



Policy Brief

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Shrinking the National Fuel Tank: Understanding Structural Limits to Malaysia's EV Transition

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ABOUT THE SERIES

This policy brief is a series of research documents summarizing the knowledge of area contextualized to Southeast Asia and Malaysia, in particular from ongoing research work by the Center for Technology, Strategy & Sustainability (CTSS) at the Asia School of Business. The author of this issue is **Khairina Ibrahim, ASB CTSS Senior Research Associate, Rasyid Juhari, ASB CTSS Research Associate** and **Daniella Jamel, ASB CTSS Visiting Research Associate**

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Executive Summary

This policy brief examines the complex relationship between Malaysia's electric vehicle (EV) transition, fuel subsidy consumption and vehicle ownership, revealing strong structural dependencies and constraints. As Malaysia spends billions of ringgit shielding the public from global oil price volatility, a cost that has surged since the closure of the Hormuz Strait in 2026, EVs are framed as a 'silver bullet' to reduce this fiscal burden. However, this brief argues that shrinking the national fuel tank is conditional on addressing the deeper roots of car dependency itself.

We explore how existing policies tracing from the New Economic Policy contributed to Malaysia's car-centric society, where cheap fuel has become an implicit social contract that successive governments struggle to unwind. As we witness new policy measures across the hybrid and EV era, similar dynamics and lock-in are reinforced, carrying real social and environmental costs. We reveal that Malaysia's reliance on private vehicles and fuel subsidy is not simply a technology problem that is solvable by swapping from combustion to electric.

To truly break this cycle, the brief recommends: (1) long-term fuel subsidy reform, lowering the cost of the EV transition for all; (2) shift of national automotive production towards phase-out of ICE models; (3) exploration of end-of-life and retro-fitting policies for existing stock of ICE vehicles; and (4) heavier state involvement in charging infrastructure expansion. Taken together, these measures aim to ensure Malaysia's energy transition, especially within the context of EVs, addresses the structural roots of vehicle dependency, rather than reproducing them in electrified form.

Introduction

Rising oil prices, unstable geopolitics and closure of the Hormuz strait since March 2026 has stress-tested the region's readiness for energy resilience. But while countries like the Philippines have declared a national energy emergency (Al Jazeera, 2026), Malaysia remains firm on its position to shield the public from the global energy crisis, although this has cost the Malaysian government billions in fuel subsidies. To understand the economic and social value generated through this fiscal policy, we must dig deeper into consumer demand drivers: why do Malaysians need fuel to begin with?

A simple question reveals a normalized reality: Malaysia is a car-centric society, with one of the highest motorization rates in the world and more private vehicles than people (Tan, 2025). Our vehicle-dependency did not conjure overnight, but is an outcome of decades of industrial policies tracing back to the New Economic Policy. While they played a critical role in Malaysia's economic growth, they have locked households into a vicious cycle of vehicle dependence – one that threatens livelihoods if broken.

Now, Malaysia is facing the consequences of its former policy decisions, introducing changes which better align with new priorities; one of them being-

- the energy transition. On one side lies the promise of subsidy reform, driven by concerns over fiscal sustainability amid rising energy crises and the need to better target social assistance. On the other hand, electrification of private vehicles is presented as a 'silver bullet' through the National Energy Transition Roadmap (NETR) and Low Carbon Mobility Blueprint (LCMB) to reduce dependence on fossil fuels. However, despite fully electric and hybrids making up almost 9% of total industry volume (TIV) for the automotive sector as of 2025 and expected to increase towards Malaysia's target of 15% by 2030, a significant reduction in fuel consumption may not be guaranteed due to deep structural constraints.

This poses a more granular question: ***What can Malaysia learn from its past, and what conditions should it fulfil to truly transition into a less fossil fuel-dependent future?***

This policy brief starts with an examination of historical policies contributing to Malaysia's vehicle and fuel subsidy dependency. We then assess the social and environmental costs from increasing vehicle ownership and fuel consumption. We conclude with policy recommendations within clear systemic boundaries to break away from this path dependency.

Malaysia's Car-centric Society and Fuel Dependency

To understand the rationale behind Malaysia's deeply imbued car and fuel dependence, political economic theory can help us evaluate how political incentives, institutions and power relations shape economic policies and their distributive outcomes (Rausser et al., 2005). Policy choices reflect the process of bargaining among actors with different objectives and unequal influence, rather than purely technical criteria (Weible et al., 2011). Path dependency, a related concept, describes how initial policy decisions and institutional arrangements generate self-reinforcing mechanisms which constrains future choices and make alternative options more costly to adopt, leading to economic lock-in (Liebowitz & Margolis, 1995). This logic is then extended to political institutions and reform constraints (Pierson, 2000).

Political interests often shape public policy, and in this regard, Malaysia's transportation and energy policies are no exception. Transportation and energy policies which shape consumer vehicle choices and fuel expenditures have never been sole techno-economic choices. Malaysia's car-centric state started when former Prime Minister Mahathir Mohamad initiated the Proton National Car Project in the early 1980s, -

-as the government steered state procurement towards Proton and increased import duties to the point where foreign cars now cost roughly three times as much as domestically produced vehicles (Mustafa, 2020). Cheap petrol became an implicit promise that the state would keep the cost of living in a car-dependent country manageable. As we will explore in this brief, that social contract proves difficult to walk back from. Former Prime Minister Abdullah Badawi raised fuel prices sharply and faced public uproar that contributed to his political downfall in 2008. Subsequent governments have repeatedly signalled reform only to retreat, or engineered reform minutely so that its fiscal benefit remains minimal. As of 2026, RON95 remains subsidised for the vast majority of Malaysians, and the Madani administration, facing a general election no later than 2027, is "politically locked into the subsidy regime" (Aun, 2026).

