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The Malaysian Reserve, Malaysia



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Experts urge pragmatic transition plans and stronger ecosystems to meet Asia's rising energy needs amid geopolitical and resource constraints

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PETROLIAM Nasional Bhd (Petronas) is expanding its strategic ties with China's energy sector as Asia's electricity demand surges, with China expected to consume a third of global power by 2025.

At the China Focus Panel during the Energy Asia 2025 conference recently, Petronas executive VP and downstream CEO Datuk Sazali Hamzah said Malaysia's ASEAN chairmanship offers a timely opportunity for regional collaboration.

He reaffirmed the company's dual role in ensuring national energy security while pursuing a low-carbon future.

"As a national oil and gas (O&G) company, Petronas carries the responsibility of managing Malaysia's hydrocarbon resources while ensuring energy security and enabling low-carbon transition," he said.

### Clean Energy in SE Asia Hinges on Key Materials

Petronas has built a strong footprint in China with eight offices, four production sites and partnerships with major players like China National Petroleum Corp (CNPC) and Sinopec Group.

Sazali described gas as a vital transition fuel, supporting renewable integration as part of Petronas' decarbonisation strategy.

CNPC Economics & Technology Research Institute (ETRI) president Dr Lu Ruquan presented forecasts showing global oil demand peaking by 2030 and China's natural gas use reaching 552 billion cu m.

He stressed that energy transition must be pragmatic.

"The key is not to abandon fossil fuels abruptly but to utilise them cleanly while scaling up renewables," he said.

South-East Asia's (SE Asia) clean energy future hinges on rare earths, batteries and palm oil.

At the conference's "Navigating Asia's Energy Markets in a Multipolar World" panel, Khazanah Research Institute research advisor Emeritus Prof Dr Jomo Kwame Sundaram warned that SE Asia's transition to renewable energy (RE) is being hampered by limited access to critical materials, weak storage infrastructure and inconsistent political support—all of which must be addressed if the region is to meet its rising energy demand.

He said while the region has seen growth in solar and wind deployment, structural constraints and geopolitical barriers continue to stall progress.

"Although SE Asia has seen a tremendous expansion of the production of panels, it does not seem to me that we have reached



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the potential," he said.

Jomo identified energy storage as a key bottleneck, pointing to the availability of battery-grade materials as a critical obstacle to wider deployment of clean energy systems.

He noted that China currently dominates the market for affordable solar panels, while producers in Malaysia and Korea face higher costs. This imbalance, he added, could worsen under looming trade restrictions.

He pointed out that the situation could shift quickly due to upcoming restrictions on solar panel imports, particularly from the US and potentially Europe.

Beyond solar and batteries, Jomo highlighted the strategic importance of rare earth minerals, which are essential to both fossil fuel operations and next-generation renewable technologies—especially in storage and transmission.

Concurrently, he argued that SE Asia should not overlook more accessible renewable alternatives such as palm oil biodiesel, which offers a cost-effective path for short- to medium-term energy needs.

"Not every country in the region has continued to push ahead with trying to get palm oil and biodiesel much more competitively manufactured," he said, pointing out that palm-based biodiesel remains significantly cheaper than European equivalents.

However, development in this area has been constrained by inconsistent national policies and selectively applied trade restrictions from Europe.

"European restrictions are very selectively applied. We also see carbon markets not working very effectively, because carbon markets have been subsidised in various European countries in the last half-decade or so," he said.

Jomo warned that such measures unfairly burden developing countries—many of which have contributed the least to global emissions—while undermining trust in global climate governance.

"We do not have any serious concerted effort which will move us towards a situation of using less fossil fuels," he said.

Despite these challenges, Jomo believed that the region still has viable options. With stronger policy coordination and less reliance on Western regulatory signals, he said SE Asia can pursue a more self-determined path toward energy security and sustainability.

### Refineries Pushed to Localise Low-carbon Strategy

Refineries must adopt tailored, region-specific strategies and foster deeper industry collaboration if they are to play a meaningful role in the global transition toward a lower-carbon future.

Industry leaders at Energy Asia 2025 agreed that while electrification, carbon capture and the introduction of sustainable fuels are among the key pathways, no single solution fits all.

Each country or facility must navigate its own decarbonisation journey based on local feedstocks, infrastructure and regulatory context.

Kosan Co Ltd managing executive officer Junzo Yamamoto Idemitsu said countries need a strategic roadmap before they pick a pathway.

"Feedstock availability is different in every region. What works in Japan may not work in Malaysia or the US. That is why choosing the right licensor, technology and risk management plan is critical," he said during a panel session.

Rather than waiting for an ideal and uniform solution, panellists urged refiners and policymakers to pursue progress through adaptive experimentation.

Incremental improvements—whether via co-processing sustainable feedstocks or electrifying parts of refinery operations—can cumulatively drive change, they said. This pragmatic approach, however, requires support across the entire ecosystem.

Carbon recycling company LanzaTech Global Inc CEO Jennifer Holmgren said the successful scale-up of first-of-a-kind projects depends not just on technology but on committed partnerships across governments, funders, engineering, procurement and construction (EPC) contractors and end-users.

"You cannot leave it to the airlines alone to absorb the green premium," she said, referring to sustainable aviation fuel markets.

"Governments must support it through mandates or subsidies, brands need to co-invest and EPCs must offer wraps and guarantees to de-risk these early projects," she added.

Holmgren cited Microsoft Corp Inc's investment in sustainable fuels technology company LanzaJet Inc and the formation of industry consortia such as Saga plc as examples of how stakeholders can come together to share the cost and risk of decarbonisation.

Yet many promising ideas do not reach that stage.

Aman Joshi of Black & Veatch Corp pointed out that 70% to 80% of projects fall through after early studies due to a combination of technical and financial roadblocks.

His firm stresses the need for strong pre-feasibility analysis, especially for complex projects involving green hydrogen or large-scale retrofits.

"Infrastructure, labour shortages, supply chain delays—these all affect timelines and viability.

"Unless there is a clear off-taker or end-use for your product or captured carbon, the economics rarely add up. But when the ecosystem aligns, these projects can be both technically and financially sustainable," he said.

Beyond engineering and economics, Holmgren also pointed to mindset as a key barrier. Too often, she said, organisations fall into the trap of inaction while waiting for a "silver bullet" solution like hydrogen, which may take decades to scale.

"Sometimes we forget this is a transition, we wait for the perfect answer. But we need to say 'yes' more often. Try something. If it does not work, learn from it and move forward. That is how progress happens," she said.

Nevertheless, Holmgren predicted that biology will play a defining role in creating decentralised, carbon-efficient refineries suited to regional needs.

The session concluded with calls for more inclusive and distributed solutions, including the use of biological systems to convert local waste into value-added fuels and materials.