



04 JAN, 2026

## Unlocking Malaysia's energy future



Sunday Star, Malaysia

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ALONG with data centres and electric cars, another "electricity guzzler" will push the energy demand across the region: air conditioners.

As temperatures climb while the population expands and the economy grows in the region, so will the use of aircons, International Energy Agency (IEA) executive director Fatih Birol explained.

"In the region, the electricity demand is skyrocketing. Only in the next 10 years, Asean countries will need electricity equal to 300 gigawatts, which is equal to one Japan. It's a huge undertaking."

"This demand is driven by the number one driver, which is air conditioning."

"In the US and Japan, 90% of households have air conditioners. In this region, the average is only about 20%."

"But with increasing temperatures and the rising income of people [in South-East Asia], the use of aircons will surge and push up electricity consumption. The question now is, how are we going to meet this demand growth?"

Birol was speaking to reporters on the sidelines of the recent 2025 Singapore International Energy Week.

His assertion was later reiterated in the IEA's *World Energy Outlook 2025* report which highlighted that South-East Asia is on course to be one of the world's largest engines of energy demand growth: the region is set to account for 25% of the global energy demand growth between now and 2035 due to its rapid economic, population and manufacturing expansions. It is second only to India over the period. By mid-century, energy demand in South-East Asia will overtake that of the European Union, IEA said.

This growth not only poses challenges for the region's energy

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As the country steers its energy transition in an uncertain world, opportunities abound in novel green energy.

security but also efforts to achieve national climate goals.

## A renewable future

Birol believes that the number one golden rule for energy security is diversification.

"We have to diversify the imports of what we call energy, the diversification of the trade routes, diversification of the companies..." he said.

This is fundamental in balancing the "energy trilemma".

The energy trilemma, as explained by the World Economic Forum, requires balancing energy security (including supply chain security and resilience), equity (universal and fair access) and environmental sustainability (fighting climate change).

Balancing these three often conflicting goals needs to be at the centre of the energy sector's innovation process.

Like the rest of the world, Asean

– including Malaysia – is moving towards a net-zero future, with the energy transition at its core. Eight of the group's 11 member states have set net zero emissions targets.

However, much of the rising energy demand in the region has been met by coal-fired power plants, which supplied 47% of Asean's electricity in 2024.

Birol noted that coal will continue to play a key role in Malaysia's energy mix – coal remains Malaysia's primary energy source for electricity generation, accounting for approximately 43%–49% of the mix as of 2024–2025 – but stressed it is vital that the government recognise its environmental cost and handle its use carefully.

However, phasing out coal too quickly could threaten energy security, he warned.

"The current coal consumption in the countries will also be part of the [energy demand] solution.



"From an environmental point of view – not only climate change but also pollution – this is not the best thing to do."

"But it is important to look at it in a pragmatic way: by considering that coal has major environmental effects on the people but at the same time, we need to keep the lights on."

"So the government needs to have smart policies. On one hand, provide electricity security, but at the same time, think of the health of the citizens and find a trade-off. It would not be right to say 'close this, open that'."

Ultimately, he added, every country needs to take into account not only its own conditions, but also the global picture.

"No country is an energy island. They have to see what's happening

in the global energy markets."

The important thing is the direction of the energy transition, he said.

"The direction needs to be towards safer, cleaner, and affordable energy, and this region has a huge amount of renewables, especially solar, but also hydropower, geothermal, and others."

Renewable energy has significantly expanded in recent years in South-East Asia. Still, renewables make up only a fraction of Asean's total electricity supply – in 2024, they accounted for only 25% of its overall supply.

The IEA's latest regional report, *Accelerating Renewables Growth in Asean*, published last month, highlights significant untapped potential for these technologies.

"Asean possesses vast renewa-



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**Clean power:**  
Malaysia aims to transition to 70% renewable energy capacity by 2050. — 123rf

ble energy resources, with around 20 terawatts of technical solar and wind potential – more than 55 times its current electricity generation capacity.

“With the sharp decline in the global cost of these technologies in recent years, tapping even a small share of this potential could significantly decrease the region’s electricity supply costs, strengthening energy security and reducing exposure to fossil-fuel price volatility,” the report stated.

Several Asean countries have considered the untapped potential and benefits, announcing more ambitious energy transition goals.

Recent national plans include significantly higher objectives for renewable capacity, including Malaysia’s National Energy Transition Roadmap, which aims



**Fors:** Siemens Energy is seeing a rising demand in the region for its gas turbines, which can incorporate green fuels such as hydrogen, ammonia and biofuels.

to transition away from coal and boost natural gas and 70% renewable capacity by 2050.

Under the Asean Plan of Action on Energy Cooperation 2026-2030, member states aim to raise the share of renewables in their installed power capacity to 45% by 2030, up from around 35% today.

Complementing these goals, the Asean Power Grid initiative seeks to enhance cross-border electricity trade and expand interconnections, supporting greater utilisation of renewable resources across the region.

Achieving these goals nevertheless will require timely, sustained and strongly co-ordinated policy action to unlock the scale of renewable energy deployment needed by 2030 and beyond.

Birol said it helps that the costs of renewables – “from solar to geothermal” – are going down.

“And the countries in the region should see how they make the most out of this rather cheap solar, and also the geothermal technology developments.”

### A novel energy future

Thorbjorn Fors, group senior vice-president and managing director for the Asia-Pacific at Siemens Energy, pointed out that it’s more straightforward for countries like Malaysia to take a significant step to transition away from coal as it is not dependent on the fuel export.

“I see a lot of activities, you know, both going from coal to solar but also coal to natural gas. We believe that for the foreseeable future, natural gas will be a very important energy for Malaysia and other South-East Asian countries, like Singapore.

“But also, step by step, we believe in replacing or reducing the dependency on any fossil fuel so that renewables like solar power can grow, and then low-carbon energy like hydrogen and ammonia can come into play.”

Fors added that Siemens Energy is seeing a rising demand in the region for its gas turbines that can incorporate green fuels such as hydrogen, ammonia and biofuels.

“The only technology or energy carrier we don’t believe in is coal,” he noted.

There is a room for improving the efficiency of the energy we use, and new energy technologies is key, Birol acknowledged, pointing out that the wide range of new energy technologies under development globally appears more promising than ever before.

With innovation, extensive technologies for novel clean energy such as hydrogen and ammonia now appear to be coming close to market, offering hope for improvements in energy security, affordability and sustainability over the long term, he noted.