Analysis of Electric Vehicle (EV) Market Trends and Adoption in Thailand: A Comparative Context

with the Global Market

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Abstract

This report presents a secondary research analysis of the Electric Vehicle (EV) market trends and adoption in Thailand, benchmarked against the global market context. The primary objective is to determine whether the Thai EV market is on a long-term growth trajectory or facing a decline. The study synthesizes data from various secondary sources, including reports from the International Energy Agency (IEA), leading consulting firms (KPMG, Deloitte), automotive media, and academic research. Key data points analyzed include sales statistics, government policies, infrastructure development, consumer attitudes, and adoption barriers.

The analysis clearly indicates that the EV market in Thailand is set for continuous long-term growth, despite a temporary slowdown observed in the first nine months of 2025. This short-term deceleration is attributed more to macroeconomic conditions than to a fundamental loss of interest in EV technology. Key growth drivers include clear and sustained government policy (EV 3.5), significant investment from 14 major automakers, the rapid expansion of the charging infrastructure, and the strong momentum of the global EV transition.

In the global context, Thailand is categorized as a "Fast-Growing Market," with an EV market share of 13% in 2024, significantly higher than other developing nations in the region, though still trailing leaders like Norway and China. However, significant barriers persist, notably the high initial purchase price, range anxiety, and the concentration of charging stations in urban areas. This report concludes with policy recommendations to address these challenges and promote the sustainable growth of the EV market in Thailand.

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1. Introduction and Scope

The transition from Internal Combustion Engine (ICE) vehicles to Electric Vehicles (EVs) represents one of the most significant megatrends in the global automotive industry of the 21st century. This shift is driven by efforts to reduce greenhouse gas emissions to combat climate change, coupled with rapid advancements in battery and electric powertrain technology [1]. Thailand, as a major global automotive production base, has demonstrated a clear commitment to this transition, aiming to become the EV manufacturing hub of the ASEAN region [1].

However, the path to EV adoption in Thailand faces several questions and challenges. Notably, registration data for the first nine months of 2025 showed a slowdown compared to the previous year [2]. This phenomenon has raised a critical question among industry stakeholders and consumers: Is the Thai EV market trending downwards, contrary to the global wave, or is this merely a temporary blip in a long-term growth trajectory?

This research aims to analyze the EV market trends and adoption in Thailand in depth, comparing data and statistics with the global market and industry-leading countries. The goal is to provide clear and useful answers for policymakers, entrepreneurs, and interested consumers.

Methodology

This study employs a secondary data analysis approach, synthesizing information from a diverse range of authoritative sources to construct a comprehensive market trend analysis. The methodology is structured around three key phases: data collection, data synthesis and comparison, and data visualization.

2. Analysis of EV Market Trends in Thailand

The growth of the EV market in Thailand during 2023-2025 has been notably volatile. Data from Autolife Thailand indicates that Battery Electric Vehicle (BEV) registrations in the first nine months of 2024 were 49,774 units. However, for the same period in 2025, this figure dropped by approximately 10% to 44,800 units [2]. This deceleration coincided with a slump in the overall automotive market, suggesting that macroeconomic factors had a significant impact. Despite the drop in sales volume, the EV market share maintained a level of approximately 13% of all new car sales, demonstrating that the underlying demand for EVs remains strong [2].

Looking ahead, forecasts from multiple sources point towards continued growth. A report from KPMG anticipates that the Thai EV market will rebound to achieve up to 40% growth in 2025 (considering the full year), driven by economic recovery and supportive government policies [3]. The EV 3.5 policy, which provides subsidies and tax benefits until 2027, will be a crucial mechanism for stimulating the market in the short to medium term [1]. Furthermore, the National Electric Vehicle Policy Committee has set a target for EV production to account for 30% of total vehicle production by 2030, known as the "30@30" target [1]. This aligns with the national Goals of Carbon Neutrality by 2050 and Net-Zero Emissions by 2065 [1].
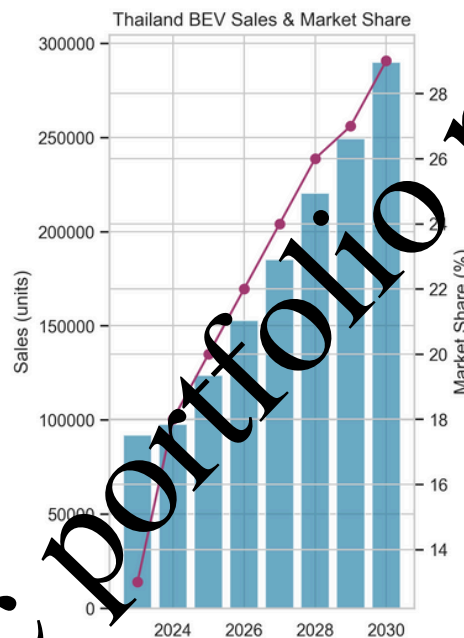

