



31 DEC, 2025

# TNB: Scaling energy roadmap needs sustained investment

The Sun, Malaysia



**KUALA LUMPUR:** Scaling Malaysia's energy roadmap will require sustained investment, resilient infrastructure and strong collaboration across utilities, policymakers, financiers and regional partners, including cooperation with Asean counterparts and global technology players.

Speaking at the Malaysia Pavilion at COP30, Tenaga Nasional Bhd (TNB) chief distribution network officer Mahathir Nor Ismail emphasised the importance of aligning infrastructure development, financing and regional interconnection to support a more resilient, interconnected and sustainable energy future for Malaysia and Asean.

He said that Malaysia is translating the National Energy Transition Roadmap (NETR) into real-world implementation by strengthening grid readiness at the distribution level.

NETR is a strategic government plan launched in 2023 to shift the country from fossil fuels to a green economy by 2050, focusing on renewable energy, energy efficiency, hydrogen, bioenergy and green mobility.

However, accelerating the energy transition requires more than renewable deployment alone.

Grid resilience, system flexibility and digital visibility are critical foundations, said Mahathir, who is also the incoming senior chief network officer from January 2026.

COP30, officially known as the 2025 United Nations Climate Change Conference, also known as the Conference of the Parties to the UN Framework Convention on Climate Change, is the 30th session of the United Nations Climate Change Conference. It was held at the Hangar Convention Centre in Belem, Brazil, last month.

"Initiatives such as advanced supervisory control and data acquisition (Scada) systems, network automation and battery energy storage systems were cited as key enablers to support higher renewable penetration while maintaining reliability and system stability," he said.

TNB has been using the Scada system since 2006.

Scada is the core technology for remotely monitoring and controlling Malaysia's power grid from generation to transmission and distribution, enabling real-time fault detection, quick restoration and smarter grid management, including the integration of renewables like solar, as the utility moves towards an advanced distribution management system for enhanced reliability and efficiency.

Drawing on regional experience, Mahathir cited the Laos-Thailand-Malaysia-Singapore Power Integration Project and the broader Asean Power Grid as practical examples of how cross-border interconnection, operational trust and regulatory alignment can move the region from planning into execution.

At the Asean Pavilion, TNB chief sustainability officer Leo Pui Yong highlighted how the national utility is responding to climate

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► Resilient infrastructure and strong collaboration across stakeholders, sectors and regions required too

risks across a complex and highly exposed infrastructure system, as part of broader efforts to strengthen climate adaptation.

With more than 90,000 assets operating nationwide, the session highlighted how floods, extreme heat, sea-level rise and other weather-related disruptions are already affecting infrastructure performance.

"These realities position climate adaptation not as a future aspiration, but as an immediate system reliability priority that must be addressed across planning, operations and asset design," she said.

Leo said TNB's approach integrates systematic climate risk assessments, forward-looking climate parameters and data-driven analysis into long-term infrastructure planning, asset development and operational decision-making to strengthen resilience under future climate conditions.

Building resilient infrastructure requires cross-sector collaboration, shared data, strong governance, and regional cooperation, enabling utilities, governments and partners across Asean to align planning, manage risks collectively and safeguard communities while supporting sustainable growth and a just transition, she said.

Sustainable procurement plays a critical role in ensuring the energy transition is

inclusive and scalable across the wider industry, said TNB chief procurement officer Amir Mahmud Abdullah.

He explained that TNB has embedded environmental, social and governance (ESG) principles into supplier engagement, capability development and procurement processes for NETR-aligned initiatives, including renewable energy and grid expansion, to support industry readiness and long-term resilience.

He added that initiatives such as TNB's sustainable procurement code of conduct (SPCC) provide a structured framework to guide suppliers in meeting ESG expectations while supporting small and medium enterprises in adapting to evolving regulatory and market requirements.

Complementing industry efforts, Malaysia's Ministry of Investment, Trade and Industry's i-ESG framework provides phased support to manufacturers, particularly SMEs, in integrating ESG standards, including readiness for international requirements such as the European Union's Carbon Border Adjustment Mechanism.

At the session titled "Future-Proofing Industries: Strengthening Sustainable Supply Chains for a Just Transition" at COP30, Amir highlighted the importance of aligning pro-

urement practices with ESG principles to support industry readiness, supplier transparency and a more inclusive transition across the energy value chain.

The session brought together Asean utilities, regulators and partners to explore how national initiatives such as Malaysia's SPCC and the i-ESG framework, alongside regional ESG-aligned frameworks, can support a more coordinated approach to decarbonising supply chains and strengthening industry readiness across Asean.

Amir said that by harmonising standards, promoting supplier transparency and leveraging digital tools for traceability, Asean can build a new ecosystem where sustainable supply chains become the baseline, not the exception.

Malaysia's Pavilion at COP30 carried the theme "Climate Action Now: Net Zero Pathway Unlocked," reflecting the country's firm commitment to accelerate climate action and strengthen regional cooperation.

Mahathir, Leo and Amir represented TNB at COP30 by contributing perspectives across the energy transition value chain, from grid readiness and regional interconnection to climate-resilient infrastructure planning and sustainable procurement practices.

Together, the sessions highlighted the importance of sustained investment, resilient systems and cross-sector collaboration in supporting Malaysia's NETR and advancing a more secure, inclusive and sustainable energy future for Asean. - Bernama



Mahathir: Grid resilience, system flexibility crucial.



Leo: TNB responding to climate risks.



Amir: Aligning procurement and ESG practices.