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Charging EV overnight can burn down your house

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Page 1 of 1

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THE charred remains of a two-storey terrace house in Kuala Lumpur recently should serve as a sobering wake-up call for Malaysia's rapidly growing Electric Vehicle (EV) community.

The fire is believed to have been sparked by an EV charging port in the front porch. This is not an isolated incident, as Fire and Rescue Department statistics reveal a concerning upward trend of fires involving hybrid and electric vehicles, particularly in Selangor.

As Malaysia accelerates towards its National Energy Transition Roadmap (NETR) goals, the rapid electrification of our transport sector is outpacing the enforcement of residential electrical safety, exposing a glaring regulatory vulnerability right in our driveways where the installation of home chargers remains largely unpoliced.

The fundamental danger lies in treating an EV like a common household appliance; it is not, as drawing power for an overnight charge places an immense and sustained electrical load on a home's wiring.

Standard Malaysian terrace houses typically operate on a single-phase 230V supply, safely supporting a total household load of up to 10 kilowatts.

Bolting a high-capacity charger onto an older distribution board without conducting a formal maximum demand load assessment risks severely overloading the sub-main wiring.

If the combined load of the EV, air-condi-

tioners, and water heaters exceeds this limit, a three-phase supply upgrade from Tenaga Nasional Bhd is technically required, but this is often dangerously bypassed by unsuspecting homeowners.

Furthermore, the physical connection between the car and the home must be intelligent and secure.

The Energy Commission explicitly bans the use of standard three-pin wall sockets for charging because they lack vital communication capabilities.

Safe charging requires a smart wallbox equipped with standard connectors, such as Type 2 or combined charging system formats, which utilise low-voltage communication pins to negotiate safety before any high-voltage power flows.

The proximity pilot pin ensures the connector is fully inserted and identifies the cable's current capacity, while the control pilot pin continuously monitors for ground faults, instantly cutting the power if a break is detected.

Behind this physical connection, the vehicle's onboard power electronics and battery management system continuously monitor individual cell temperatures to prevent thermal runaway, a critical safeguard that is completely bypassed when using uncertified aftermarket cables.

For the national frameworks of the NETR and the National Energy Policy to succeed, consumer confidence in EV safety is paramount. To build this, there must be an imme-

diate crackdown on uncertified hardware and unqualified handyman installations.

Additionally, the commissioning process must be formalised by legally requiring registered electrical contractors to submit completion and testing certificates, a step that is especially critical for strata properties to resolve fire safety bottlenecks before routing heavy copper cabling through common areas.

Until enforcement catches up with adoption, the responsibility for fire safety falls squarely on the homeowner. It is imperative to hire a registered electrical contractor to assess the home's existing distribution board and calculate the maximum demand before purchasing any charging equipment.

Consumers must demand certification by ensuring their wallbox carries a legitimate ST-Sirim certificate of approval, strictly avoiding cheap alternatives from unlicensed online sellers.

Finally, during installation, homeowners must verify that the technician uses a dedicated, continuous run of adequately sized copper cable directly from the breaker to the charger, ensuring there are no dangerous joints, taps, or shared loads that could turn a green investment into a devastating fire hazard.

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