Figure 1 Thailand BEV Sales (2024-2025) and Market Share Forecast (2026-2030)

Based on all data, it can be concluded that the market slowdown in 2025 is a temporary phenomenon, and the long-term trend for Thailand remains one of strong and continuous growth, supported by robust structural factors.

3. Comparative Context with the Global Market

To understand Thailand's position in the global EV landscape, a comparison with other markets is essential. Data from the IEA and EV-Volumes.com shows that the global EV market continues its rapid expansion, with worldwide sales expected to increase by 24-25% in 2025, reaching a total market share of approximately 18-24% [4][5].
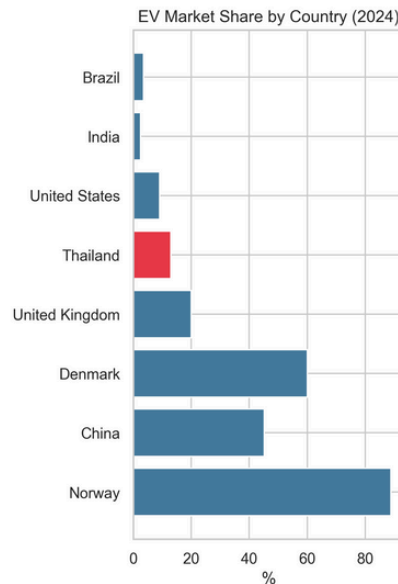

Figure 2: EV Market Share by Country in 2024. The data highlights Thailand's position as a "Fast-Growing Market" compared to other emerging and leading nations. (Source: Synthesized from IEA and EV-Volumes.com data)

From the table above, it is clear that Thailand's 13% EV market share, while lower than the average for mainstream markets in Europe and China, is significantly higher than other emerging markets like India and Brazil. This indicates that Thailand has successfully transitioned from the Emerging phase to the Fast-Growing phase.

In terms of infrastructure, Thailand has made satisfactory progress. Data from Anari Energy as of March 2025 shows that Thailand has 3,720 public charging stations and a total of 11,622 charging heads [7], already exceeding the target set for 2025. A survey by Deloitte also found that the concern of Thai consumers regarding the availability of charging stations is lower than the average for the Southeast Asian region [8]. However, the challenge remains the concentration of charging stations primarily in urban areas.
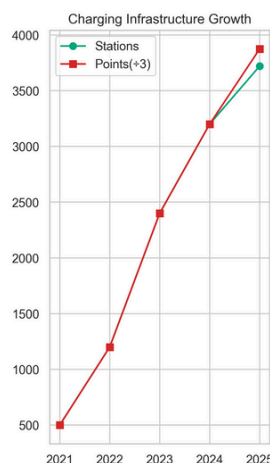

Figure 3: Growth of Public EV Charging Stations in Thailand (2021-2025)

4. Drivers and Barriers to EV Adoption in Thailand

Consumer decisions to switch to EVs are influenced by various factors, both positive drivers and negative barriers.

4.1 Drivers

1.Government Support Policy: The EV 3.5 policy, which provides subsidies of 50,000-100,000 THB per vehicle and reductions in excise tax and import duties, is the most significant stimulus [1].

2.Automaker Investment: The entry and investment of 14 leading automakers, particularly from China, have intensified price competition and introduced a diverse range of products to the market [3].

3.Lower Operating Costs: Consumers clearly recognize the advantage of lower fuel and maintenance costs compared to ICE vehicles, which is a major economic incentive.

4.Expanding Infrastructure: The rapid increase in charging stations reduces consumer anxiety and builds confidence [7].
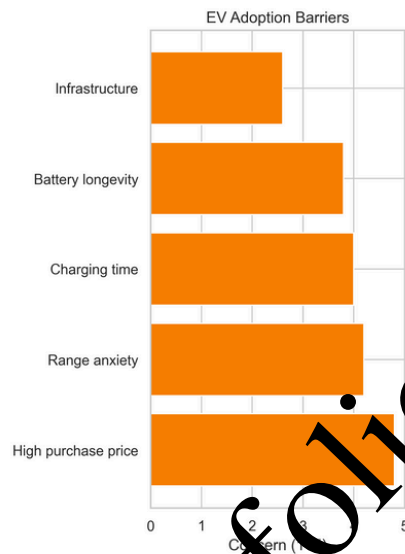

Figure 4: Key Barriers to EV Adoption in Thailand, based on Consumer Concern (Source: Deloitte, 2025)

4.2 Barriers

Research from MDPI 9, coupled with finding from Deloitte 8, clearly identifies the key barriers to EV adoption:

1.High Initial Purchase Price: Despite subsidies, the price of EVs remains higher than comparable ICE vehicles, which is the number one concern for consumers.

