Research Intelligence

Used Electric Vehicles: Supply and Resale Value



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Executive summary

Markets for used electric vehicles are developing rapidly around the world, particularly in China, the US, and Europe, with sales growing by over 30% annually. This growth is fueled by green energy policies in many countries that subsidize purchases, making prices more accessible. However, the depreciation of used EVs, driven by rapid technological advancements and price competition in the new EV market, is a significant factor influencing buyer decisions. In Thailand, the growth of the new electric vehicle market under EV 3.0 and EV 3.5 measures has led to the emergence of used EVs in the market. However, the market remains small and primarily focused on premium segments. The resale value of used EVs in Thailand declines faster than the global average due to the market's transitional phase and intense price competition in the new car market, driven by ongoing advancements in battery technology. Data analyzed in this paper also show that US and European EVs are more typically located at the premium end of the market, and so these have a higher resale value than smaller more mass-market Chinese models, while within the domestic market, prices are heavily influenced by mileage, age, type and manufacturer. Registrations of used EVs are expected to grow by an average of 825 vehicles annually over 2025-2027, accounting for 0.8% of new EV registrations. The majority of used EVs entering the market will be 4-5 years old, most of which will be EVs originally sold through the EV 3.0 scheme over 2022 and 2023.

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Overseas secondhand EV markets

Over the last few years, global auto markets have been disrupted by the sharp uptick in interest in electric vehicles as consumers have both been attracted to this new technology and taken on board deepening concerns with sustainability and the environment. However, this market is still developing and the recent surge in sales of new EVs is in turn generating a secondary market for used vehicles. This is thus prompting both consumers and businesses in related parts of the industry to ask 'How fast will EV resale values depreciate?' and 'What will the future supply of secondhand EVs look like?' The answers to these questions will help to influence purchasing decisions for both new and used EVs, insurance premiums, and loan approvals for used EVs, as well as capital management in the business sector for investment in the growing used electric vehicle market.

This paper aims to shed light on possible answers to these questions by examining markets for used EVs overseas, examining the factors that determine prices within the Thai secondhand EV market, and forecasting the outlook of the second-hand electric car market.

The development of secondhand EV markets overseas

The 2015 Paris Agreement, which was signed by parties to the United Nations Framework Convention on Climate Change, sets a formal target of limiting increases in global temperatures across the 21st century to no more than 2 degrees Celsius relative to pre-industrial levels. Following this, countries have set their own plans to reduce greenhouse gas emissions, aiming for net zero CO_2 emissions in the future. One of the key energy policies is the transition to green energy in the transportation sector through the use of Electric Vehicles (EVs), particularly Battery Electric Vehicles (BEVs). As a result of this, global registrations of EVs have surged in recent years, and in 2023, these jumped another 35.0% to 14 million vehicles. These trendlines are expected to extend into the future, and so in a 2024 paper, the IEA stated that guided by the twin engines of favorable government policy and ongoing technological progress, by 2030, 40% of all vehicle sales (or 45 million vehicles) are expected to be chargeable EVs[1/], rising to 50% (or 65 million vehicles) by 2035.

This rapid growth in new EV sales has led to an increased supply and popularity of the second-hand EV market. Naturally, this has been most pronounced in countries that have the most developed markets for new EVs, i.e., China, the US, and the EUR-6 countries of France, Germany, Italy, Spain, the Netherlands, and the United Kingdom. Thus, as of 2024, some 800,000 secondhand EVs were on the market in China (up 40.0% YoY), while in the US and the EUR-6, the respective figures stood at 400,000 (+43.0%) and 450,000 vehicles (+28.0%) (IEA, 2024). Future Market Insights (2023) expects that the global market for used EVs will grow by 8.4% CAGR over 2023 to 2033, reaching a total value of some USD 40.08 billion by the end of this period. The most significant factors supporting growth will include the following.

- **Lower prices:** Their lower costs make used EVs a more attractive option for buyers with less purchasing power and those looking to test the water while the industry is still in a period of flux. For example, in the European market, used EVs sold over 2017-2022 that were around a year old were priced at a -35% discount relative to new vehicles (Transport and Environment, 2023).

1/ This covers battery EVs (BEVs) and plug-in hybrids (PHEVs).

- **Cost of ownership:** Buying a used EV may entail a lower overall cost of ownership. In particular, secondhand EVs that are 5-7 years old are around 2-3 times cheaper to run than the average cost (for both EVs and ICE autos) of similarly aged vehicles, and according to Consumer Reports, 2020, costs for fuel and repairs and servicing are respectively 50.0% and 60.0% lower for EVs relative to the average.
- **Government incentives:** Governments in some countries have attempted to stimulate markets for used EVs. For example, in 2023, the US government provided subsidies to buyers of used EVs worth around USD 4,000 each when making a purchase of a vehicle with a value less than USD 25,000, though to qualify for payments, buyers had to have an annual income of less than USD 75,000 (New York Times, 2023).
- **Improved driving experience:** EVs often provide a better driving experience than equivalent internal combustion engine vehicles thanks to their quicker acceleration, better handling, quieter operation, and rolling software updates that continue even once these have entered the secondhand market. In addition, manufacturers are continuing to make progress with battery technology and so new models typically have an ever-greater range per charge (IEA, 2024, and Japan Times, 2023).
- **Global megatrends connected to the environment:** Since electric vehicles use battery power, which does not involve fuel combustion, they do not emit exhaust or greenhouse gases, making them non-polluting during driving. (EPPO, 2021 and Electromaps, 2024).

