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# TIME TO ENSHRINE 'RIGHT TO CHARGE'



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## EV INFRASTRUCTURE

# TIME TO ENSHRINE 'RIGHT TO CHARGE'

SHAMSUL YUNOS

**O**N paper, Malaysia's transition to electromobility looks like an unmitigated triumph. Driven by the arrival of accessible, locally assembled national electric vehicles, the domestic EV market has hit a massive tipping point.

In the first quarter alone, total EV registrations surged by more than 113 per cent year-on-year, with a single automotive brand — Proton's new e.Mas division — capturing a staggering 50 per cent of all new EV registrations.

The explosive popularity of sub-RM70,000 models like the e.Mas 5 hatchback, alongside the widespread adoption of long-range family haulers like the e.Mas 7 plug-in hybrid proves that Malaysian buyers are no longer merely curious about electric tech.

They are fast gaining confidence in it, and they are starting to buy in bulk. This rapid shift has turned our federal infrastructure targets upside down.

While the nation missed its historical blueprint goal of 10,000 public bays — sitting at roughly 5,620 total bays nationwide — we actually managed to cross our target for high-speed infrastructure, crossing 1,900 public DC fast chargers.

To the casual observer, the interstate network seems complete: along the North-South Expressway, a driver can expect a charging break roughly every 60-70 kilometres.

But these bare numbers hide a deeply frustrating bottleneck. The geometric growth of vehicles on the tarmac has completely exposed the static layout of our charging stops.

In the real world, the vast majority of

these highway charging locations offer only two charge guns.

A rare few feature three or four. When EVs were an elite, low-volume novelty, a two-plug setup was a frictionless luxury.

Today, as waves of national EVs hit the interstate simultaneously, popular rest areas like Tapah and Behrang collapse into regular, agonising queues.

Just for contrast, most highway petrol stations have a minimum of 20 pumps, and they need less than five minutes to top up, whereas EVs need 30 minutes to get to 80 per cent capacity.

Clearly, the future means having a similar number of chargers at every charging location on the highway.

The paradox of Malaysia's infrastructure is that while inner-city commercial chargers often sit underutilised, the crucial intercity arteries are choking.

Consumer adoption has broken through the ceiling and the physical infrastructure is falling behind.

The long queues at our highway rest areas are not a symptom of a lazy market.

Private charge point operators (CPOs) are highly motivated, relatively well-capitalised and entirely willing to install more high-speed bays.

In a climate where global energy pressures and shifting fuel subsidies make electric driving highly attractive, expanding highway coverage is an obvious commercial win.

Yet, every time a CPO attempts to scale up a critical transit spot, they hit a literal power wall.

The core issue is a basic mismatch in scale between vehicle batteries and the rural electrical grid.

A standard, modern high-speed



Popular rest areas such as Tapah and Behrang are facing growing congestion at charging stations.

pletely impassable.

To break this gridlock, Malaysia needs to fundamentally change how it views an EV charger.

Right now, our regulatory framework treats a high-speed charging bay as a commercial amenity — a lifestyle luxury akin to a premium airport lounge or a boutique coffee shop.

This is a profound policy error. In an era where the state actively incentivises citizens to ditch internal combustion engines through tax exemptions and national green targets, access to high-speed energy along our primary interstate arteries is no longer an optional luxury.

It is an essential utility.

We do not need to reinvent the wheel to fix this; we simply need to look at established Malaysian legal precedent.

Under Section 24 of the Electricity Supply Act 1990 [Act 447], TNB operates under a strict statutory "duty to supply".

If an owner or occupier of a premise demands a connection to the electrical grid, the utility provider is legally obligated to connect them, provided the customer covers the immediate, regulated costs of that localised installation.

A near-identical mandate exists within the Water Services Industry Act 2006 for water concessionaires.

What we need to do is take a small-step approach by making charging a right, instead of a privilege.

A policy shift towards a "right to charge" means the government enters into an implicit contract to guarantee a citizen's freedom of interstate mobility the moment a Malaysian consumer buys a vehicle like the e.Mas 5, registers it with the Road Transport Department, and pays their national taxes.

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charging installation expects to supply at least 100kW of juice per gun. If a CPO wants to build a proper, future-proof bay featuring just four charging guns, that single site requires a steady, dedicated supply of at least 500kW — accounting for critical grid buffers and thermal safety margins.

And this is before we start looking at megawatt charging that is already coming out of China. In the future, it is likely that charging super hubs will need at least 50MW of peak supply and a massive battery bank to stabilise grid withdrawals.

Unfortunately, the power supply at most highway rest areas was mapped out decades ago to handle basic lighting, air conditioning and food court refrigerators. They simply do not possess half a megawatt of spare capacity.

This is where expansion grinds to a bureaucratic and financial halt.

Because the national utility provider Tenaga Nasional Bhd (TNB) is strictly governed by the Electricity Supply Act

1990, it operates under tight capital expenditure regulations.

TNB legally cannot absorb the immense cost of upgrading grid infrastructure for a private commercial entity, as those costs cannot be passed down through standard consumer tariffs.