Path dependency is consequently created when national cars are protected, car-buying is encouraged, fuels are subsidized and infrastructure is focused on more mobility for passenger vehicles. This process continues as the economic, fiscal, social and environmental cost of car dependence rise, creating a structural barrier to Malaysia's economic development.

POLICIES BEHIND MALAYSIA'S ECONOMIC DEVELOPMENT

Malaysia's relationship with fuel subsidies cannot be understood in isolation from the political economy of its post-independence development. The New Economic Policy (NEP), launched in 1971 in the wake of the May 1969 political crisis, established the foundational architecture where fuel subsidy policy would later operate. The NEP's two-pronged objective was to eradicate poverty regardless of race and to restructure society to reduce ethnic economic disparities. This was operationalized through an expansive state role in the economy, including the establishment of state-linked enterprises, preferential access to licenses and capital for Bumiputera entrepreneurs, and a developmentalist approach to industrialization that would define the Mahathir era ([Jomo, 2014](#); [Aun, 2021](#)). One such initiative, which would later play a central role in deepening the country's dependence on fossil fuels, was the establishment of the state's national oil company in 1974; Petrolia Nasional Berhad, also known as Petronas was established to drive the rapid development of its petroleum resources to meet the economic and social objectives of NEP ([Adnan, 1978](#)).

In 1983, two distinct but deeply interrelated policy instruments were introduced almost simultaneously. In this year, Proton Holdings Berhad was incorporated. This was the product of former Prime Minister Mahathir Mohamad's National Car Project and his broader "Look East"

vision of Malaysian heavy industrialisation modelled on Japan and South Korea ([Bhattacharya & Hutchinson, 2025](#); [ERIA, 2021](#)). In the same year, the Automatic Pricing Mechanism (APM) was established to stabilize the retail price of petrol and diesel and insulated pump prices from global oil price volatility through a variable subsidy by design.

When the market price of petrol and diesel exceeds the controlled rate, the government bears the differential – but how does Malaysia sustainably fund these subsidies? The answer lies within PETRONAS. As a state-owned establishment, PETRONAS channels 60 to 95% of its petroleum income in the form of dividends to the Malaysian government (Federal Government Financial Statements, n.d). These dividends have been sufficient to cover the cost of fuel subsidies as visualized in Figure 1; however, in times of fuel price volatilities as current trends project, subsidy expenditure can consume petroleum income entirely. Fuel subsidies pushes away fiscal space for energy transition investment, public transport, structural diversification away from car dependency, social expenditure, healthcare and R&D. As a result, vehicle ownership in Malaysia becomes artificially cheap to the point of daily use ([Oxford Business Group, 2016](#); [World Bank, 2019](#)). This dependency on cars drives urban sprawl as developers push low-density housing to the fringes of Klang Valley where residents have no viable alternative to driving ([Free Malaysia Today, 2025](#)).

Commuters in Kuala Lumpur lose approximately 160 hours a year to congestion alone (TomTom Traffic Index, cited in Free Malaysia Today, 2024), and the hours spent behind the wheel contribute to a broader public health crisis. The 2023 National Health and Morbidity Survey found that urban Malaysians are significantly more likely to be physically inactive than rural residents, with car-dependent lifestyles linked to rising rates of obesity, diabetes, and cardiovascular disease (Lim et al., 2025).

Figure 1: Federal Government Petroleum Revenue vs Fuel Subsidies

Data Source: Federal Government Financial Statements, n.d; Petronas Annual Reports, n.d.; TA Securities, 2026