Thanks to these advantages, interest in used EVs is continuing to rise, though in markets overseas, demand has come in particular from buyers interested in trying out an EV, those who have previously rented one but who do not wish to make a full commitment to buying a new vehicle, and ridesharing drivers[2/] (BBC, 23 February, 2024, and World Resources Institute, 2019).

Factors influencing prices for used EVs in overseas markets

Although the supply of used EVs is expanding steadily round the world, worries over how fast prices will depreciate have a heavy influence on consumer purchasing decisions, and this is then generating knock-on effects across the industry value chain for players including EV manufacturers, leasing and finance companies, and insurers. Indeed, because the market is still in its infancy, prices for secondhand BEVs have shown a significant degree of volatility worldwide over the past 3 years. In 2022, previous softness in secondhand prices, chip shortages that then held up production of new models, and improvements in auto technology boosted demand for used BEVs (IEA, 2024), but with demand rising, prices bounced back. Thus, for BEVs aged more than 36 months old, European resale prices were around 55.0% of that paid for a new model, up from an average of 40.0% in 2017 and around 25.0% higher than the prices charged for an equivalent ICE-powered secondhand vehicle (data correct as of June 2023, source: CNBC, 2024).

However, from the second half of 2023 onwards, overseas resale prices for used BEVs have softened again, and so as of May 2024, these were down by between -30% and -39%. EVs therefore lost ground relative to secondhand ICE vehicles, for which prices slid by between -3.0% and -7.0% (CNBC, 2024[3/]). This turnaround was a result of: (i) the release of new models that had a greater range per charge; (ii) increased worries over the lifespan of EV batteries; (iii) the emergence of aggressive price wars between players releasing new models to the market; and (iv) in some areas, growth in the number of charging stations that was out of balance with the rise in the number of EVs on the road (Digital Trends, 24 June, 2024).

2/ For example, the number of drivers on Uber using EVs doubled over the previous year, rising to around 126,000 individuals per month (BBC, 23 February 2024).

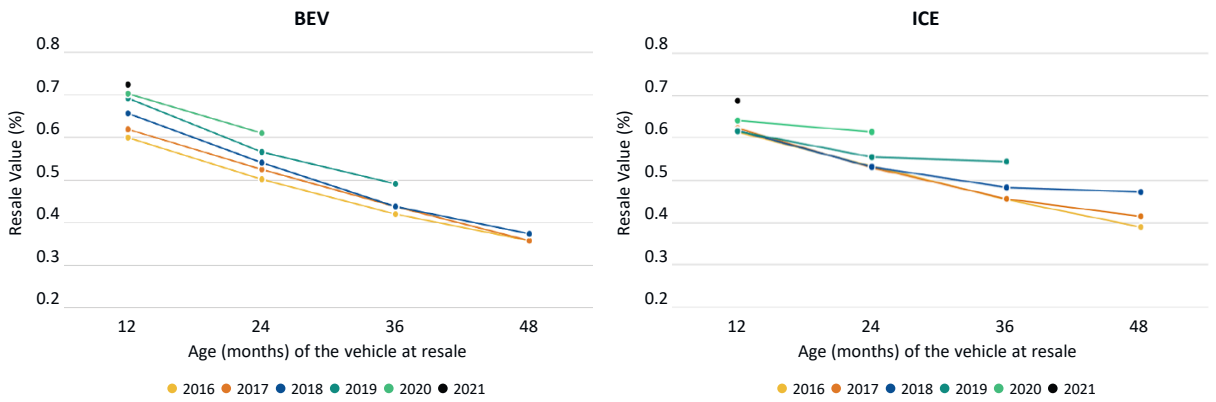
3/ Data from research by iSeeCars that looked at 2.2 million secondhand vehicles aged between 1 and 5 years old.

Given the relative youth of the market and its history of price volatility, it remains difficult to assess the value of particular used BEVs. This uncertainty is then amplified by a lack of data, and because they account for 30-50% of the cost of an EV, the absence of solid information on the rate at which EV batteries degrade is especially important. Nevertheless, by referencing previous research and analyzing a broad dataset, it is possible to identify the key factors that influence prices for secondhand EVs in overseas markets. These are described below.

- **Age and mileage:** These provide a solid proxy for assessing the wear and tear that a vehicle has endured, and so as these rise, the associated costs for servicing and repairs will likewise escalate, thus undercutting resale value (Podpoint, 2024). For BEVs, depreciation is typically front-loaded and so as mileage increases or the year of production recedes, the rate at which the vehicle's value decreases will in fact slow, as reflected in the use of reducing balance depreciation accounting techniques[4/] (Figure 1), though of the two, **BEV resale value falls faster with age than with mileage**. Relative to similarly aged secondhand ICE-powered vehicles, BEVs aged less than a year old will depreciate more gradually since these still employ up-to-date technology, but beyond the limit of 1 year, the rapid pace of innovation within the industry means that the vehicle's core technology becomes increasingly outdated and so from this point onwards, BEVs depreciate faster than their ICE equivalents. In addition, as age increases, there will also be a feedback effect from worries over depreciation itself (Transport & Environment, 2023).

