

ENERGY FINDINGS

Trend of Electric Vehicle Adoption in Malaysia: Analysis of Registration Data from the Road Transport Department of Malaysia (2020–2025)

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Findings

We analyse battery electric car registrations in Malaysia from 2020 to 2025 using Road Transport Department of Malaysia data. Registrations grew from 71 units in 2020 to 44,813 in 2025, a compound annual growth rate of 263.1%, with market share rising from 0.01% to 5.15%. Growth accelerated after the 2022 duty exemption for completely built units (CBUs) and re-accelerated in 2025 with Chinese brands and the Proton e.MAS series. Proton and Chinese-origin brands jointly account for over 90% of registrations in early 2026. Urban peninsular states dominate uptake, with penetration highest in Melaka and lowest in East Malaysia.

1. Questions

Malaysia's Low Carbon Mobility Blueprint 2021–2030 identifies electric vehicles (EVs) as central to decarbonising the transport sector (Ministry of Transport Malaysia 2021). Following import duty exemptions on fully electric vehicles in 2022, EV car registrations grew at an unprecedented pace. Despite this, systematic quantitative analysis of national-scale JPJ registration data remains limited. This study analyses monthly and annual electric car registration data from 2020 to 2025 to address three questions:

1. What is the overall trajectory and CAGR of electric car registrations in Malaysia from 2020 to 2025?
2. What structural changes in growth occurred across sub-periods, and what policy drivers are associated with these shifts?
3. What is the geographic distribution of EV registrations across Malaysian states, and which brands and models are driving adoption?

We hypothesise that a clear inflection point exists in 2022 coinciding with policy intervention, and that geographic concentration in high-income urban states persists throughout the study period.

2. Methods

This study uses two datasets from the data.gov.my open data portal, maintained by the Road Transport Department of Malaysia (JPJ). The first, *registrations_type_fuel.csv*, provides monthly vehicle registration counts disaggregated by fuel type and vehicle type, covering January 2000 to April 2026 (Jabatan Pengangkutan Jalan 2026b). For trend analysis, only records with *vehicle_type* = 'car' and *fuel* = 'electric' are used, ensuring consistency with the brand and model analysis. The second, *cars_2026.csv*, is a transaction-level dataset of individual car registrations for January to April 2026, containing fields for manufacturer, model, fuel type, and state (Jabatan Pengangkutan Jalan 2026a). The registration trend dataset (2020–2025) records 83,360 electric car registrations over the study period. The second dataset provides granular brand, model, and state detail for the most recent market composition.

All registration counts refer to vehicles newly registered in each period, not the cumulative stock of EVs on the road. Annual newly registered EV car counts and market share were computed by aggregating monthly car-only counts. Year-on-year (YoY) growth was calculated from 2021 onward. The CAGR over the full study period was computed as:

$$\text{CAGR} = \left(\frac{EV_{2025}}{EV_{2020}} \right)^{1/5} - 1 = \left(\frac{44,813}{71} \right)^{0.2} - 1 = 263.1\%$$

Monthly shares were derived by dividing monthly newly registered electric car counts by monthly total car registrations. No survey data, imputation, or modelling was applied; this study is descriptive and relies exclusively on administrative registration records. Registration data include fleet, corporate, and private vehicles, which are not distinguished in the dataset.

3. Findings

3.1 Annual Electric Car Registration Trend (2020–2025)

Newly registered electric cars grew from 71 units in 2020 to 44,813 units in 2025, a 631-fold increase over five years (see [Table 1](#)). The CAGR of 263.1% reflects the rapid pace of this transition. The share of newly registered cars that are electric rose from 0.01% in 2020 to 5.15% in 2025, surpassing the 1% threshold for the first time in 2023.

3.2 Growth Dynamics and Policy Context

Newly registered EV car counts were minimal in 2020 and 2021 (71 and 257 units respectively). Growth accelerated markedly in 2022, coinciding with the government's announcement of duty exemptions for CBU EVs under Budget 2022 (Ministry of Finance Malaysia 2022) and the publication of the Low Carbon Mobility Blueprint (Ministry of Transport Malaysia 2021); registrations rose 1,117.5% to 3,129 units. A further 325.1% increase to

Table 1. Newly Registered Electric Cars and Market Share in Malaysia (2020–2025). Source: JPJ via data.gov.my (*registrations_type_fuel.csv*, *vehicle_type = car*). YoY = year-on-year. CAGR (2020–2025) = 263.1%.

