays a crucial role in propelling the electric bus market forward. The cost of batteries, which are a vital element of electric buses, has been consistently declining due to advancements in energy storage technology. This decrease in battery prices renders electric buses more attainable and feasible for fleet operators. Concurrently, enhancements in charging infrastructure are alleviating concerns regarding vehicle range and downtime, thereby fostering broader adoption. As electric buses gain the capability to travel longer distances and function efficiently within urban transit frameworks, they are increasingly viewed as a preferable alternative to conventional diesel buses. Moreover, there is a growing interest from both corporate entities and the public in sustainability, which further amplifies the demand for electric buses.

However, despite the optimistic prospects, the electric bus market encounters several challenges. A primary hurdle is the substantial initial investment needed to acquire electric buses, despite their potential for long-term savings in fuel and maintenance costs. This financial barrier can deter fleet operators, particularly in smaller municipalities. Additionally, the limited availability of charging stations in certain areas can pose operational challenges.

Market Drivers

Government Policy and Incentives

The Vietnamese government's robust dedication to advancing electric vehicles (EVs) serves as a significant catalyst for the electric bus market. This commitment encompasses tax incentives, financial support for electric buses, and advantageous regulations that enhance the affordability of EV adoption for fleet operators. Furthermore, the government is channeling investments into EV infrastructure, including the establishment of charging stations, to facilitate the growth of electric vehicles within public transportation networks. Such initiatives foster a conducive atmosphere for electric buses to supplant traditional diesel vehicles, particularly in major urban areas aiming for improved air quality and diminished carbon emissions. For instance, in October 2021, the Vietnamese government approved the National Strategy for Green Growth (2021-2030) with a vision for 2050. To support this, the Prime Minister launched the Green Transition Program on July 22, 2022, aimed at reducing carbon and methane emissions in transportation and achieving net-zero emissions by 2050.

Rising Demand for Eco-Friendly Transport

With the rise in environmental consciousness, there is mounting pressure on both the public and private sectors to implement sustainable transportation options. Electric buses are regarded as a more environmentally friendly alternative to conventional buses that rely on fossil fuels, which are major contributors to air pollution and greenhouse gas emissions. As urban areas experience increased congestion and elevated pollution levels, the demand for electric buses to enhance public transportation systems is becoming more pronounced, particularly in cities striving to minimize their carbon footprint.

Reduction in Operational Costs

Electric buses provide considerable financial advantages in fuel and maintenance when compared to diesel buses. The expense associated with charging an electric bus is markedly less than that of fueling a conventional bus, resulting in lower operational costs for fleet managers. Additionally, electric buses are designed with fewer moving components, which leads to decreased maintenance expenses and less vehicle downtime. Consequently, they represent a compelling investment for bus operators aiming to lower long-term operational costs while also promoting environmental sustainability.

Key Market Challenges

High Initial Investment

One of the primary obstacles to the implementation of electric buses in Vietnam is the substantial initial investment required. While electric buses offer greater cost efficiency over time, the upfront expenses associated with their acquisition are considerably greater than those for traditional diesel buses. This financial burden poses a significant challenge for public transport companies and fleet operators, particularly in smaller cities or rural regions. Although there are potential long-term savings in fuel and maintenance costs, the initial capital outlay continues to represent a major impediment.

Limited Charging Infrastructure

The presence of charging stations is a vital element influencing the extensive adoption of electric buses. While Vietnam's charging infrastructure is gradually advancing, it still faces limitations, especially in rural and underdeveloped regions. This situation may lead to operational challenges for electric bus fleets, such as issues related to range anxiety and the management of ensuring that buses are adequately charged for daily use. The insufficient availability of reliable charging infrastructure could impede market expansion unless additional investments are directed towards this sector.

Technician Shortage and Training Needs

As the prevalence of electric buses increases, the demand for qualified technicians capable of servicing and repairing these vehicles is also rising. The maintenance of electric buses necessitates distinct technical skills that differ from those required for conventional buses. The current lack of trained professionals in this field presents a considerable obstacle. Therefore, it is crucial to invest in training programs and educational initiatives aimed at equipping technicians with the necessary expertise to support the expanding fleet of electric buses nationwide.

Key Market Trends

Public-Private Partnerships

Public-private partnerships (PPPs) are increasingly recognized as a significant trend in the advancement of electric bus fleets in Vietnam. The collaboration between governmental bodies and private sector companies is promoting the integration of electric buses by enabling joint investments in necessary infrastructure, charging facilities, and the growth of fleets. Such partnerships

facilitate the consolidation of resources and expertise, thereby expediting the shift towards electric buses and enhancing the sustainability of urban transportation systems.

Electrification of Entire Bus Fleets

A growing trend is emerging towards the complete electrification of bus fleets, particularly in prominent urban areas such as Ho Chi Minh City. Numerous local governments are establishing ambitious goals to substitute all or a significant number of their traditional buses with electric alternatives. This initiative is motivated by environmental considerations as well as the pursuit of long-term cost efficiency. The transition to fully electrified fleets signifies a wider dedication to clean energy and sustainable transportation in urban settings.