Figure 1

The Relationship between Resale Value and the Age of EVs and ICE Cars, Categorized by Production Year



Source: Transport & Environment (2023)

- **Segment:** Used EVs in the premium segment (e.g., sports models and luxury sedans) typically experience more rapid depreciation than other parts of the market due to the greater cost of servicing and repairs these (USNews, 2020 and carVertical, 2023). By contrast, electric SUVs generally have a higher resale value than other EVs, especially those more than 12 months old since demand for these is rising steadily around the world (Transport & Environment, 2023).

- **Brand:** Because leading or particularly well-regarded EV brands are generally viewed as being equipped with better technology, benefiting from regular software updates, and having higher quality and longer-lasting batteries, these are usually in demand and have a higher resale value (Japan Times, December 2023). For example, on average 5-year-old Tesla Model 3 and Chevrolet Bolt EVs see price declines of just -21.5% and -27.0% respectively (Carnex Canada, 13 March 2024).

4/ Price declines are most pronounced during the initial phase, but the rate of decline then slows until it approaches the minimum resale value.

- **Year of manufacture:** Typically, newer EVs employ improved technology, especially with regard to their battery management systems and so new models have a longer range than older vehicles. Thus, as of 2023, electric passenger vehicles and SUVs had an average range of 380 km/charge, up from just 150-270 km/charge in 2015. This represents a gain of 7.7% CAGR (IEA, 2024) and so demand for newer BEV models is correspondingly greater, with consequent impacts on resale prices.

- **Color:** Demand for ICE-powered vehicles and BEVs that are in standard colors (e.g., black, silver and gray) is greater than for those in other colors and so prices are correspondingly higher (Minilist, A Guide to Electric Car Depreciation). However, research by iSeeCars carried out in 2023[5/] shows that on the iSeeCars platform, the situation is reversed and that prices for vehicles in non-standard colors (e.g., yellow, orange and beige) are higher since for these, demand is stronger than the only limited supply[6/].



5/ Based on prices for 1.3 million used vehicles aged 3 years old or more listed on iSeeCars.

6/ On average, prices for yellow vehicles see their resale value decline by -13.5% after 3 years, significantly less than the average fall of -22.5%. As such, the average price for yellow autos was around USD 3,000 higher than for those in other colors.



The Thai market for used EVs

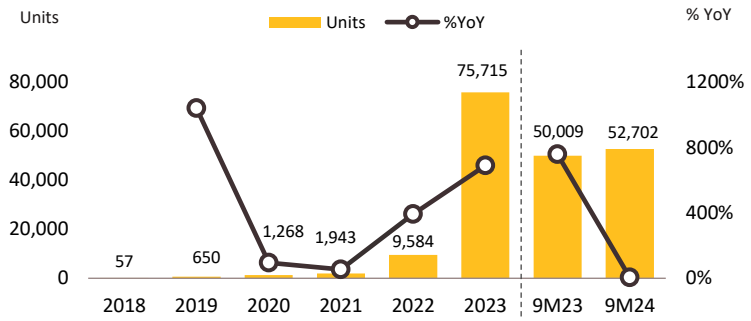
The overall state of the domestic EV market

The market for new BEVs

Registrations of new BEVs surged through 2022 and 2023 thanks to the rollout of the EV 3.0 measures. Growth was particularly strong in 2023, when registrations jumped 690.0% to 75,715 vehicles (Figure 2). Over the first 9 months of 2024, registrations expanded by another 5.4% YoY as the market transitioned from the EV 3.0 scheme to its successor, the EV 3.5 program. An additional 52,702 BEVs thus came onto Thai roads in the period, and these represented 12.3% of all new passenger vehicle registrations made in the period. Given this, total registrations of BEVs from the start of 2018 through to the end of September 2024 totaled 137,421 vehicles, or 3.3% of all new passenger vehicles. Since 2022, Chinese BEVs have also taken a dominant position within the market. These are typically priced less than THB 2 million and are eligible for government EV subsidies, and so these now account for more than 60% of annual BEV sales in the country, and this segment is now strongly representative of the market overall. The Thai market is therefore overwhelmingly composed of models that are from China (79.4% of registrations made over 2018-2023), priced below THB 2 million (83.9% of the market), and have a range of 300-500 km/charge (76.0%) (Figure 3). This marks a sharp turnaround for the market since prior to the introduction of government EV subsidies and promotions, the domestic supply of BEVs was overwhelmingly of European, American and Japanese models.

