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Execution remains biggest hurdle for RE targets

ENERGY

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PETALING JAYA: Malaysia's energy transition is no longer constrained by ambition or policy direction, but by its ability to execute, particularly in strengthening grid infrastructure and ensuring commercial viability – which are both critical to sustaining investor confidence.

Experts said the country has made progress in setting targets, such as the goal of achieving 70% renewable energy (RE) capacity by 2050 under the National Energy Transition Roadmap (NETR).

Yet, delivery remains the biggest hurdle. Speaking at a panel titled "Energy transition, sustainability and climate change – where are we now?", KSI Strategic Institute for Asia Pacific deputy chairman Datuk Seri Mohamed Iqbal Rawther said climate risks are already materialising, with rising temperatures threatening up to 40% of Malaysia's rice cultivation.

Mohamed Iqbal stressed that the challenge has moved beyond policy formulation.

"When it comes to execution and actual delivery, we have problems. Execution seems to be at variance with the realities," he said, adding that infrastructure gaps and constraints in deploying capital are undermining investor confidence.

Malaysian Photovoltaic and Sustainable Energy Industry Association deputy president Tunku Akmaludin Zakri Tunku Zuhri echoed this, noting that electricity demand is accelerating due to economic growth, digitalisation, and energy-intensive sectors such as data centres.

"The challenge is no longer whether we want a cleaner energy future, but how to decarbonise while preserving reliability, affordability, competitiveness and investor confidence. That is not a simple balance to strike," he said.

Citing data from the Malaysian Investment Development Authority, Tunku Akmaludin noted that RM144.4bil in data centre and cloud investments were approved between 2021 and mid-2025, underscoring the scale of demand entering the system.

Against this backdrop, he pointed to grid readiness as the critical bottleneck.

Tunku Akmaludin emphasised that RE deployment depends not only on generation capacity, but also on transmission planning, interconnection, storage readiness, and system flexibility.

"If these supportive conditions lag behind, approvals alone will not translate into timely delivery," he said.

He added that energy transition will not accelerate if projects are technically

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viable, but commercially strained.

"Investors look not only at policy direction, but at delivery risk. Developers look not only at opportunity, but at takeability. Meanwhile, consumers still expect affordability and viability to be protected."

Against this backdrop, GE Vernova Asia Pacific decarbonisation director Justin Nga said the immediate priority is not simply adding new generation capacity, but ensuring the grid can handle it.

"The real issue is whether the grid is ready to absorb, transmit and manage rising demand and renewable penetration, all without sacrificing reliability," he said.

He highlighted substation and interconnection upgrades as the most urgent need, alongside technologies to improve the performance of existing transmission systems and maintain grid stability.

Digitalisation is essential, he added. "New transmission builds will still be important, but the most practical near-term gains will come from making the current grid more flexible, more stable, and more ready for both growth and renewable integration."

Ernst & Young Consulting Sdn Bhd climate change and sustainability services associate partner Chetna Haresh said grid stability is the practical reality of Malaysia's energy transition.

"No matter how ambitious our climate targets are, they only matter if low-carbon electricity can be delivered reliably, affordably and at scale," she said, noting that the energy system is becoming increasingly complex.

Chetna highlighted that generation costs account for only about 40% of the total cost of the power system.

The rest comes from grid infrastructure (25% to 30%), balancing and storage (15% to 20%), and financing, risk premiums and inefficiencies.

"Cheaper electrons do not automatically mean a cheaper energy transition. Sequencing and cost management are critical," she said.

From an investor perspective, she added, the main challenges are execution and bankability risks.

She said investors sought after revenue predictability, offtake and counterparty

certainty, and delivery on the ground.

"Overall, the capital from an investor lens is all available. Banks have billions in sustainable financing targets," she further said.

"The real question is the need for consistency, stable tariff frameworks, bankable contracts, and that final confidence that the project, once it does reach financial close, will be delivered as structured, as planned."

Still, Boston Consulting Group managing director and partner Dave Sivaprasad said that the high overall costs of running the power system make public and private cooperation essential.

Dave said all technologies should be considered, not just solar, batteries, gas and coal, but also nuclear, to ensure financial health, long-term viability and economic competitiveness.

He stressed the value of multi-benefit solutions, where investments advance both energy transition and grid resilience.

"That's a double win, more dollars returned for every dollar spent."

He noted new business models enabled by artificial intelligence and digitalisation, such as virtual power plants which allow utilities to pool excess energy and direct it to where it is needed.

National utility company Tenaga Nasional Bhd head of sustainability management Noor Miza Razali said Malaysia is entering a critical phase for grid modernisation.

"Currently, we are in Regulatory Period 4, which governs our investments into the grid. From 2025 to 2027, we are putting RM43bil into modernising and increasing its flexibility," she said.

Deputy Prime Minister Datuk Seri Fadillah Yusof said Malaysia is not just at the edge of ambition, but at the edge of responsibility.

Fadillah, who is also Energy Transition and Water Transformation Minister, acknowledged that electricity demand is rising rapidly, driven by digitalisation, data centres, and industrial growth, yet the grid was not designed for this pace.

He said the NETR is clear, but "clarity must now translate into action", noting that the country's immediate priorities include working on the grid.