Increased Collaboration with International EV Manufacturers

Vietnam's electric bus sector is experiencing an increase in collaborations with global electric vehicle (EV) manufacturers, particularly those from China and Europe. These partnerships introduce cutting-edge technology, specialized knowledge, and economical solutions that enable domestic manufacturers to create more competitive electric buses. Prominent companies such as BYD and Yutong are at the forefront, providing electric buses for Vietnam's public transportation systems. These alliances promote the exchange of knowledge, enhance production efficiency, and contribute to the establishment of a sustainable electric bus infrastructure within the nation. For instance, according to the Ministry of Transport in Vietnam, the investment in electric buses manufactured in China is deemed the most economical option, with an average acquisition cost of approximately VND7 billion (USD 290,000) for a bus equipped with a 255 kWh battery, capable of covering a distance of 230-250 km on a single charge. In contrast, a large-capacity bus produced by VinFast, a Vietnamese company, is priced at around VND7.4 billion (USD 292,000). As a result, electric buses are four times more expensive than conventional buses and 3.2 times more costly than larger buses currently utilized for depreciation assessments in Hanoi and Ho Chi Minh City.

Segmental Insights

Propulsion Type Insights

The electric bus market in Vietnam is segmented by propulsion type into Battery Electric Vehicles (BEV), Plug-in Hybrid Electric Vehicles (PHEV), and Fuel Cell Electric Vehicles (FCEV). Each propulsion type offers distinct advantages that contribute to its adoption in the country□s public transportation systems.

Battery Electric Vehicles (BEV) rely entirely on electric power stored in batteries. They are the most common type of electric bus deployed in Vietnam due to their simplicity and efficiency. BEVs are well-suited for urban environments, where short distances and frequent stops make them ideal for reducing emissions. Their growing popularity in Vietnam is supported by improvements in battery technology, which have increased their energy density and reduced the cost of production. These buses are commonly used in city transit systems, where their low operational costs□especially in terms of fuel and maintenance□make them an attractive option for fleet operators. However, the limited range and the need for extensive charging infrastructure remain challenges for their widespread deployment.

Plug-in Hybrid Electric Vehicles (PHEV) combine an internal combustion engine (ICE) with an electric motor, allowing them to run on either electricity or fuel. PHEVs offer flexibility for routes that require longer travel distances, as they can switch to the internal combustion engine when the battery is depleted. In the context of Vietnam, PHEVs are seen as a transitional technology that can help bridge the gap between traditional diesel buses and fully electric BEVs. The dual propulsion system allows PHEVs to operate effectively in areas with less charging infrastructure, addressing concerns about range anxiety. Although they have a higher environmental impact compared to BEVs, their ability to reduce fuel consumption and emissions when in electric mode makes them a more sustainable option compared to conventional diesel buses.

Fuel Cell Electric Vehicles (FCEV) use hydrogen to generate electricity through a chemical process in a fuel cell. These vehicles produce zero emissions, with water vapor as the only byproduct. FCEVs offer the advantage of faster refueling times compared to BEVs, making them suitable for routes that require quick turnaround times or long-distance travel. However, the adoption of FCEVs in Vietnam faces challenges, particularly the development of hydrogen refueling infrastructure, which is still in its early stages. Despite these hurdles, FCEVs are being considered for more specialized applications in Vietnam□s public transportation system, particularly in regions that can support hydrogen infrastructure development.

Region Insights

In 2023, the Southern region of Vietnam emerges as the leading area in the electric bus sector. This prominence is primarily

attributed to the swift growth and economic importance of Ho Chi Minh City, the nation's largest urban center and a significant catalyst for the adoption of electric vehicles. The public transportation system in the city is transitioning towards cleaner and more sustainable options, with electric buses playing a pivotal role in this evolution. In its efforts to mitigate air pollution and address the negative impacts of traffic congestion, the southern region has been actively incorporating electric buses into its public transit frameworks.

Ho Chi Minh City's status as Vietnam's economic center has also spurred increased investments in infrastructure, including the establishment of charging stations and other essential facilities for electric buses. The demand for environmentally friendly public transport alternatives has surged, fueled by government initiatives promoting electric vehicles and a growing consciousness regarding environmental sustainability among residents. The local government's commitment to lowering carbon emissions and promoting green energy solutions further bolsters the region's drive towards the electrification of public transport.

Other provinces in the southern region have taken cues from Ho Chi Minh City, concentrating on expanding their electric bus fleets, supported by advantageous government incentives and subsidies. As urbanization continues to rise in the region, the integration of electric buses is viewed as a vital measure for developing a more sustainable and efficient public transportation system. Additionally, this region benefits from enhanced industrial growth and greater resource availability for infrastructure projects, which have enabled a more rapid rollout of electric buses compared to other areas of the country.

Key Market Players

- VinFast Commercial and Services Trading Limited Liability Company
- Mercedes-Benz Vietnam
- THACO AUTO Limited Liability Company
- Yutong Bus Co., Ltd.
- Beijing Foton International Trade Co., Ltd.
- Tata Motors Limited.
- Olectra Greentech Limited.
- HYUNDAI THANH CONG COMMERCIAL VEHICLE JSC
- Toyota Motor Vietnam Co., Ltd
- CHERY Automobile Co., Ltd

Report Scope:

In this report, the Vietnam Electric Bus Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

- Vietnam Electric Bus Market, By Propulsion Type:
  - BEV
  - PHEV
  - FCEV
- Vietnam Electric Bus Market, By Range:
  - Less than 200 miles
  - More than 200 miles
- Vietnam Electric Bus Market, By Battery Capacity:
  - Upto 400 kWh
  - Above 400 kWh
- Vietnam Electric Bus Market, By End Use:
  - Public
  - Private
- Vietnam Electric Bus Market, By Region:
  - Northern
  - Southern
  - Central

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Vietnam Electric Bus Market.
Available Customizations:
Vietnam Electric Bus Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:
Company Information
□□Detailed analysis and profiling of additional market players (up to five).

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