Figure 2

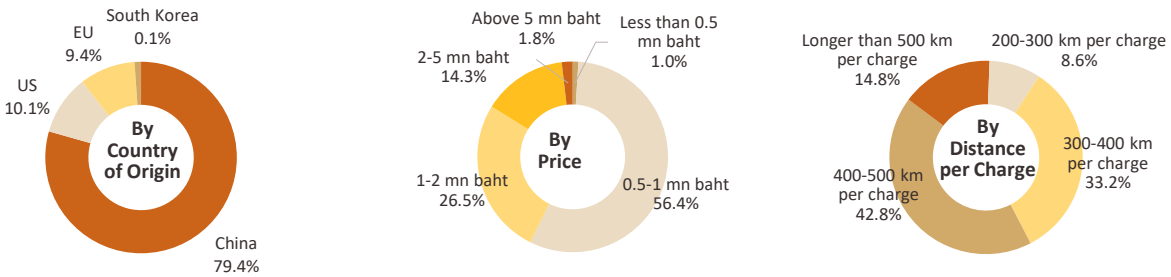
Newly Registered Passenger BEVs



Source : DLT, Krungsri Research

Figure 3

Share of Cumulative Registered Passenger BEV (Average for 2018 - 2023)



Source : DLT, Krungsri Research

The impressive rates of growth seen in the BEV market since 2022 have been the result of various tailwinds.

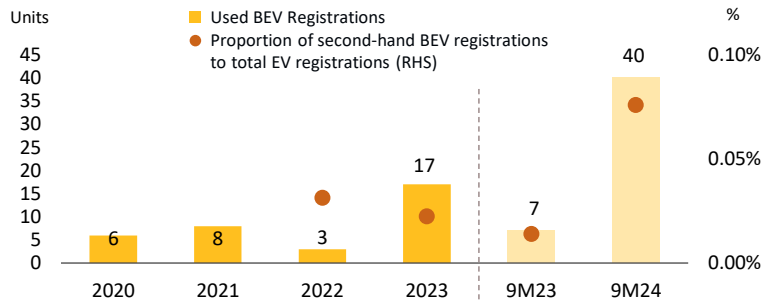
- **The EV 3.0 (2022-2023) and EV 3.5 (2024-2025) measures** provided government financial support to buyers of BEVs worth respectively THB 150,000 and THB 100,000 per vehicle.
- **Consumer choice has been widened by the entry of new manufacturers to the market and the development of an ever-wider range of models.** Data from the Electric Vehicle Association of Thailand (EVAT) shows that as of September 2024, 56 BEV models were available for purchase in Thailand. These came from 25 marques, were priced between THB 0.33 million and THB 31.8 million, and had a range of between 120 and 702 km/charge.
- **EVs represent increasing value for money** as, on the one hand, technological progress is helping to steadily extend vehicles' range per charge, while on the other, these same processes are helping to bring down production costs. Sales of budget BEVs that could cover a longer distance per charge thus increased in 2023. These included the NETA V, which offers a range of 302 km/charge at a price of THB 549,000, or a distance of 550.8 km per THB 1 million. 12,777 of these were registered in the year, or 16.9% of all new BEV passenger vehicle registrations. Similarly, the ORA Good Cat has an average price of THB 959,000 and a range of 500 km/charge, or 521.4 km per THB 1 million, and this model accounted for another 8.9% of all 2023 BEV passenger vehicle registrations (or 6,712 units).

The market for secondhand BEVs

Growth in sales of new BEVs has opened up supply to the secondhand market, but with the government subsidizing purchases of new EVs and a steady stream of new BEV models entering the market, sales of secondhand BEVs have remained weak. As such, over the first 9 months of 2024, just 40 sales of secondhand BEVs were registered (Figure 4), or an underwhelming 0.8% of all registrations of new EV passenger vehicles. By contrast, sales of all secondhand passenger vehicles accounted for 4.1% of the total market for these.