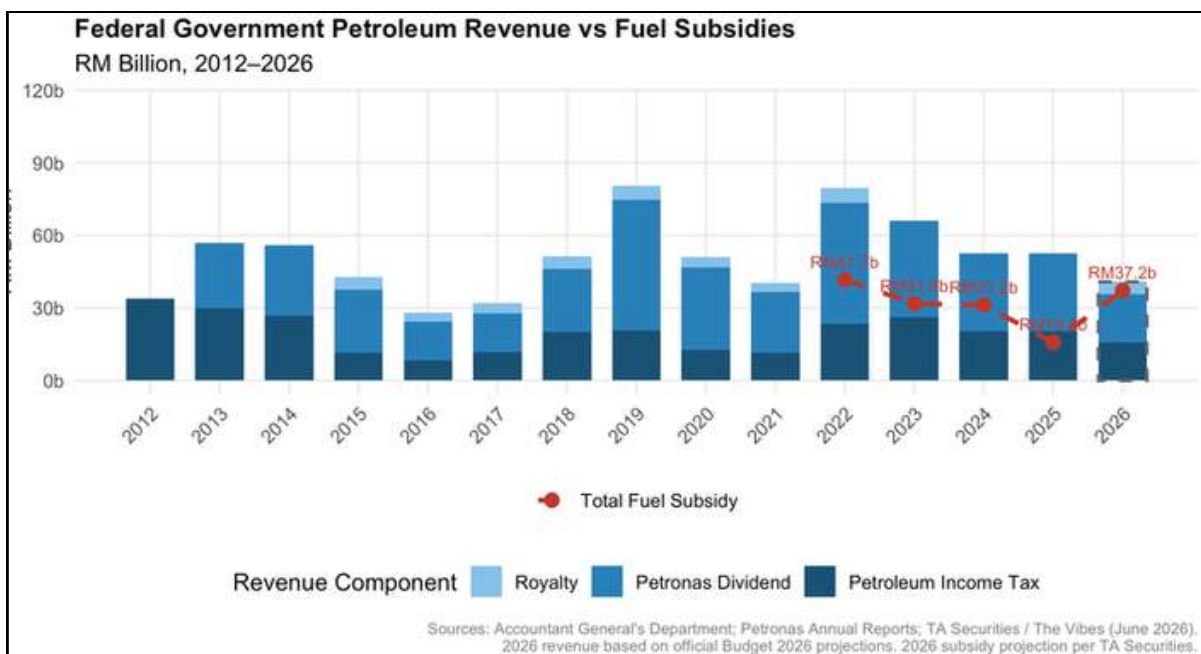


Table 1 outlines the chronology of events contributing to Malaysia's vehicle and fuel dependency. In the decades after the operationalization of the National Car Project, the automotive industry continued to mature and build up what Tham (2021) describes as "national champions". Together, Proton and Perodua captured the majority of the market, growing from 47% to 59% of total new car registrations from 2015 to 2025, which also saw an overall increase of 36% in car production within the same decade (DOSM, n.d).

Table 1: Chronology of key economic policies and milestones from 1983-2026

Year	Event	Impact	Notes
1971	New Economic Policy (NEP)	Second Malaysia Plan acted as a foundation; eradicated poverty and reduced economic imbalances.	Extensive economic intervention from the government to eradicate poverty and to redistribute wealth equitably (EPU, 1971)
1974	Establishment of Petroliam Nasional Berhad (PETRONAS)	Mining of oil resources is under the exclusive ownership and management of PETRONAS, and a continuation of NEP's economic reform.	The establishment of PETRONAS is implied as a way to achieve objectives of the NEP (Kamarudin, 2020).
1983	Automatic Price Mechanism (APM) introduced	Government absorbs market & retail price differential.	Covers petrol, diesel, LPG
1983	Proton Holdings Berhad was incorporated. (National Car Project)	To ensure a steady flow of customers, the government raised import tariffs, making it expensive to buy foreign imported vehicles.	Under the leadership of Prime Minister Mahathir Mohamad, the National Car Project was realised. A joint venture partnership with Mitsubishi Motors was formulated.
1984	Kuala Lumpur Structure Plan 1984 was created due to the increasing demand for mobility within the city centre.	Most of the efforts have focused on increasing road capacity to accommodate motorisation, especially in Greater Kuala Lumpur.	Mustapha's (2024) analysis of urban mobility connects the Kuala Lumpur Structure Plan to misguided approaches to mobility.
1993	Perodua (Perusahaan Otomobil Kedua Sdn Bhd / Second Automobile Manufacturer Private Ltd) is launched.	A direct competitor to Proton – while they initially produced different segments of cars, the status quo is now different.	Joint venture with Malaysian and Japanese partners (Daihatsu).
2006	National Automotive Policy (NAP) introduced.	Facilitated local automotive industry integration and continued protectionist approach for local car makers.	https://www.miti.gov.my/index.php/pages/view/1449
Sep 2013	Overnight 10% increase in diesel and RON95 announced by PM Najib	RM4.6bn redirected to BR1M cash transfers; 7.3m recipients	Sugar subsidies also cut simultaneously
Nov 2014	RON95 and diesel prices fully floated under managed float system	Savings estimated at RM26.2bn in financial year 2015/16	Coincided with oil price crash, which meant softer public impact
2018	Subsidies on RON95 and diesel reinstated by new PH government	Prices capped: RON95 RM2.05/L, Diesel RM2.15/L	Reversed 2014 liberalisation
2020	National Automotive Policy (NAP) 2020 launched.	10 year industry-focused roadmap which aims to transform Malaysia into a regional automotive technology hub for connected mobility and next-generation vehicles (including EVs).	While not consumer focused, it tailors to the need for the domestic automotive industry to thrive and expand regionally (MITI, 2022).
2020	Separately, PENJANA economic package is introduced (MOF, 2022)	Under Budget 2022, locally assembled passenger cars (CKD) retain a 100% sales tax exemption, while foreign-assembled vehicles (CBU), including MPVs, SUVs, new and used imports, receive a 50% exemption.	This is observed to have a correlation with the increase in the interest for private vehicles. This is visualized in Figure 1 via Applied vehicle loans vs Approved vehicle loans.
Jan 2023	Madani government rolls back electricity subsidies for high-volume users	Surcharge on usage above 1,500 kWh/month	First step in staged subsidy reform
Jun 2024	Diesel subsidies removed in Peninsular Malaysia; price RM2.15 - RM3.35/L (+56%)	RM600m/month saved from leakages; BUDI cash RM200/month for eligibles	Fleet cards introduced for transport operators
Sep 2025	RON95 targeted subsidy (BUDI 95) launched	RM1.99/L for eligible Malaysians; RM2.60/L general market	BUDI 95 monthly quota: 300L per eligible person
Apr 2026	Monthly subsidy bill surges to RM6-7bn due to Iran-related oil price spike	~10× pre-conflict monthly level of RM700m	BUDI 95 quota cut to 200L/person;
Jun 2026	New myKad-based subsidy system for diesel	RM2.10/L for eligible Malaysians; previous RM400 cash assistance discontinued	Monthly quota: 200L/person, flexibility in monthly consumption.

