AUTHOR: John Gilbert SECTION: BUSINESS AUDIENCE : 297,582 PAGE: 14 PRINTED SIZE: 371.00cm²
REGION: KL MARKET: Malaysia PHOTO: Full Color ASR: MYR 9,971 WORDS: 725
ITEM ID: DP0121664168

14 AUG, 2026

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The Sun, Malaysia

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New facilities could consume as much as a third of country's entire electricity supply by 2035, government projections show

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KUALA LUMPUR: New data centres could consume as much as a third of Malaysia's entire electricity supply by 2035, according to government projections, up from a mere fraction of that today.

According to data, Tenaga Nasional Bhd (TNB) is committing RM43 billion to modernise Malaysia's electricity grid, driven by AI and data centre growth.

Malaysia already has 4.5 gigawatts of data centre capacity, with another 3.7 gigawatts currently under construction.

To meet that demand without straining the national grid, the battery energy storage system (BESS) will be the positive solution for maintaining a sustained power supply.

The Institution of Engineers, Malaysia (IEM) chief consultant for data centre infrastructure Lee Cheng Pay (*pic*) said this initiative is the commitment that the country and the prime minister have made to strengthen the nation's international position and prepare for the growth of data centres and AI.

"It is very impressive. We now have 4.5 gigawatts of power. 4.5 gigawatts is equivalent to the electricity consumption of about 900,000 houses.

"When the country has invested so much to get ready, to strengthen the grid and prepare for data centre investments, having enough power alone does not make a data centre work.

"What a data centre needs is a reliable, uninterrupted power supply – 24 hours a day, seven days a week, 365 days a year. That is what we are looking at," Lee told delegates at the Engineer & Marvex 2026 preview session yesterday.

He said that when talking about data centres, there is also the issue of heat. In short, if a data centre does not cool down properly, the server racks will stop working.

"So, we need a very good and reliable cooling system with high technology to keep all these racks at the right temperature and make sure our computers and data servers can run at all times.

"We also need the right structure. A data centre is not like an office or a house, which is designed mainly for people. The equipment and the load in a data centre are increasing day by day.

"So, we need a good structural system, fast construction, high fire safety standards and, of course, strong security," Lee said.

Touching on BESS, chief consultant Alex Looi Tink Huey said that in May 2026, Peninsular Malaysia switched on its very first grid-scale battery, which has a capacity of about 100 megawatts or 400 megawatt-hours.

Looi said new data centres require a significant amount of power and that such infrastructure also consumes substantial amounts of water, particularly for cooling.

"So, if we are going to have more and more data centres on our grid and as part of our lifestyle, we need to ensure that this growth is sustainable.

"Climate change is real. The weather is getting hotter every year, and even Malaysia's climate has become increasingly unpredictable. So, we need to introduce more renewable energy. But as we add more and more solar power to our grid – whether rooftop, large-scale on land, or even floating solar – we also have to consider what happens when we have too much of it.

"This is where BESS comes in. If you have excess solar power, you need a way to store it. Solar is an intermittent source of energy, so batteries can help us manage that supply and make better use of renewable energy," he said.

Looi said batteries can supply power rapidly, be activated almost immediately to provide an alternative supply, and help keep the national grid robust and reliable.

"So, this is what we have here. BESS is like a Disneyland for engineers. Because it is designed and built by engineers, for engineers. We walk through the energy path, and you can open the enclosure and see exactly what is inside the energy storage system."

Engineer & Marvex 2026, Malaysia's leading platform for the engineering and HVAC&R (heating, ventilating, air-conditioning and refrigerating) industries, is jointly organised by C.I.S Network Sdn Bhd with The Institution of Engineers, Malaysia for Engineer and the Malaysia Air-Conditioning & Refrigeration Association for Marvex.

The fifth edition will bring together the engineering and HVAC&R ecosystem at the Kuala Lumpur Convention Centre from Sept 22 to 25.