Figure 4

Used BEV Registrations



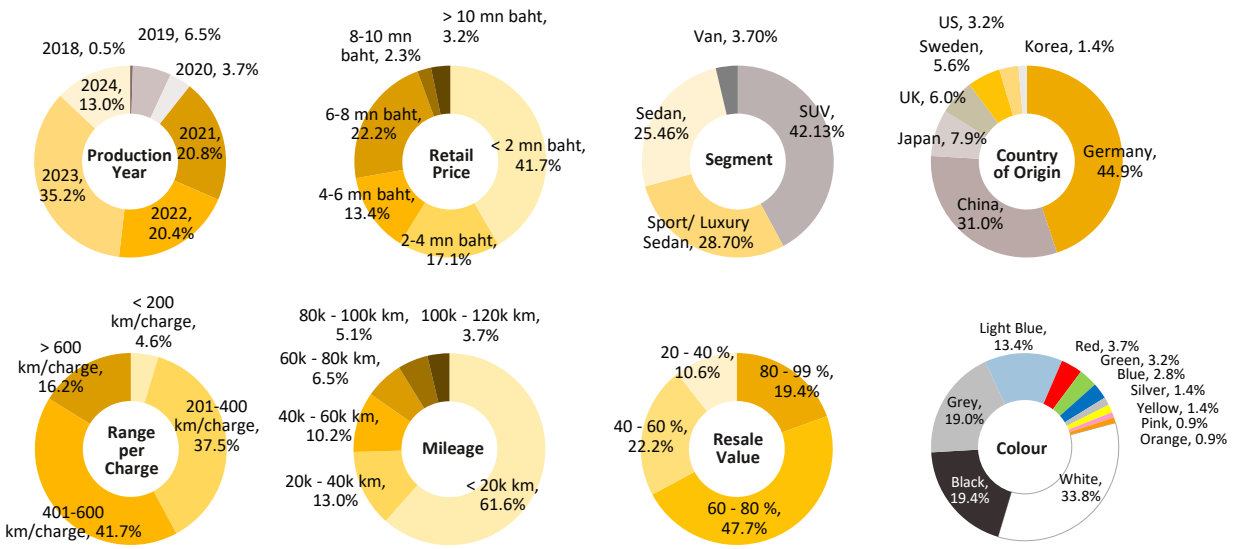
Source : DLT, Krungsri Research

Analysis of the 214 used BEVs sold through the One2car website between 1 January and 8 August, 2024, shows that with regard to both the initial list price and the nationality of the marque, these were concentrated at the premium end of the market. Details of this analysis follows (Figure 5):

- **Year of manufacture:** 55.6% of the vehicles were manufactured in 2022 and 2023, and were thus just 1-2 years old. This mirrors the overall trend in sales of new vehicles, with a total of 60.1% of all BEVs registered in Thailand also having been produced in these two years.
- **List price:** 58.3% of the used BEVs sold through One2car had an original list price of at least THB 2 million[7/], leaving just 41.7% with a price below this key cut-off point[8/]. This differs sharply from the market for new BEVs, where some 80.0% of new BEVs sold over 2022 and 2023 were priced below THB 2 million.
- **Segment:** Within the sample data, the most important vehicle type was SUVs (42.1% of the total), followed by sports models (28.7%), passenger vehicles (25.5%), and vans (3.7%).
- **Country of origin:** The majority of secondhand BEVs were German (44.9%) and Chinese (31.0%). This represents a marked divergence from the market for new BEVs, where since 2022, over 80% of sales have been of Chinese marques.
- **Distance per charge:** The vast majority of sales were of vehicles with a range of 401-600 km/charge (47.7%) and 201-400 km/charge (37.5 %). These models had an average battery capacity of 70.4 kWh.
- **Mileage:** 61.6% of the vehicles in the sample data had a mileage of less than 20,000 km. Some of these were test drive vehicles.
- **Resale value:** Most vehicles were advertised with a resale price set at 60-80% of their original retail price.
- **Color:** Most vehicles were in the standard colors of white (33.8% of the total), black (19.4%), gray (19.0%) and blue (13.4%).

Figure 5

Characteristics of Used BEV Listed for Sale on One2car (during January - August 2024)



Source: One2car, Krungsri Research

7/ For these, government support under the EV 3.0 scheme was limited to cuts to excise duties and import tariffs.
8/ Government support under the EV 3.0 scheme included subsidies worth up to THB 150,000 in addition to cuts to duties and tariffs.

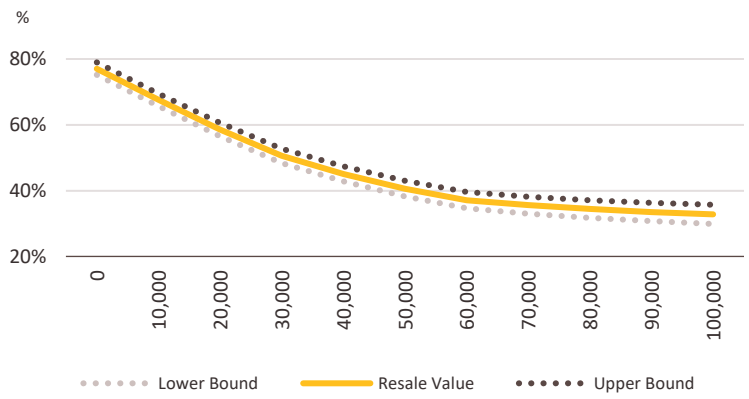
Estimating depreciation in BEV prices

Next, an econometric model[9/] is used to analyze the impacts of these various factors (i.e., mileage, segment, country of origin, year of manufacture, and color) on rates of depreciation in the domestic market for used BEVs.

- **Initial depreciation:** This is also called off-the-lot depreciation and refers to the instant drop in the resale value that occurs as soon as a vehicle is sold. This is not related to any actual wear imposed on the BEV but is a result solely of the change in the ownership of the vehicle and its conversion from a new to a secondhand product. **In the Thai market for used BEVs, this averages 22.93%, so as soon as a BEV leaves the showroom**, its maximum resale value is on average at 77.07% of its new car price (original list price).
- **Mileage: Thai BEVs lose between -5.6% and -9.4% of their value for every 10,000 kilometers that they travel. This is a more rapid rate of depreciation than is typically seen for secondhand vehicles generally, which averages -5.2% per 10,000 kilometers** (Source: Econoautosale). This is partly because the market is young and evolving, although there are also many external factors influencing prices, including earlier government interventions in the market for new BEVs that allowed consumers to buy new models at a discount, improvements in EV technology that are extending the range of budget models, and aggressive price wars that have broken out in EV markets. The net effect of this has been to depress prices in the secondhand market[10/], although research by Transport & Environment (2023) shows that when the resale value drops to 30% of the original list price, it begins to stabilize. This indicates that used BEVs in Thailand, with either a resale value reduced to 30% or an accumulated mileage of about 150,000 kilometers, will start to maintain a stable resale value at that rate. (Figure 6).