To accommodate the nation's newfound appetite for vehicles, supply of financing options increased to remove barriers to vehicle purchasing, in the form of hire purchase loans. One notable example can be traced as far back to 1985, when the government offered low-interest loans to civil servants for the purchase of the Proton Saga ([Fujita, 1997](#)). Today, subscribing to car loans have become the standard route to vehicle ownership. Figure 2 illustrates household loan applications from 2016 to 2026 for the purchase of passenger vehicles.

Household Debt – Passenger Vehicles (Applied)
RM Billion, 2016-2026

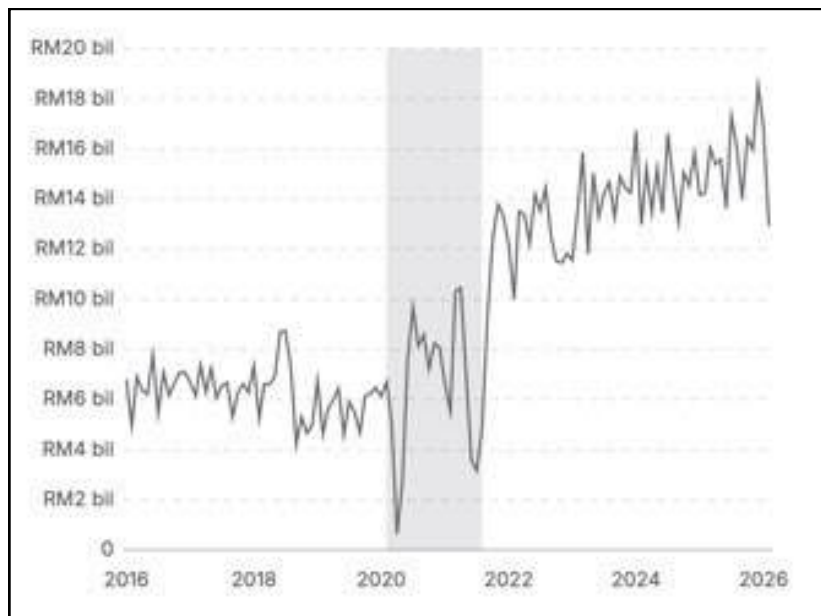


Figure 2: BNM Household Loan Applications
Source: BNM, 2026

Though the demand for car loans saw a slight drop in 2019 due to the COVID-19 pandemic, it rebounded quickly in the following year with the provision of a sales tax exemption on new vehicle purchases under the PENJANA stimulus. Designed as a temporary fiscal policy to stimulate economic recovery after the COVID-19 pandemic, demand remained elevated and continued to exceed pre-pandemic levels after 2022. Bank Negara Malaysia's (BNM) 2025 Economic Monetary Review attributes this demand to improved labor market conditions and spending, though market signals suggest that the emergence of EVs has created a new source of demand within the automotive sector to reinforce the same patterns of credit-driven vehicle ownership as we have seen in the years before.

Figure 3: EV share of new passenger cars
Data Source: JPJ, 2026; International Energy Agency, 2026



The trajectory of electric vehicle (EV) adoption in Malaysia has seen an upward trend since 2020, though slowing down compared to broader Southeast Asia regional adoption (Figure 3). However, global EV share calculations typically include plug-in hybrids, rather than just fully electric vehicles. This could be explained by the fact that hybrid vehicles are increasingly viewed as the bridge before adoption of a fully electric vehicle, giving drivers the 'best of both worlds': the security of its fuel engine with a lower emissions profile. In fact, hybrids were argued by Dato' Sri Zainal Abidin, Perodua president and CEO at the point of writing, to be more eco-friendly than BEVs when the full supply chain is taken into consideration (Tan, 2021).

But Malaysia's hybrid strategy is not new. In Budget 2011, the government introduced a full tax exemption on hybrids, leading to a-

-significant growth in hybrid sales jumping from 328 units in previous year to 8,334 units in 2011. This policy, which only applied to hybrids with engine capacities of 2.0 liters and below, was originally scheduled to expire at the end of 2011. Nearing its expiry date, market demand had accelerated with a significant reduction in retail prices, incentivizing Malaysian users to purchase hybrids. In response to this positive momentum, the government extended the tax exemptions through 2013 under Budget 2012 proposals (Tan, 2011).

By the end of 2013, hybrid sales peaked at 18,927 units. But rather than sustaining this growth trajectory, the government altered its policy direction in 2014 by discontinuing the tax exemptions for CBU imported model hybrids, while maintaining incentives exclusively for CKD variants (Tan, 2014).

This policy shift triggered immediate price increases for imported models, dropping sales to 6,007 units only in the first half of 2014 (Sze, 2015). While intended to encourage foreign investment to set up local factory lines, the tax discontinuation proved ineffective as is the case with Toyota. The foreign automaker had announced they had no plans to assemble their Prius hybrid models locally at the time (Say and Mahalingam, 2014), though finally launching their first locally assembled Corolla 8 years later.

