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The hidden hurdles behind building SE Asia's RM423b super grid

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Monsoon Wind Power Project in Dak Cheung, Laos. An interconnected grid could boost the GDP of every SE Asian country by between 0.8ppts and 4.6ppts

A project in the mountains of Laos is bringing the region one step closer to a vast, interconnected energy network

by KANUPRIYA KAPOOR & SING YEE ONG

THE hardest part of building a wind farm along the misty ridges of southern Laos wasn't hauling 25-tonne blades up mountain roads or laying 71km of cables in thick vegetation. It wasn't even removing unexploded bombs left over from the Vietnam War.

Instead, it was bureaucracy that kept engineering veteran Nat Hutunuwat up at night — the delicate diplomacy and seemingly endless paperwork required for neighbouring South-East Asian (SE Asian) nations to share clean electricity. It was, he said, like "climbing a series of Everest's".

After more than a decade of government talks, biodiversity surveys and financial negotiations, Hutunuwat's Monsoon Wind started exporting power to Vietnam last month. Its 133 turbines bring a heterogeneous region of 700 million people one step closer to a long-awaited super grid — a vast, interconnected power network that will eventually carry clean energy from the expansive north to densely populated islands to the south.

An Encouraging Milestone

Part of the ambition behind the grid is fuelled by environmental concerns. SE Asia is a major driver of coal growth and breaking that dependence on fossil fuels — vital for the world to avoid the worst climate-change scenarios — requires a single network that allows inexpensive, clean power to flow.


Reliable green electricity is also critical for a region that aims to succeed China as a factory of the world, attracting billions from major manufacturers with weighty climate commitments, from Apple Inc to Samsung Electronics Co. An interconnected grid could boost the GDP of every SE Asian country by between 0.8 percentage points (ppts) and 4.6ppts, according to a US-funded study.

Yet executing that vision has proved complex. ASEAN — the grouping of 10 nations that is the region's main political organisation and a key proponent of the super grid — has long struggled with diverging priorities and tends to avoid bold decisions.

It has no framework for cross-border

SE Asia's super grid takes shape

Existing Links Some Planned Links



Source: ASEAN Centre for Energy; Monsoon Wind; SunCable; Bloomberg

energy deals, leaving developers alone to navigate a matrix of varying technical specifications and local political hurdles. And that's before considering the outlay, an investment that would require at least US\$100 billion (RM423 billion) by 2045, according to the Asian Development Bank (ADB), roughly a quarter of Malaysia's GDP.

All of this makes Monsoon Wind an encouraging milestone, and evidence that a push is finally in motion to connect countries from Myanmar to the scattered islands of the Philippines and Indonesia.

"We want this to be a role model for cross-border renewable energy (RE) exchange," said Hutunuwat, the COO of Bangkok-based renewables developer Impact Electrons Siam. "If we start with bilateral deals like our project, we can showcase how to make it work."

There is heartening movement elsewhere too, with a 30km cable due to connect Malaysia's hydropower-rich Sarawak state to neighbouring Sabah by October. That will eventually link up with the rest of the island of Borneo, including Indonesia's provinces and Brunei, and then with peninsular Malaysia across the South China Sea.

These are small wins, but the industry is celebrating. Hutunuwat still spends his days poring over paperwork in a makeshift office or driving over rough terrain to inspect wind turbines, but he hosted a team party in June to mark the completion of the Monsoon Wind farm. With a bottle of beer in hand, dressed in jeans and a hoodie emblazoned with the project name, he addressed a cheerful crowd of workers, recalling the first visit to pitch the idea of importing power to Vietnam's state utility.

"They looked at us like we were crazy," the 56-year-old said, smiling. The utility insisted he secure approvals from both Vietnam's prime minister and the Laos National Assembly — no small feat in countries where decisions are not always transparent or swift. He ultimately did as asked.

"We now have expertise in negotiating with a range of difficult stakeholders," he declared, before joining a round of karaoke.

governments and developers.

The ASEAN Secretariat did not respond to emailed requests for comment.

Singapore and the Super Grid

But there is growing official enthusiasm, not least in Singapore — the wealthy financial hub eager to bolster both energy security and green credentials. The island is aiming to import six gigawatts (GW) of low-carbon power from neighbours by 2035, up from nearly zero today.

Since 2021, it has backed a series of headline-grabbing projects through public tenders: A subsea cable to carry solar power from Indonesia, another to import hydro from Malaysia and a hybrid land-and-sea transmission line to wheel offshore wind from Vietnam. The country began importing a limited amount of power from Laos in 2022.

The splashiest of all, the SunCable project to bring Australian solar power thousands of kilometres across the sea to Singapore, is estimated at over US\$20 billion. Singapore has set up a dedicated state-linked firm to manage such complex cross-border projects.

The city-state's objectives are clear: A country less than half the size of Rhode Island doesn't have space for renewables, so it has no other option than to use its vast wealth to fund projects elsewhere and import the power. Currently dependent on natural gas, it also needs greener energy to support its tech, financial and climate leadership ambitions.

"Singapore has contributed directly to regional integration efforts," said a spokesperson for the country's Energy Market Authority. It's studying how to enable efficient long-distance transmission and "establish a framework that will facilitate the development of subsea power cables needed to realise the ASEAN Power Grid".

The SE Asian country has become a "champion" of the super grid, said Dinita Setyawan, a senior energy analyst at think tank Ember — and its ambitions could help the region make meaningful advances.

"We're seeing more progress in the past two years alone than in the past 20 years," she said. "If we can have other ASEAN countries on board and take a more active role," then the 2045 target should be realised.

Back on the Laos border, Hutunuwat and his team have started sending power to the "backbone" of Vietnam's grid. At its full capacity of 600 megawatts (MW), the project will generate enough to power hundreds of thousands of homes and factories.

"These bilateral trades are actually stepping stones that are essential. Then you replicate," said Pablo Hevia-Koch, head of the IEA's renewables integration. "It allows ASEAN to benefit incrementally from early-stage trading, while building the foundation for future."

Hutanuwat credits the project's completion to his team's pragmatism. But Monsoon Wind's success lays bare the difficulties still ahead for those eager to repeat the feat. Every approval, every connection, every agreement was hard-fought and one of a kind.

A playbook would make it far easier for others to follow, Hutunuwat argued.

For now, "there are no given solutions," he said, shrugging. "You just have to figure it out as you go." — Bloomberg