Figure 6

Estimated Resale Value of Used BEV by Mileage



Source: One2car, Krungsri Research

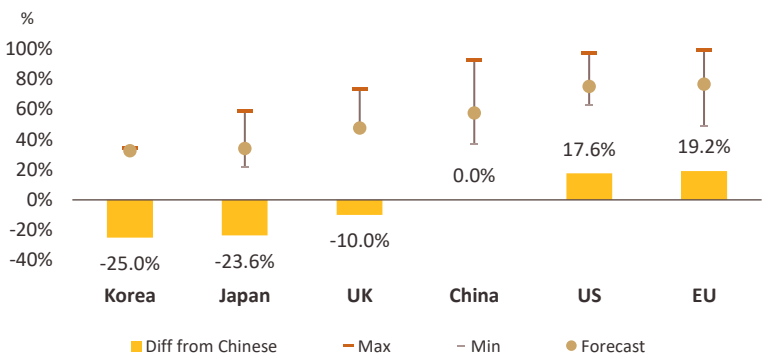
9/ This uses beta regression to analyze the effects of independent variables on a dependent variable with a result of between 0 and 1, or in this context, the value of the resale price relative to the list price, which would thus range between 0 and 100%.

10/ Because the domestic market for used BEVs is still in its infancy, data is scarce and erratic, especially for vehicles that have clocked up a mileage in excess of 100,000 kilometers. This paper thus draws on similar research carried out in markets overseas that have looked at the resale value of these vehicles.

- **Country of origin:** Looking at the nationality of the manufacturer reveals that **US and European BEVs, which also typically target the premium market, hold their value better than do Chinese models**. Thus, in line with data from Japan Times (2023) and Carnex Canada (2024), **BEVs produced by manufacturers from these two areas offer respectively 17.6% and 19.2% improvements in depreciation relative to Chinese BEVs** (Figure 7). That is to say, if a Chinese BEV has a resale value of 50% of its original list price, BEVs from the US and Europe will typically sell for 67.6% and 69.2% of their list prices. This is explained by the much better brand positioning of these marques. In particular, compared to Chinese manufacturers, US and European companies are viewed as being market leaders that give buyers access to more advanced technology and batteries, a better program of software updates, and an improved range per charge. **By contrast, British, Japanese and South Korean BEVs fare less well, and although these are generally sellers of premium models that are priced above their Chinese competitors, they suffer from worse depreciation.** Resale values for models from these countries thus underperform Chinese BEVs in the secondhand market, losing -10.0%, -23.6% and -25.0% relative to the latter, i.e., against a hypothetical used Chinese BEV that sold at 50% of its list price, secondhand BEVs from Britain, Japan and South Korea would sell at just 40.0%, 26.4% and 25.0% of their respective list prices. This was due to: i) the limited number of BEV models imported from the latter groups of nations for sale in Thailand in recent times, as reflected by the cumulative registration accounting for less than 1.5% of all BEV registrations, resulting in a relatively small sample size of used vehicles; and ii) the shorter driving range per charge of those specific brands compared to Chinese brands.

Figure 7

Forecasted Resale Value of Used BEVs by Country of Origin and Percentage Difference Compared to Chinese Brands



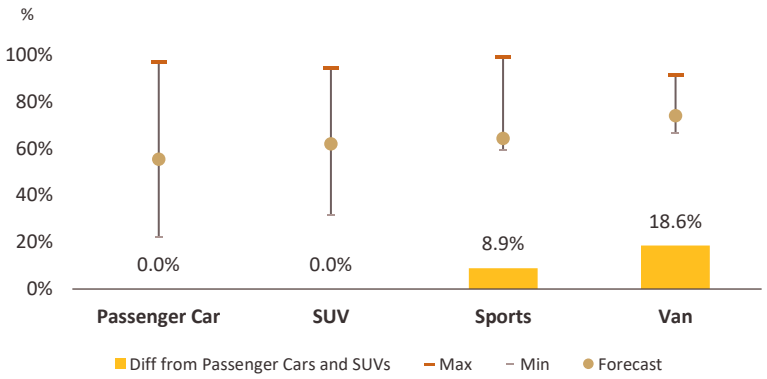
Source: One2car, Krungsri Research

- **Segment:** **Premium BEVs (i.e., sports and luxury sedan models) and electric vans offer resale values that are 8.9% and 18.6% better than BEV passenger vehicles** (Figure 8), though here, the domestic market diverges from international trends. This could be because in Thailand, these models are generally imported for sale into wealthier niche markets and so demand is often stronger than supply, with implications for sale prices.
- **Year of manufacture:** **Controlling for other factors, BEVs depreciate in value by an average of -6.1% for each year that has passed since that model was first released to the market.** For example, the resale price of a model that was released in 2021 would on average have declined by -18.3% by 2024 relative to its original list price, whereas for 2022 and 2023 models, price declines would come to -12.2% and -6.1% respectively (Figure 9). This depreciation is driven by the breakneck pace of progress in the EV market, which is really closer to that seen for high-tech products than for more traditional industrial goods. This has been especially noticeable in the rapid extension in BEVs' range per charge, and so among secondhand BEVs listed for sale on One2car, this averaged 509.0 km/charge for 2024 models, compared to 477.1, 386.2, and 345.1 km/charge for 2023, 2022 and 2021 models.