Table 2: Policies enacted for hybrids against units sold

Source: Paul Tan, DOSM, The Edge Malaysia

	Policy	Units sold
2011	Budget 2011 - announcing the adjustment in tax exemption, extending the scale from partial to full exemption. Exemption is also applied to electric cars, electric motorcycles, and hybrid motorcycles.	8,334
2012	Budget 2012 - tax exemption extended until the end of 2013, hybrids became more accessible with a range of models but the retail prices are still considered high for imported models.	15,355
2013	Policy is still enacted until the end of the year. The launch of locally assembled Honda Jazz at a significantly lower price (RM89,900) in comparison to imported models such as Toyota Prius (RM97,000) allowed more people to transition to hybrids.	18,967
2014	Budget 2014 - Full tax exemption for CBU hybrids discontinued and only extended to CKD until 2015 to prioritise local production of energy efficiency models.	7,644

Fast forward to the current state of the automotive industry, we witness EV policies mirroring the hybrid segment in many ways, now framed around a sustainability agenda. The launch of the LCMB in 2021, in particular, marked the beginning of Malaysia's deliberate push of EV-friendly policies. While the blueprint's broader objective is to decarbonize the transport sector as a whole, electrification is presented as a key strategy. However, its target for infrastructure deployment of 10,000 charging points by 2025 was not achieved; instead, the ministry announced that the roadmap has evolved to focus on more than just quantity (Noor Baharin, 2026). The launch of NETR in 2023 further reinforced the electrification agenda, elevating the EV transition as a multi-sector strategy and critical component to transition Malaysia away from its fossil fuel-dependent economy. Together, these policies serve as positive 'tipping points' to accelerate the adoption of EVs and transition the country away from fossil fuels. Broadly, they can be categorized into one of three mechanisms: technology push, demand pull or stabilization policy (GTP, 2025).

Table 3 outlines the EV policy landscape and policy sequencing based on this definition. Upon a closer look, we uncover three structural constraints which could hinder Malaysia from realizing its intended agenda. First, a majority of these policies are focused on ‘demand pull’ strategies to improve EV affordability through fiscal measures such as tax exemptions; however, comparatively less attention is given to the existing stock of ICE vehicles and whether they are phased out, or still kept as a primary vehicle. Second, deployment of public infrastructure, which is especially important for communities who are unable to provision their own home charging facilities, remains largely driven by private sector investments which prioritize high utilization prospects. Instead, ‘technology push’ policies, which aim to encourage investments in public infrastructure development, ended in 2025.

Period	Events	Blueprint/ Policy	Objective
Oct 2021	Launch of Low Carbon Mobility Blueprint	Blueprint	Decarbonize Malaysia transport sector
January 2022 to December 2025	RM100k floor price for CBU	Stabilization policy	Protect domestic EV sector
January 2022 to December 2025	Road tax exemption	Demand pull	Promote EV adoption among early adopter
2022 to 2025	Income tax exemption through pioneer status for EEV manufacturers incl. parts	Technology push	Stimulate domestic EV production
January 2022 to December 2025	Full exemption of import and excise duties for imported CBU	Demand pull	Promote EV adoption among early adopter
January 2022 to December 2027	Full exemption of excise duty and sales tax for CKD	Demand pull	Promote domestic EV adoption
Jul 2023	Launch of National Energy Transition Roadmap	Blueprint	Transition Malaysia away from fossil-fuel economy
2024 to 2025	Green investment tax allowance (100% of capital expenditure)	Technology push	Encourage investment in green technology; relevant for EV infra
2024 to 2025	RM2,400 tax rebate for E2W	Demand pull	Promote broader electrification
2025 to 2027	Individual income tax relief, up to RM2,500	Demand pull	Promote EV adoption among early majority
Jan 2026	RM250k floor price for CBU; RM100k floor price for foreign CKD	Stabilization policy	Protect domestic EV sector
Jul 2026	Minimum RM200k price for Cost, Insurance, Freight (CIF) for imported CBU	Stabilization policy	Protect domestic EV sector

Table 3: EV Policy Landscape in Malaysia

Source: MITI, MIDA, Paultan

Third, a majority of EV policies function as ‘stabilization’ policies, intended to protect the domestic automotive sector, thus following a similar pattern to Malaysia’s hybrid roll-out. The recent turn of policy events which re-establishes strict baselines for CBU imports for EVs risk the market experiencing a similar dynamic as with hybrids, whereby adoption rates fell after stronger localization rules came into effect. In August 2025, China-based EV producer BYD announced its intention of establishing a local assembly factory in Tanjung Malim, Perak, but the plan currently sits at an impasse due to disagreements with MITI’s terms. This alone should serve as a signal for the government to carefully balance market-entry regulations to avoid historical pitfalls. Although the automotive market as a whole has seen positive growth reaching a record high for TIV in 2025 (The Star, 2025), imposing protectionist policies on EVs at a crucial moment of growth may backfire against the country’s sustainability objectives.

Social and Environment Cost

In this section, we study the social and environmental consequences arising from heavy fuel and vehicle usage. The study of distributive outcomes stems from early works of Lenski (1966), which presents a theory for the emergence of social inequalities from unequal distributions of power and resources. Decades later, Palme (2006) builds upon Lenski’s work to study the growing role of welfare states for redistribution of outcomes towards reducing such inequalities that have manifested. Both theories bring relevance to what we see in Malaysia today.

Given Malaysia’s diversity and plurality, inequalities are typically studied in the context of income across urban-rural and ethnic groups. Households are classified under one of three groups: the Bottom 40% (B40), Middle 40% (M40), and Top 20% (T20). For example, B40 refers

to households with a net income of RM5,249, though this threshold may be reviewed and revised to reflect changes in income levels over time. This income classification has served useful to measure inequalities for fiscal planning, social assistance and policy evaluation. The NEP, designed as a redistributive policy, was found to be effective at reducing income inequalities across all three income classes; the Gini coefficient, a measure for inequality peaked in 1976 and fell steadily through the 1990s during the NEP period (Ragayah, 2008). The reason behind its success can be attributed to the creation of new jobs and increased labor participation from both urban and rural groups. However, after the 1990s, the state’s privatization of its economy, intended to help the state recover from its high spending on NEP, led to a reversal in inequality patterns, as the Gini coefficient rose through the 2000s (ibid).