2.Range Anxiety: Consumers are still concerned that EVs cannot travel far enough for real-life use. 40% of respondents desire a driving range of more than 400 km per charge [8].

3.Charging Time: Surveys show that Thai consumers have the lowest tolerance for waiting in the region, with nearly half wanting 0-80% charging to take no more than 20 minutes [8], posing a significant technological challenge.

4.Battery Concern: Durability, lifespan, and the cost of battery replacement, as well as uncertainty about resale value, are other factors causing hesitation among buyers.

Consumer Concern

Figure 5: Trend of Consumer Concern Regarding EV Adoption (2021-2025)

Interestingly, while barriers such as range anxiety and charging time persist, overall consumer concern has shown a significant downward trend over the past five years. As illustrated in Figure 5, the level of concern has decreased from approximately 60% in 2021 to around 25% in 2025, suggesting that expanding infrastructure and increasing public awareness are having a positive impact on consumer confidence.

5.Limitations and Reliability of the Secondary Research

This research is based on a secondary data analysis, which inherently carries both strengths in reliability and certain limitations that must be acknowledged.

5.1 Reliability Assessment

The reliability of the findings is considered good for an initial trend analysis, supported by the following factors:

Credible Sources: The analysis relies on data from highly reputable global organizations, including the International Energy Agency (IEA) [4], leading consulting firms (KPMG 3, Deloitte 8), and peer-reviewed academic research (MDPI 9).

Data Triangulation: Multiple independent sources consistently support the core conclusions, such as the long-term growth trend and the identification of key barriers (e.g., high price, range anxiety).

Timeliness: The data utilized is current, focusing on the 2024-2025 period, providing a relevant snapshot of the market's recent performance.

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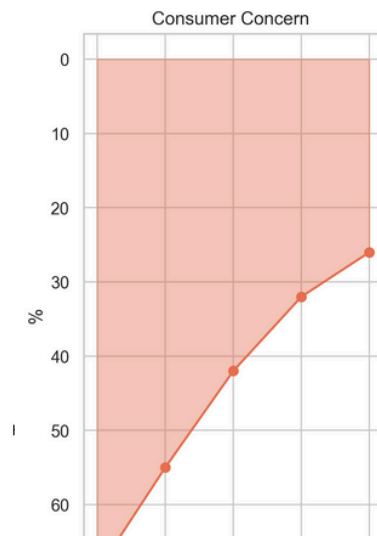
5.2 Key Limitations

Despite the strong foundation, the following limitations prevent a 100% confirmation of the forecasts:

Secondary Research Nature: The study did not involve primary data collection, relying instead on the interpretation and methodologies of the original source authors.

Incomplete 2025 Data: The analysis of the 2025 market slowdown is based on data from only the first nine months 2, which is subject to change by the end of the year.

Limited Source Coverage: While the nine cited sources provide a strong foundation, they may not encompass every perspective or variable influencing the complex EV market.

In summary, while the report provides a strong, evidence-based analysis of the market's direction, the future forecast is subject to external variables such as macroeconomic shifts, policy changes, and technological advancements.

6. Conclusion and Recommendations

Based on the analysis of all secondary data, it can be clearly concluded that the trend for the EV market and adoption in Thailand will remain strong and continuous in the long term. The slowdown observed in 2025 is a short-term effect of economic factors and does not alter the fundamental structural factors supporting market growth, including clear government policy, private sector investment, and infrastructure expansion.

Thailand's position in the global market is that of a "Fast-Growing Market," with high potential to become a regional leader. However, for growth to be sustainable and to achieve the set targets, the public and private sectors must collaborate to address the remaining barriers. The following recommendations are proposed:

1.Promote Financial Accessibility: Consider low-interest loan measures or attractive hire-purchase programs to reduce the burden of the initial purchase price for consumers.

2.Accelerate Infrastructure Expansion to Regions: Establish policies and incentives to encourage investment in installing charging stations in non-urban areas and along inter-provincial highways.