- **Color: This did not have a statistically significant impact on BEV resale values,** although those in standard colors (white, black, gray, silver and blue) are the most popular in the Thai market.

Figure 8

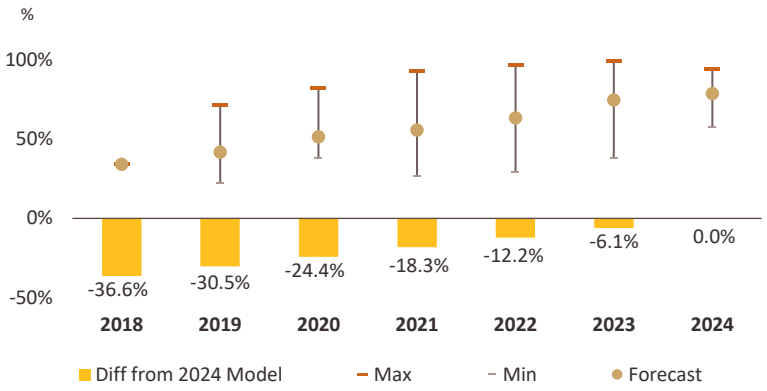
Forecasted Resale Value of Used BEV by Segment and Percentage Difference Compared to Passenger Cars and SUVs



Source: One2car, Krungsri Research

Figure 9

Forecasted Resale Value of Used BEV by Year of Manufacturing (as of Aug 2024)



Source: One2car, Krungsri Research



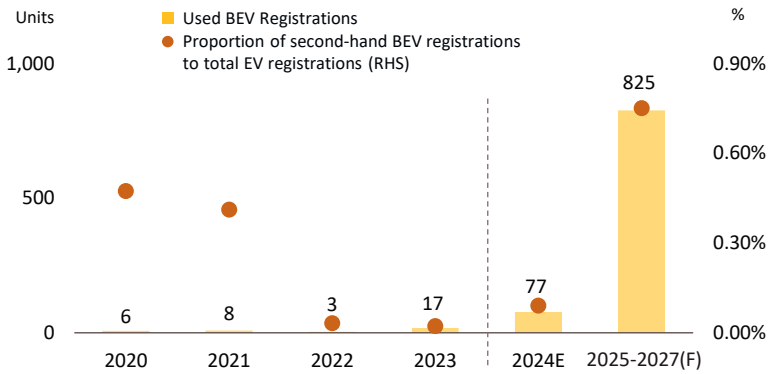
Forecast sales of used BEVs, 2025-2028

New registrations of second-hand BEVs will grow in the coming years, and over 2025 to 2027, these are forecast to average 825 vehicles per year, or around 0.8% of the number of new BEVs registered annually[11/] (Figure 10). As is the case in the US, the majority of used BEVs on the market will be 4-5 years old (Recurrent, 2024) and so these will typically be models that were imported for distribution to the domestic market over 2022 and 2023 under the EV 3.0 program. Factors tending to support growth in the market will include the following.

- **Stronger sales of new BEVs:** These have risen steadily since 2021 thanks to the rollout of the EV 3.0 and EV 3.5 schemes, and so annual registrations of new vehicles are expected to average 110,000 over 2025-2027[12/]. Growing sales of new vehicles will then translate into increased supply to the secondhand market.
- **Comparative price advantages:** A combination of government subsidies and ongoing competition between manufacturers has rapidly driven down prices for new BEVs, and this has then put additional downward pressure on prices for secondhand models. For example, used BEVs listed on One2car that have clocked up 1-20,000 or 20,001-40,000 kilometers sell at respectively 74.0% and 61.0% of their list price, and so this provides an attractive option for those looking for a cheaper way of trying out an EV while the market is still developing.
- **Tightening supply of ICE-powered vehicles:** The market for new ICE vehicles has recently begun to slow, with sales growth having gone into reverse since 2023. Indeed, over the first 8 months of 2024, sales of new ICE vehicles slumped -35.6% YoY under the impact of weak consumer spending power and a tightening of the release of new credit by lenders[13/], though these factors failed to impact BEV sales, which continued to grow through the period.

Figure 10

Forecast Sales of Used BEVs



Source : DLT, Krungsri Research

11/ By contrast, registrations of secondhand passenger vehicles comprised 4.1% of total registrations made over 2019-2023 (source: Department of Land Transport).
12/ For more details, please see page 4 of Industry Horizon (October 2024).
13/ For more details, please see Industry Outlook 2024-2026: Auto Industry.