To understand what led us to this state, systems mapping provides a useful method to break down the system of fuel and vehicle dependency. Feedback loops are a useful tool to achieve this by providing visual representations of complex relationships between variables. When encouraging negative outcomes, these loops are called 'reinforcing' and 'vicious' ([Barbrook-Johnson & Penn, 2022](#)). However, the driving factors which reinforce these behaviors are not obvious to the end consumer. The dynamics between vehicles and fuel subsidies is a good example of a reinforcing cycle. Fuel subsidies are framed for social protection for those who are vulnerable to excessive, volatile fuel prices. Due to its perceived value and benefit, the system thus encourages vehicle ownership among these groups. However, from a broader perspective, the consumption of fuel subsidies and debt-financed vehicle ownership has many unintended consequences for the consumer.

The relationship between Malaysians and vehicles can therefore be understood within the motility framework presented by [Kaufmann et al. \(2004\)](#): mobility to be a form of capital to enhance one's social and economic standing, shaped by access, competency and appropriation. A study in Kuala Lumpur reveals that 70% of Malaysia's B40 income group perceive vehicles as a necessity -

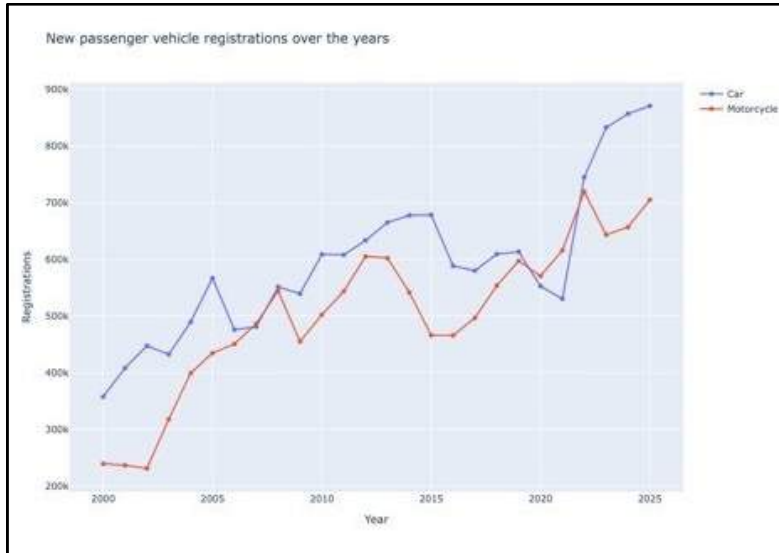
with heavier reliance due to the unreliability of public transport systems in the city ([Ferdaus et al., 2025](#)). Meanwhile for rural communities observed in Kelantan, public transportation, such as bus services is even more limited, with essential services being far away and inaccessible from residential zones; thus, leaving no choice but to rely on private transportation ([Nasrudin et al., 2025](#)).

SOCIAL

We begin with an examination of subsidy distribution: a report by BNM (2015) revealed that lower income groups such as the B40 had only utilized 14% of blanket subsidies prior to the Budi Madani reform. This can be explained by several, interrelated factors: first, lifestyle differences among the B40 group directly impacts travel distance, translating to lesser kilometers travelled. In Malaysia, motorcycle ridership remains high, though never surpassing car ridership (Figure 3). Therefore, second, B40 households may be more likely to own a motorcycle due to its more accessible and lower price point ([Tan, 2025](#)). According to [Lee et al. \(2010\)](#), a 2-stroke motorcycle consumes an average of 157 litres a year, which is higher than that of a more efficient 4-stroke machine, thus consuming less fuel compared to any four-wheel vehicle. In contrast, higher income households who consume a larger share of fuel subsidies before the Madani reform may have owned more than one vehicle.

Figure 3: New Car vs Motorcycle Registrations (all fuel types)

Data Source: JPJ, 2026



In [Zabai's \(2017\) report](#) on household debt, Zabai prefaces that high household debt ratios, which is a measure of both financial health and vulnerability, may pose threats to a country's macroeconomic and financial stability. For lower income households, this could translate into reduced consumption for more essential purposes, especially when income levels fall or interest rates rise (*ibid*). This sparks concerns for Malaysia where household debt-to-GDP ratio remains elevated above 80% ([BNM, 2025](#)) and 13.2% of household debt is currently tied to vehicle loans ([Arumugam, 2025](#)). A 2024 research note by AmInvestment Bank reported that 80% of Proton and Perodua owners are subscribed to long-term loans up to nine years. Before 2026, vehicle loans in Malaysia operated under a fixed rate hire purchase system, where interest rates were calculated upfront and fixed throughout the term, hence compatible with longer loan terms due to its illusion of lower monthly repayments. However, these longer-term loans end up targeting consumers from lower income households, who face liquidity constraints which prevent them from opting for an outright purchase.

In contrast, wealthier households have the same if not larger appetite for vehicles, without the financial constraints to own them. In 1998, Nagata argued that Malaysia was on the trajectory to enter its "multi-car ownership" phase. Department of Statistic Malaysia's (DOSM) 2024 Basic Amenities Survey provides rudimentary evidence to support their claim: approximately 92% of Malaysian households own at least 1 car, while 78% own at least 1 motorcycle. While reasons for having multiple cars range from status symbolism to functional purposes, such as larger household sizes, access to financing is a key enabler.