3.Establish Standards and Transparency: Develop common standards for charging plugs and payment platforms (Interoperability) for user convenience, and create standards for assessing the health and price of used batteries to build confidence in the resale market.

4.Continuous Education and Communication: Launch campaigns to provide accurate information to the public regarding the Total Cost of Ownership (TCO), battery management, and facts to alleviate various concerns.

Implementing these recommendations will strengthen Thailand's EV ecosystem and truly propel the country toward achieving its goal of becoming the regional EV hub.

Conflict of interest

The authors affirm no conflict of interest.

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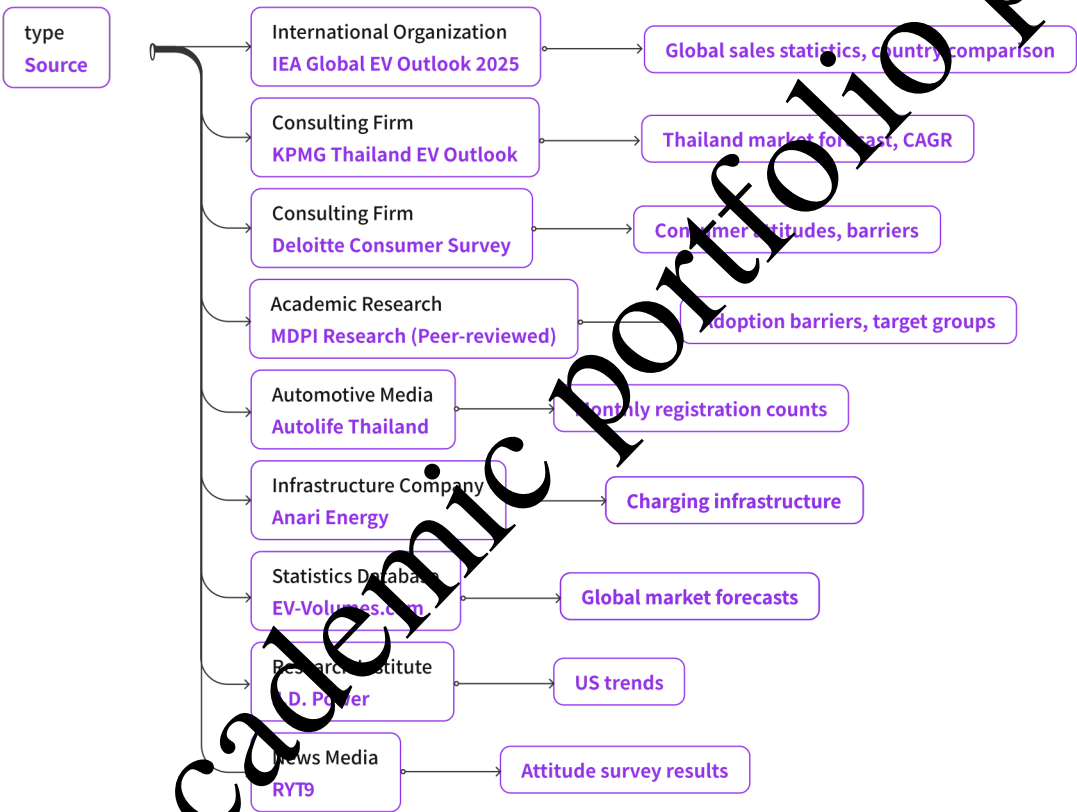
Data Processing Flow and Protocol

Data Input and Extraction (Node A & B)

The process begins with Data Input (Node A), representing the nine highly credible secondary sources used for the analysis. This data then moves to Data Extraction and Filtering (Node B), which is a systematic, auditable procedure:

- Systematic Data Extraction: A standardized Data Extraction Matrix was employed to log all relevant information. This matrix ensured that for every data point, the Source Location (Page/Figure Number) was recorded to maintain full verifiability.

- Temporal Filtering: The primary inclusion criterion was Temporal Relevance, specifically data published or projecting for the 2024-2025 period. Any data point outside this range was systematically excluded to maintain the currency of the market assessment.