Year	EV Cars	Total Cars	EV Share (%)	YoY Growth (%)
2020	71	552,359	0.01	N/A
2021	257	530,057	0.05	+262.0
2022	3,129	744,762	0.42	+1,117.5
2023	13,301	832,347	1.60	+325.1
2024	21,789	856,292	2.54	+63.8
2025	44,813	870,327	5.15	+105.7

Table 2. Newly Registered Electric Cars and Market Share by Month, 2025. Source: JPJ via data.gov.my (*registrations_type_fuel.csv*, *vehicle_type = car*).

Month	EV Cars	Total Cars	EV Share (%)
Jan 2025	1,691	53,930	3.14
Feb 2025	2,160	67,327	3.21
Mar 2025	2,976	77,121	3.86
Apr 2025	2,892	65,200	4.44
May 2025	4,152	74,393	5.58
Jun 2025	3,272	58,858	5.56
Jul 2025	2,792	75,663	3.69
Aug 2025	3,461	78,978	4.38
Sep 2025	3,532	62,598	5.64
Oct 2025	4,345	81,413	5.34
Nov 2025	5,417	77,876	6.96
Dec 2025	8,123	96,970	8.38

13,301 units followed in 2023. Growth moderated in 2024 (63.8%) before re-accelerating in 2025 (105.7%), coinciding with the entry of mass-market Chinese brands and the launch of the locally-assembled Proton e.MAS series. By December 2025, monthly newly registered electric cars reached 8,123 units, an EV car share of 8.38%.

3.3 Monthly EV Car Share in 2025

Monthly EV car market share in 2025 ranged from 3.14% in January to 8.38% in December, with a clear upward trend (see [Table 2](#)). The Q4 2025 acceleration, with shares of 5.34%, 6.96%, and 8.38% in October, November, and December respectively, corresponds to typical year-end purchasing patterns.

3.4 Brand and Model Composition

JPJ transaction records for January to April 2026 provide the most granular available breakdown of make, model, and state (see [Table 3](#)). Proton leads with 9,863 registrations, of which the e.MAS 5 accounts for 8,473 units; the e.MAS 5 is a locally-assembled SUV developed with Geely. BYD ranks second with 3,674 registrations, followed by Chery (1,593) and Zeekr (1,214). Proton and Chinese-origin brands jointly account for over 90% of the top-10

Table 3. Top 10 EV Manufacturers by Registration Count (January–April 2026, not annualised). Source: JPJ via data.gov.my (*cars_2026.csv*).

Rank	Manufacturer	Registrations	Origin	Top Model
1	Proton	9,863	Malaysia	e.MAS 5 (8,473)
2	BYD	3,674	China	Atto 3 (1,777)
3	Chery	1,593	China	iCaur V23 (972)
4	Zeekr	1,214	China	7X (999)
5	Tesla	830	USA	Model 3 (459)
6	MG	579	China	MG4 (414)
7	Leapmotor	429	China	C10 (429)
8	Xpeng	394	China	G6 (394)
9	TQ Wuling	241	China	Air ev (241)
10	Volvo	217	Sweden	EX30 (217)

registrations, consistent with the regional pattern of Chinese manufacturers holding large EV market shares across Southeast Asia (World Bank 2024). TQ Wuling refers to the registered distributor name for Wuling vehicles in the JPJ dataset.

3.5 Geographic Distribution

Based on January to April 2026 registration data, EV car penetration by state ranges from 16.9% in Melaka to 2.2% in Sabah. Penetration is highest in Melaka (16.9% of state car registrations), Pulau Pinang (15.6%), Selangor (12.6%), Pahang (12.1%), Kuala Lumpur (11.8%), and Negeri Sembilan (11.1%). The elevated figure for Melaka corresponds to a relatively small total car market (694 registrations in the period). Penetration is lowest in Sabah (2.2%), Sarawak (4.6%), and Terengganu (5.2%). Malaysia's 5.15% EV car market share in 2025 exceeds Thailand's 3.5% and Indonesia's 0.8% recorded in 2023 (International Energy Agency 2024), though direct comparison is limited by the difference in reporting years.

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