Viewed through Kaufmann et al.'s framework, we reveal that the decision to own a vehicle and consume fuel is shaped by all three dimensions of motility: access in this context refers to constraints from purchasing power and the availability of affordable transport; competency can refer to the skills needed to secure and evaluate financing options and its long-run costs; and appropriation determines whether ownership is exercised as a genuine choice or accepted as the only viable option.

ENVIRONMENT

In contrast to its social impact, the environmental contribution from vehicle and fuel dependency can be more objectively studied. In today's global landscape, heavy dependence on fossil fuels increases the nation's vulnerability to climate risks and energy insecurity. Thus, an increase in appetite for traditional, fuel-powered vehicles, while good for stimulating the economy, risks setting Malaysia back against their sustainability goals. [McCarthy \(2007\)](#) frames the environmental footprint from private vehicle use across four stages: raw material extraction, manufacturing emissions, use-phase emissions, and disposal. Today, this framing fits within the Scope 1, 2, and 3 emission categories commonly used within sustainability discourse. In Malaysia, the environmental impact from vehicle usage have been extensively studied, especially in the context of air pollution from tailpipe emissions due to heavy urban congestion, which pose major concerns to public health (Shafie and Mahmud, 2022; Usmani et al., 2020; Kwan et al., 2023).

In their latest report, [RimbaWatch \(2026\)](#) attempts to measure the environmental impact of Malaysia's automotive sector. Based on total new vehicle registrations in 2025, authors estimated a fleet of over 800,000 ICE vehicles to consume a total of 25 billion litres of petrol over its lifespan of 18 years, emitting a total of 60 million tons of CO₂e into the atmosphere. Given the far larger stock of ICE vehicles on the road in Malaysia, we infer that actual estimates from private vehicle usage should be far greater.

These trends illustrate how Malaysia's fossil fuel-driven development has trickled down into vehicle and subsidy dependency and carries real social, economic and environmental consequences. The following section examines the conditions and options for Malaysia to break away from its path dependency through fuel subsidy reforms and shifts towards EVs.

Breaking the Cycles of Dependency

While there is a growing consensus that the only solution is to remove vehicle dependency altogether, this suggests a wider discourse on public transport development, which is out of the scope of this brief. This policy brief presents considerations for breaking path dependency which operate within realistic boundaries. By drawing lessons from Malaysia's past and its neighboring states, potential reforms to fuel subsidy and vehicle ownership are aligned to longer-term objectives and social impact.

FUEL SUBSIDY REFORM

Thailand and Indonesia offer an instructive comparison for Malaysia's fuel subsidy dilemma. As middle-income ASEAN economies with comparable histories of car dependency and politically entrenched price controls, both have confronted the same subsidy trap, and have pursued reform paths that Malaysia has yet to commit to, making their experiences sound. Indonesia, like Malaysia, became a net oil importer in 2004 and has a long history of fuel subsidy reform due to growing fiscal strain. Between 2005 and 2014, reforms included reducing subsidized fuel products from seven to three, introducing an LPG conversion programme, and implementing a semi-automatic pricing mechanism with fixed per-litre subsidies ([World Bank, 2024](#)). The 2005 fuel subsidy cut was notably the first to be paired with social assistance, specifically unconditional cash transfers (BLT) to cushion the impact on vulnerable households, a scheme widely considered successful. In 2014, the Jokowi administration pursued landmark reforms to align domestic fuel prices with global markets and shift from commodity subsidies to direct assistance. However, such programs are not guaranteed to succeed, as seen in 2008, when BLT and additional aid failed to offset oil price volatility, leading to a swift repeal of the reform. Instead, Indonesia's most durable reforms success can be attributed to their compensation and social welfare to cushion the impact of changing mechanisms, rather than subsidy reform itself. Meanwhile, Thailand was an early adopter of renewable energy policies among

ASEAN-5 economies and has achieved notable success in gas and electricity tariff reform, though it has had limited success in removing oil subsidies, relying instead on periods of low global oil prices, such as in 2015, to ease the subsidy burden. Transport is the largest energy consuming sector at 36%, with diesel and natural gas vehicle fuel remaining heavily subsidised. Despite broader energy efficiency gains globally since the 1970s oil crisis, Thailand ranks among the highest in energy intensity per unit of output, partly attributable to price distortions. Fuel and electricity subsidies do benefit some lower-income consumers, particularly those reliant on subsidised LPG for cooking and free electricity. However, Thailand similarly defaulted to low global oil price windows rather than structural reform, illustrating that without proper compensation and consideration, not removing the subsidy is more politically sound.

Across all three subsidy reforms, Malaysia's fuel subsidy policy has followed a single repeating logic of choosing stability over sustainability. Similar to Thailand, due to its deep dependency, subsidy removal introduces shocks especially to vulnerable groups, thus risk worsening existing inequalities. Cash assistance, while effective in Indonesia, does not solve the fundamental problem associated with heavy fuel consumption. Given this, reforms are often deferred until fiscal pressure makes it unavoidable. Hence, a comprehensive subsidy reform should bridge the temporal gap between short-term public shock and long-term fiscal sustainability.