- **The increasing range and age of used BEVs:** As demonstrated above, progress over recent years has significantly extended the range per charge of EV batteries and so as of 2023, the average range of passenger BEV, and battery electric SUVs sold worldwide was 380 km/charge. This has increased by 7.7% CAGR since 2015, when range per charge typically ran somewhere between 150 and 270 km/charge (IEA, 2024). In addition, modern batteries are less prone to degradation and so declines in capacity have fallen to 1.8% annually, down from 2.3% in 2019 (Geotab, 2024). This is then helping to underpin increased confidence in secondhand BEVs.
- **Expanding choice among used BEVs:** The EV 3.0 and EV 3.5 programs helped to precipitate a sharp increase in the number of EV models either being imported into Thailand or being manufactured domestically. In July 2024, there were therefore 56 different BEV models produced under 24 marques available for purchase in Thailand. This represents an average increase of 44.1% per year from the 9 models (from 8 marques) that were on the market in 2019 (EVAT (2019) and EVAT (2024)).
- **Increased access to charging stations:** Greater investment in charging stations will help to support stronger demand for EVs, particularly as this increases access upcountry. The latest data (as of June 2024) indicates that there are currently 3,175 charging stations in the country, an increase of 114.2% since May 2023. These contain a total of 10,846 individual charging points (up 134.6%), or a ratio of 1 charging point for every 14.8 BEVs and PHEVs on the road.
- **The trend of increasing preference for EVs:** Consumers' better understanding of electric vehicle technology and charging[14/], as well as their growing environmental awareness[15/] will support greater demand

However, although the market for used BEVs will certainly benefit from these tailwinds, its further development will still face challenges in the form of consumer worries over the potential cost of repairs. Concerns over the state of older batteries are especially pronounced, and unfortunately at present, there is no domestic authority tasked with checking and verifying the quality of used EV batteries[16/]. In addition, there is still a lack of government measures to support the second-hand electric vehicle market in Thailand.

14/ A survey by Deloitte (2024) of public attitudes shows that the share of respondents reporting concerns over a lack of knowledge of EV technology fell from 34% in 2023 to 25% in 2024. This also dropped from 44% to 39% with regard to worries over the range per charge of EVs. 25% of the public (up from 14% in 2023) now expect to be able to charge an EV at a public charging station, while the proportion of respondents willing to wait 10-40 minutes for an EV to charge has increased from 61% to 71%.

15/ In 2024, environmental issues were cited as the second most important reason for buying an EV, up from fifth place in 2023, with 71% of respondents giving this as a motivation.

16/ This covers both the 'state of charge' and the 'state of health', which test the range per charge and the remaining capacity of the battery relative to its capacity before use (Sia Partners, 2021)



Krungsri Research view: Determining the domestic resale value of secondhand BEVs

The analysis of factors influencing the depreciation rates seen in the market for used BEVs given above shows that the most important of these are the vehicle's mileage, the marque, the type of vehicle or its segment, the country of origin, and the vehicle's year of manufacture. However, because the Thai market for secondhand BEVs is still young and underdeveloped, there are a number of problems that affect the data used to determine resale values.

1) This analysis of used BEV prices is based on advertised sale prices set by individual owners, and so there is a risk that these may be higher than the actual sale prices agreed between buyers and sellers.

2) The data was gathered during a period when BEV manufacturers were engaged in a price war. It is therefore possible that resale prices were depressed below the level that would be expected when more normal conditions predominated.

3) The dataset was generated during a transitional period and so this may have included only a limited number of models and vehicles made by British and South Korean premium marques. Moreover, it is likely that these did not enjoy strong brand recognition and this may then have caused these vehicles to experience faster depreciation than better known budget BEVs. This would then explain why the Thai market differs from global patterns that show prices for premium vehicles typically depreciating slower than for mass-market models.

4) To date, EV sales in Thailand have mostly been of standard BEV passenger vehicles, and so the secondhand market has received a steady supply of these. By contrast, the supply of other types of used EVs has been limited, especially of vans, sports cars, and luxury sedans, and this may be one reason why resale prices for the latter which have a limited supply were higher than global market.

Going forward, Krungsri Research forecast that the recent surge in EV sales and the need to meet national net zero commitments through changes to the transport sector will support the market for used EVs to grow in importance. This research may be limited by the fact that the domestic market is still developing and evolving and so gathering solid data remains problematic, but its conclusions regarding likely trends in supply and the determination of resale values should nevertheless remain useful to those with an interest in this area, in particular businesses that operate in areas closely connected to the secondhand BEV market itself (e.g., sellers of used vehicles, auto insurers, and auto finance companies). The findings can thus help to shed light on issues faced by these businesses, for example by ensuring that dealers allocate sufficient capital to fund purchases of used EVs as these come onto the market, thus allowing them to build stocks, as well as helping these players become better informed about how to structure sales promotions. Beyond dealers, this research may also help to provide a stronger framework for calculating insurance premiums and judging approvals of loans financing purchases of secondhand EVs. At a wider level still, consumers looking to purchase a used BEV may also find value in this research, whether these are individuals wishing to try out an EV without making the financial commitment entailed in purchasing a new vehicle, or buyers who have been affected by sluggish economic conditions and who wish to buy a cheaper, budget model. In any case, this research should help to provide an initial grounding in the market and to enable buyers to make better informed purchasing decisions.

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