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Malaysia's RE expansion faces gap between ambition and reality

The Malaysian Reserve, Malaysia



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Without major reforms, the nation risks underusing its RE potential as climate, economic and energy security pressures grow

LETTER TO THE EDITOR

MALAYSIA has produced multiple climate and energy frameworks over the past five years. Starting with the Malaysia Renewable Energy Roadmap 2021 (MyRER), which defines near- and medium-term implementation steps for 2025 and 2035 developed by SEDA Malaysia, followed by the Malaysia Energy Transition Outlook (METO) by the International Renewable Energy Agency (IRENA) in 2023, which outlines long-term decarbonisation pathways; the National Energy Transition Roadmap 2023 (NETR), which sets 10 catalytic initiatives along with long-term renewable energy (RE) targets towards 2050 and the National Climate Change Policy 2.0 (NCCP) 2024, which embeds climate action across sectors, targets net zero by 2050 and prepares the ground for a Climate Change Act.

Collectively, these documents articulate a cleaner, more resilient future for Malaysia. Yet strategic blueprints and roadmaps alone do not deliver credible transitions. Without substantive reforms to market regulation, infrastructure planning and investment frameworks, Malaysia risks underutilising its renewable potential at a time of mounting climate, competitiveness and energy security pressures.

Regulations, Financial Practices
Malaysia's RE deployment is currently governed by a patchwork of procurement mechanisms and incentives, including Feed-in Tariff (FiT) for non-solar, Net Energy Metering (NEM), Large Scale Solar (LSS) auctions and the Corporate Renewable Energy Supply Scheme (CRESS), which mainly supporting solar developments. However, several structural regulatory and financial practices continue to shape and constrain outcomes:

- **Vertically integrated utility dominance:** Tenaga Nasional Bhd (TNB), Sarawak Energy Bhd (SEB) and Sabah Electricity Sdn Bhd (SESB), which are state-owned and government-linked companies (GLCs),

retain effective control over transmission, distribution and grid investment decisions. This limits independent power producers' (IPP) bargaining power and concentrates risk and discretion within a single corporate actor within each region.

- **Continued preferential treatment for fossil fuels:** Natural gas remains embedded as a "transition fuel" through regulated pricing and is billed as a destination fuel by certain parties. Infrastructure planning and long-term capacity commitments have created a lock-in to fossil fuels, while externalities such as carbon costs remain underdeveloped.
- **State-led capital allocation bias:** Public finance, banks and institutional investors remain more comfortable financing gas and carbon capture projects led by Petrolia Nasional Bhd (Petronas) than decentralised renewable or storage assets. Altogether, these practices signal continuity (BAU) rather than transformation, weakening the credibility of stated transition ambitions.

Negative Impacts of Existing Regulations and Practices

- **Fossil fuel lock-in, policy gap:** The continued prioritisation of gas infrastructure, including liquefied natural gas (LNG) terminals, pipelines and gas-fired capacity, risks locking Malaysia into carbon-intensive assets with long operational lifespans. This creates future stranded asset risks as carbon pricing, border adjustment mechanisms and global capital constraints tighten. Mixed signals between net-zero pledges and gas expansion dilute investor confidence in renewables and undermine long-term decarbonisation credibility.
- **Investment uncertainty:** Unclear grid access pricing, inconsistent permitting timelines and limited availability of long-term, bankable corporate Power Purchase Agreements (PPAs) increase transaction costs and risk premiums. For multinational corporations with climate commitments, Malaysia compares unfavourably with markets that offer transparent wheeling charges, predictable tariffs and robust PPA frameworks. The result is slower project pipelines and constrained private capital mobilisation.
- **Infrastructure mismatch with a renewable system:** Malaysia's grid was built for a centralised, dispatchable fossil system. High penetration of solar and future

wind requires flexible grids, storage and digital control systems. While TNB has announced RM43 billion in grid upgrades, progress remains incremental relative to the scale required. The absence of a binding, publicly articulated grid roadmap creates uncertainty around connection timelines and curtailment risk.

Policy Levers

To translate ambition into delivery, Malaysia must deploy targeted policy levers that directly address regulatory, financial and institutional bottlenecks.

Infrastructure-forward energy policy: Adopt a National Grid Development Plan that explicitly aligns grid investment with RE targets. This should prioritise:

- Smart grid deployment, demand response and digital system operators.
- Utility-scale energy storage, including batteries and pumped hydro.
- Planned reinforcement of renewable-rich zones.
- Cross-border interconnections under the ASEAN Power Grid.

Malaysia's existing cross-border wheeling arrangements with Laos, Thailand and Singapore enabling up to 100-megawatt (MW) today and potentially over 6,000MW regionally, demonstrate the feasibility of regional balancing and cost optimisation.

- **Market reform for competitive, bankable contracts:** Introduce transparent and fair pricing for grid access and ancillary services. Expand competitive auctions to provide long-term price certainty. Enable corporate PPAs with clear wheeling rules and credit support mechanisms, reducing reliance on bilateral negotiation with incumbents.

- **Carbon pricing, fossil fuel phase-down:** Implement an economy-wide carbon pricing mechanism, whether tax-based or cap-and-trade, aligned with NCCP 2.0. Introduce explicit carbon price signals to correct market distortions, shift capital toward renewables and storage, and discourage new fossil fuel investments without relying solely on administrative bans.

- **Governance and Institutional Rebalancing:** Strengthen the independence of regulators and system operators by separating grid planning from ownership. Align GLC mandates, with measurable climate and renewable integration targets to reduce conflicts between corporate strategy and national policy.

Positive Impacts

- **Accelerated investment, lower costs:** Australia's Renewable Energy Zones and grid-access reforms have unlocked large-scale private investment and driven record-low renewable prices through transparent infrastructure planning.

- **Higher renewable penetration with system stability:** Germany's investment in smart grids, storage and market-based dispatch has enabled high renewable shares while maintaining reliability, reducing curtailment and volatility.

- **Improved energy security through regional integration:** Cross-border interconnections in the European Union (EU)/UK and emerging ASEAN Power Grid reduce reliance on domestic fossil capacity, diversify supply and smooth seasonal variability.

Developing a proactive plan for data centres and electrification examples such as Ireland and parts of the Nordics show that flexible grids and storage can accommodate rapid load growth without increasing fossil dependence.

Malaysia has no shortage of vision. From MyRER, NETR, METO and NCCP 2.0, the country has articulated one of South-East Asia's most comprehensive transition narratives. What remains missing is structural follow-through: Reforming how markets are regulated, how grids are planned, how capital is priced and how institutions are governed.

If Malaysia aligns its regulatory and financial architecture with its climate ambition, it can unlock private investment, modernise its power system and position itself as a regional clean energy hub. Without such reforms, the renewable transition risks being constrained by market structures, fossil fuel lock-in and fragmented execution, at a time when decisive, system-level action is most needed.

RE is the solution and must be integrated to our development to effectively reduce greenhouse gas (GHG) emissions, which grow exponentially alongside energy demand. Malaysia should create the right environment for it to thrive, instead of being locked into legacy infrastructure.

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