VEHICLE OWNERSHIP REFORM

In the nearer term, as private vehicle electrification accelerates, discourse should not overlook the need to ensure the EV transition is inclusive and equitable for all. The thought process behind the energy transition lies in its name itself. Unlike other decarbonization targets in the NETR which go hand-in-hand with fossil fuel phase-out, transport decarbonization targets continue to look at volume growth, also known as total industry volume (TIV). This does not suggest a reduction in vehicle ownership, but rather the opposite.

Meanwhile, neighboring states to Malaysia have committed to phasing out ICE completely within the next decade, with future bans on new petrol vehicle registrations from 2030 (LTA, 2025) on top of zero percent vehicle growth as part of Singapore's 'car-lite' vision (ibid), as well as old-for-new car schemes currently drafted by the Thailand government (Nation Thailand, 2026). Policies that impose restrictions with a primary goal of reducing traffic congestion and urban pollution may also serve effective at disincentivizing the use of ICE vehicles. This includes the creation of zero emission zones, which are common in the EU ([Ku et al., 2020](#)), or a CO2 emissions-based tax on vehicles, which has been adopted by Indonesia since October 2021 ([Chan, 2021](#)).

Although, the effectiveness of strategies to alleviate congestion have been debated, often only realizing benefits in the short-term (Anciaes et al., 2025). For example, driving restrictions in Beijing, China, introduced to manage congestion and traffic pollution, were found to be ineffective based on a household survey (Wang et al., 2014). As appetite for vehicles maintain, there also remains the challenge to phasing out used ICE vehicles which operate within the used car market. The demand for "second-hand" vehicles lay in consumer preferences for affordability and availability due to easier access to financing. This demand could create a window of opportunity to accelerate EV adoption among lower income households who remain sensitive to existing EV prices, augmented by the removal of EV-friendly policies for more affordable imported models. [Mahalingam \(2025\)](#) writes that the first wave of EVs from early adopters will be entering the used car segment by 2027. With declining battery prices, second-hand EVs could be competitive against its ICE counterparts. Meanwhile, for those who remain locked-in to ICE vehicles which are still good for the road, the option for retrofitting ICE-to-EV offers a pathway to transitioning to EVs, governed by JPJ's new guidelines ([Paultan, 2025](#)) which could equally drive domestic sector participation ([Kamaruddin, 2025](#)).

Conclusion

With rising debates on fuel subsidies, which risk putting the country further in a fiscal deficit, it's equally important to ensure any reforms introduced will continue to protect the welfare of those most impacted. While policy decisions since the 1990s on both fiscal and automotive policy had been implemented with good intentions, its resulting carbon lock-in for many Malaysians calls for reforms to finally break the cycle that reinforces vehicle and fuel subsidy dependency. The journey ahead will be long and complex, and require deep structural changes, yet Malaysia's trajectory has its advantages, allowing the state to learn and adopt lessons from its past and more mature markets in the region. Given that, we propose the following strategies:

1. Reduction of energy transition costs through long-term fuel subsidy reform

Under the Budi Madani reform, the Malaysian government has realized substantial savings through a subsidy cap. In the first month of operationalizing its 300-litre limit, only 0.7% of eligible recipients was reported to utilize the fuel subsidy to its maximum (Ministry of Finance, 2025). Despite its positive outcome, the Madani administration remains heavily focused on short-term spending optimization, rather than a long-term strategy to remove dependency altogether. The next iteration of a subsidy reform could be explicitly designed to reduce transition costs and barriers to alternatives such as EVs, rather than simply managing the cost of continued car dependence. This could help break existing path dependency, while mitigating future social inequalities arising from inequitable energy transition pathways.

2. Strategic shift of automotive production capacity

Under Malaysia's automotive strategy, national champions will continue to thrive in the domestic market. However, a clear direction towards phasing out ICE models could be committed to instead of existing targets for TIV growth. Once EV prices converge to ICE levels, either through secondary market forces or re-introduction of friendlier policies for more affordable, imported models, an aggressive shift of production towards EVs could come together with the discontinuation of ICE models at similar price points. This helps shrink the 'national fuel tank', allowing industrial policy to play a hand in accelerating Malaysia's progress to meet sustainability goals, without sacrificing its developmental trajectory.

3. Phasing out existing stock of ICE vehicles

Up until 2025, policies for managing ELVs or the disposal of retired vehicles have yet to be implemented due to its perceived burden on households (The Star, 2023). However, the matching grant trade-in program for vehicles aged 20 years and above under Budget 2026 suggests a path forward aligned to sustainability priorities as outlined in the LCMB. Similar incentives for scraping or vehicle disposal can also help address concerns on accounting for 'ghost vehicles' to allow more accurate decision-making for reforms. Taken together with available pathways for ICE-to-EV retrofitting, a window of opportunity to promote EV adoption among Malaysians with existing stock of ICE vehicles is presented.

4. Heavier state involvement in charging infrastructure expansion

While existing EV policies have been successful, further delays in public charging infrastructure risks hindering EV adoption, especially for households without home charging facilities. By design, private sectors will continue to prioritize locations with higher utilization prospects, without incentives to build in areas with lesser EVs on the roads. Even so, public charging pricing may remain inaccessible for lower income households at existing tariffs. State involvement could consider fiscal policies that promote social welfare, such as tax incentives for operators to expand in suburban or rural communities, and rebates for eligible consumers on home charger installation to drive adoption. Alternatively, development of charging hubs for community use such as the Tamara Residence hub in Putrajaya (Lye, 2024) could be a viable model to spread out capital costs among households and secure utilization for the operator to incentivize development.

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