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TNB to boost national grid with major investments



The Malaysian Reserve, Malaysia

The utility company is committed to providing reliable energy for customers while enabling Malaysia's ambitious zero carbon goal by the year 2050

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TENAGA Nasional Berhad (TNB) is committed to supporting Malaysia's Energy Transition goals and is set to invest significantly between 2025 and 2027, an estimated of RM45 billion for the enhancement of the nation's power grid infrastructure for a smooth energy transition towards Net Zero 2050.

As Malaysia's leading utility company prepares for Regulatory Period 4 (RP4) 2025-2027, TNB is actively gearing up itself to support the anticipated growth in the economy and electricity demand.

Throughout RP4, TNB is steadfast in its commitment to delivering reliable energy to customers while advancing Malaysia's ambitious goal of achieving net-zero carbon emissions by 2050.

TNB is leading three key large-scale renewable energy (RE) and clean technology initiatives in the National Energy Transition Roadmap (NETR), namely centralised large-scale solar (LSS) parks, hybrid hydro-floating solar (HHFS), and hydrogen and ammonia co-firing projects.

These initiatives aim to deliver over 3,000MW of RE capacity by 2040, with around 2,500MW from HHFS technology and an additional 500MW from five different LSS parks.

TNB is currently in the implementation stage to develop 2,500MW Hybrid Hydro Floating Solar (HHFS) at TNB hydro dam reservoirs and is expected to commission HHFS up to 1GW capacity at Kenyir Hydro Plant by the end of 2026.

TNB President/CEO Datuk Ir Megat Jalaluddin Megat Hassan said TNB is committed to driving growth and net zero targets with its energy transition plan.

"By focusing on energy sources, energy vectors, and energy usage, we aim to provide clean energy, build transition networks, and promote dynamic solutions," he said in the statement in conjunction with TNB's 34th annual general meeting.

To ensure RP4 remains on course, several investments in the energy system are essential for modernising the infrastructure, improving system reliability, and supporting sustainability goals.

Some of the major investment focus areas under the RP4 programme include grid modernisation; RE integration; connection of new generation capacity to the grid; meeting large demand growth and energy efficiency; customer service enhancements; climate and environmental resilience.

RP4 is also aimed at enhancing the efficiency and reliability of electricity distribution. This includes the deployment of the Advanced Metering Infrastructure (AMI), which equips homes and businesses with smart meters, allowing for real-time energy consumption data availability for efficient

network management and seamless integration of these RE sources.

The integration of smart grid technologies will enhance the monitoring and management of electricity distribution, leading to fewer disruptions and faster restoration of services when issues arise.

This initiative also includes the replacement of outdated equipment, the reinforcement of power lines, and the upgrading of substations.

TNB has been at the forefront of advancing Malaysia's power grid, driven by its ambition to create a 'Grid of the Future' (GoTF). The objective is to enhance the existing grid infrastructure, ensuring it is modernised, efficient and capable of accommodating a greater quantum of variable renewable energy (RE).

In a broader context, RP4 is in line with the ASEAN Power Grid (APG), a multilateral initiative aimed at interconnecting the electricity grids of the 10 ASEAN member states, thereby allowing cross-border electricity trade across the region.

While ASEAN has collectively set a target of achieving 23% RE in the regional energy mix by 2025, Malaysia has set its sights on a more ambitious goal of Net Zero carbon by 2050. Achieving these targets, along with fulfilling international commitments under the Paris Agreement, requires a collaborative approach rather than isolated efforts.

APG has the potential to accelerate the region's transition to clean energy by promoting knowledge-sharing, capaci-

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Malaysia has significant potential for RE sources which can be leveraged for regional power trading and grid stability

ty-building and attracting private sector investment while facilitating the development of infrastructure necessary for cross border transmission of RE.

In addition, the APG collaboration allows Malaysia to benefit from technological advancements and best practices from other member countries, which could drive innovation, improvements and potential to foster economic growth by creating new opportunities for cross border electricity trade.

This benefit offers a brighter future for Malaysian youth especially those from Technical and Vocational Education and Training (TVET) programmes in the national energy sector.

At the regional level, the concept of the ASEAN Power Grid was first introduced in the ASEAN Plan of Action for Energy Cooperation (APAEC) 1999-2004.

Despite limited progress over the past two decades due to regulatory, legal, and technical challenges, the project has seen renewed momentum in recent years, marked by several significant milestones.

Stakeholders now recognise the benefits of the APG extend beyond industrial gains, including the substantial commercial and environmental advantages as well.

Malaysia's substantial potential for renewable energy sources, such as solar and hydro, can be effectively harnessed for regional power trading and enhancing grid stability.

TNB is actively engaged in various regional collaboration initiatives, including the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP) and the signing of Memorandums of Understanding (MOUs) with neighbouring ASEAN member states to explore the future development of interconnection projects between countries.

TNB plays a pivotal role in the development and maintenance of regional connectivity infrastructure, which links Malaysia's power grid with both Thailand and Singapore.

This interconnection link is essential for enhancing power stability and diversifying energy supplies.

In the event of domestic supply shortages or disruptions, this regional interconnection can be leveraged to ensure a more resilient energy system.

TNB is committed to accelerating its investments in grid infrastructure reinforcement to prevent bottlenecks, as seen in mature markets, that could hinder the increase penetration of RE.

Such bottlenecks are evident in developed regions, including the United Kingdom, Europe, and the United States, where grid connection queues for wind and solar projects have reached unprecedented levels, ranging from 50 to 200GW.

To avoid similar challenges in Malaysia's RE adoption, TNB is focused on the early development of green infrastructure.

Last year, TNB's revenue grew by 4.3% to RM53.07 billion due to a 3.8% increase in electricity demand in Peninsular Malaysia and Sabah.

During TNB's 34th annual general meeting in May, TNB chairman Tan Sri Abdul Razak Abdul Majid said the company's ability to meet rising energy needs effectively, along with an RM2.66 billion dividend payout, with 66.6% of the dividend distributed to government-linked investment companies (GLICs), underscores its commitment to shareholder value.

"We are at the forefront of advancing these objectives through pivotal flagship projects outlined in the NETR. These initiatives will increase RE gradually, reinforcing our leadership in sustainable energy solutions," he reportedly said.

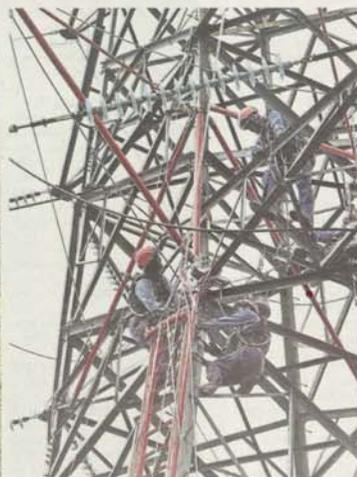
Despite the focus towards the country's ambitious energy transition goals, TNB assured that it remains committed to providing reliable energy for domestic as well as commercial customers through digital channels.

Among these initiatives are through identifying customer "pain" and "gain" points to improve customer engagement with the myTNB app, and the restructured retail arm TNB Retail, which enables businesses to engage better with their customers.

TNB will continue to contribute to Malaysia's socio-economic development while delivering a fair return for shareholders. Its investments enable Malaysia to unlock significant benefits for the national green economy and the Madani economy.



TNB is expected to install HHFS up to 230MW capacity at the Temenggor and Chenderoh hydro plants by 2025



By linking Malaysia's power grid with neighbouring countries, Malaysian consumers can enjoy an enhanced power stability and a diverse source of energy supplies