Consequently, the burden falls entirely on the CPO. To unlock the required juice at a remote highway location, a private operator must foot the bill for entirely new power exchanges, heavy-duty transformers, and kilometres of dedicated subterranean cabling.

These connection costs can easily spiral into the millions of ringgit for a single rest area.

When a policy framework expects a private business to spend millions just to prepare the ground for four plugs, the economics of public charging shatter.

We have built an administrative environment where operators want to build and the grid technically exists, but the financial gate to connect the two is com-



The rapid growth of EV ownership is exposing weaknesses in Malaysia's charging infrastructure. NSTP FILE PIX

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Mandating a legal right to charge solves the administrative bottleneck, or at least the mental bottleneck, but it leaves an obvious financial question: who pays for the massive capital expenditure required to beef up the national grid in rural or remote transit areas?

TNB cannot absorb these costs without unfairly penalising standard domestic tariff payers, and forcing CPOs to pay millions guarantees that highway infrastructure will remain starved.

The answer lies in a highly successful policy blueprint from Malaysia's telecommunications sector: the Universal Service Provision (USP) Fund, managed by the Malaysian Communications and Multimedia Commission.

Decades ago, Malaysia faced an identical structural crisis with the Internet. Private telcos were eager to build fibre optic networks and cellular towers in high-density, lucrative urban centres, but they had zero financial incentive to lay expensive cables out to underserved rural communities.

The USP Fund solved this by requiring all licensed telecom operators to contribute a small percentage of their revenue into a collective pool.

The government then used that fund to bridge the "digital divide", financing the backbone infrastructure in low-yield areas so that every Malaysian, regardless of geography, had a right to connect.

We must now replicate this model to bridge our growing "infrastructure divide" by establishing a "universal charging provision" (UCP) fund.

Instead of relying solely on utility budgets, this fund would operate as a hybrid public-private financing mechanism designed to completely absorb the primary grid-connection costs for critical highway chargers.

The capital would be raised through a sophisticated, multi-tiered framework.

We can start with government seed capital: a one-off federal injection to immediately jumpstart grid and transformer upgrades at the most critical national highway bottlenecks, such as Tapah, Behrang and Ayer Keroh.

The VIN Lifecycle Emission Contribution should be the main sustainer of this fund.

This is where the burden shifts progressively to the automotive manufacturers profiting from our shifting market.

For every new vehicle registered in Malaysia for the first time, the importing or manufacturing car company must pay a mandatory contribution into the UCP fund.

Crucially, this contribution would not be a flat tax. It would be calculated dynamically based on the total lifecycle carbon emissions of that specific vehicle identification number (VIN).

Under this model, an OEM importing heavy, high-emission luxury SUVs or vehicles with dirty, un-optimised manufacturing supply chains would



Charge point operators are ready to expand, but grid limitations remain a major hurdle.

pay a significantly higher premium per vehicle.

Conversely, manufacturers producing highly efficient, localised, low-carbon footprint vehicles — like the e.Mas line — would qualify for a minimal, baseline rate.

The economic poetry of a UCP Fund is absolute: the very vehicles contributing the most to environmental degradation would directly subsidise the high-speed electrical grid required to clean up our transport sector.

By pooling these funds, the cost of installing a massive 500kW substation at a remote highway rest area is no longer a multimillion-ringgit death sentence for a private CPO.

The fund covers the heavy backbone upgrade, the grid expands to meet consumer demand, and the op-

erator simply pays a fair, predictable fee to plug their charging guns into the newly unlocked power.

Malaysia cannot afford to run a lopsided green policy.

For years, the government has pulled the fiscal levers perfectly to spark an electric vehicle revolution, using aggressive tax holidays, duty exemptions, and localised assembly manufacturing grants to lower the barrier to entry.

The strategy worked brilliantly. But by hyper-focusing on the vehicles while treating the national grid as a secondary, private sector afterthought, the administration has built a house of cards.

We are fast approaching a dangerous structural choke point. If you incentivise tens of thousands of citizens

to buy clean cars, but legally tether the utility framework to a pre-EV era, the entire ecosystem collapses under its own weight.

The long, frustrated holiday lines at Tapah and Behrang are not merely an inconvenience; they are a visible warning sign that our outmoded utility laws are actively capping the growth of Malaysia's green economy.

True sustainable mobility is not achieved by simply counting the number of electric cars rolling out of showrooms in Tanjung Malim.

It is achieved when the national grid possesses the structural and legal flexibility to power those vehicles wherever they choose to travel.

The Energy and Energy Transition Ministry, alongside the Energy Commission, must act before consumer confidence curdles into buyer's remorse.

We do not need more vague, long-term infrastructure blueprints or decorative urban chargers. We need immediate, structural legislative reform.

By codifying the Right to Charge and seeding a Universal Charging Provision Fund funded progressively by lifecycle VIN emissions, Malaysia can break the million-ringgit grid wall once and for all.

It is time to treat high-speed energy access not as a commercial luxury, but as a basic public right.

Only then can we truly power the tipping point and ensure that Malaysia's electric dream does not stall out on the side of the highway.