DATA SOURCES COLLECTIVES

type	Source		

Source type	Source	Output
International Organization	IEA Global EV Outlook 2025	Global sales statistics, country comparison
Consulting Firm	KPMG Thailand EV Outlook	Thailand market forecast, CAGR
Consulting Firm	Deloitte Consumer Survey	Consumer attitudes, barriers
Academic Research	MDPI Research (Peer-reviewed)	Adoption barriers, target groups
Automotive Media	Autolife Thailand	Monthly registration counts
Infrastructure Company	Anari Energy	Charging infrastructure
Statistics Database	EV-Volumes.com	Global market forecasts
Research Institute	D. Power	US trends
News Media	RYT9	Attitude survey results

Data Processing Flow and Protocol

1. Quantitative Analysis (Node C)

This stream is dedicated to establishing objective, verifiable market metrics through mathematical rigor.
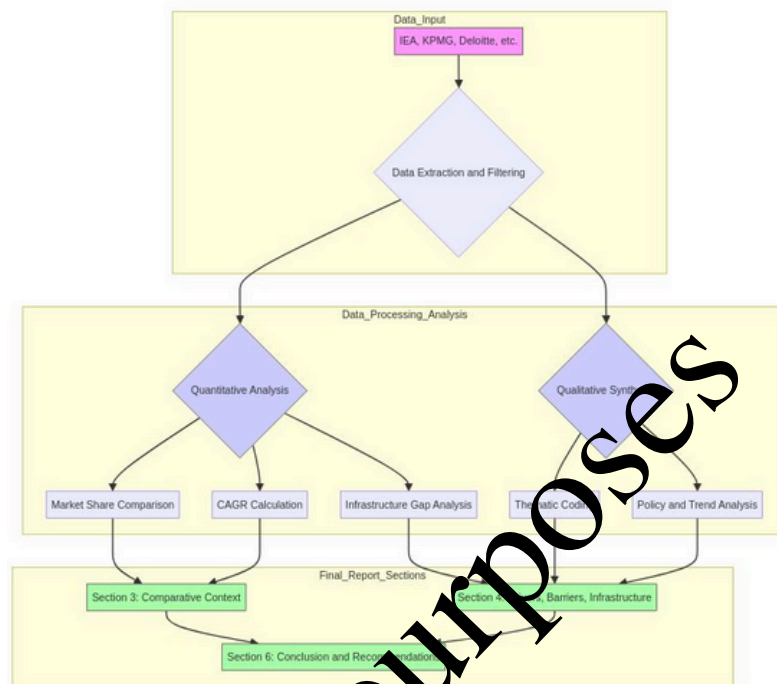
- C1: Comparative Benchmarking
  - Function: This process involves the systematic comparison of Thailand's EV market penetration rate against established global leaders (e.g., Norway, China) and comparable emerging markets (e.g., USA, India).
  - Academic Justification: It establishes a baseline for performance evaluation and allows the study to accurately categorize Thailand's market as a "Fast-Growing Market" based on empirical, cross-national data, moving beyond anecdotal observation.
- C2: Time-Series Forecasting
  - Function: Utilizing the historical and projected sales data from the KPMG report, this process applies time-series analysis to calculate the Compound Annual Growth Rate (CAGR).
  - Academic Justification: The CAGR serves as a standardized metric for projecting future market size and momentum. It provides a defensible, single-figure representation of the market's expected trajectory, essential for strategic planning and policy recommendation.
- C3: Quantitative Gap Analysis
  - Function: This involves a direct numerical comparison between the current state of public fast-charging infrastructure (as reported by Anari Energy) and the officially mandated National EV Policy Target (e.g., 2,200 stations).
  - Academic Justification: It transforms the qualitative concern of "charging anxiety" into a quantifiable infrastructure deficit. This metric is crucial for evidence-based policy recommendations, as it provides a clear measure of the investment required to meet national goals.

2. Qualitative Synthesis (Node D)

This stream is dedicated to interpreting non-numerical data to understand the underlying motivations, perceptions, and regulatory environments that shape the market.

- D1: Inductive Thematic Analysis
  - Function: This process involves systematically reading and coding qualitative data (e.g., survey responses from Deloitte, academic literature from MDPI) to identify recurring, emergent themes. These themes are then categorized into the primary Drivers (factors accelerating adoption) and Barriers (factors impeding adoption).
  - Academic Justification: It provides explanatory power to the quantitative findings. For instance, a low market share (C1) is explained by the high salience of the "Cost" and "Charging Infrastructure" themes identified through this analysis.
- D2: Policy and Trend Analysis
  - Function: This involves the critical review of government policy documents and major industry reports to establish the regulatory context and technological trends.
  - Academic Justification: It ensures the analysis is contextually grounded. It links the market's current state to specific government interventions (e.g., subsidies, tax breaks) and global technological shifts, providing a robust foundation for policy-relevant conclusions.