



PRESS RELEASE

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TNB GENCO, IHI & PETRONAS COLLABORATE IN CO-FIRING TECHNOLOGY FOR CARBON-FREE AMMONIA

- Explore technology of co-firing ammonia at coal power plants in Malaysia
- A stepping stone for TNB Genco's aggressive efforts in search of decarbonisation opportunities

TNB Power Generation Sdn Bhd (TNB Genco), a wholly-owned subsidiary of **Tenaga Nasional Berhad (TNB)** has signed a tripartite Memorandum of Understanding (MoU) with IHI Corporation and PETRONAS Gas + New Energy (PETRONAS) for a feasibility study in low carbon hydrogen and low carbon ammonia supply chain in Malaysia.

The MoU includes a feasibility study on ammonia co-combustion in coal-fired power generation systems as part of initiatives to decarbonise the country's power sector.

The scope of the study covers exploring the technology of co-firing ammonia at coal power plants in Malaysia and evaluating the technology and economics across the entire ammonia supply chain which includes the green ammonia production from renewable energy sources and blue ammonia from natural gas.

The study, which is expected to be completed this month, involves assessment on Carbon Capture & Storage (CCS) technology, blue and green ammonia co-firing in coal-fired power plants.

Ammonia is commonly used as fertiliser and is a chemical raw material with potential to be used as carbon-free fuel. Ammonia co-firing could significantly reduce CO₂ emissions in coal-fired power plants which suppresses nitrogen oxides while stabilising combustion.

TNB Genco Managing Director, Dato' Nor Azman Mufti said, "Low-carbon fuel like ammonia has the potential to reduce our dependency on coal. As TNB is moving towards greener sources of energy under our Sustainability Pathway, the utilisation of ammonia could help in efforts to cut our emissions intensity by 35% and 50% of our coal generation capacity by 2035."

He also said that the MOU would be a stepping stone for TNB Genco's aggressive efforts in search of decarbonisation opportunities in tandem with TNB's Sustainability Pathway and in support of the government's initiative to reach the target of 45% Greenhouse Gas (GHG) intensity reduction in 2030.

The tripartite MoU was signed on 6th October 2021 during the Clean Fuel Ammonia Association Conference. The MoU was signed by Dato' Nor Azman Mufti of TNB Genco; Ide Hiroshi, President and Chief Executive Officer of IHI Corporation and Adlan Ahmad, Head of Hydrogen at PETRONAS Gas + New Energy; and witnessed by Minami Ryo, Director General of Policy Planning and Coordination, Japan's Ministry of Economy, Trade and Industry (METI). METI awarded IHI a grant on the overseas deployment of high-quality infrastructure, which led to the agreement of the study.

The study also includes the assessment on decarbonisation via Carbon Capture and Storage (CCS). CCS technology is a chemical absorption system which captures the CO₂ where the recovered CO₂ will be stored into the underground aquifers, coal seams, and depleted oil and gas field. The source of transportation that can be used to transport CO₂ can be either via pipeline or tanker ships.

The tripartite agreement may lead to IHI providing Malaysia with coal-fired boilers and performing technical and economic assessments in the development of ammonia combustion technology. Meanwhile, PETRONAS will leverage its experience as an international energy producer to support renewable energy and low-carbon hydrogen policy research. TNB Genco which owns 52.79% of Malaysia's power generation market share will support the application of ammonia co-firing technology at its coal-fired power plants.

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TNB Genco Managing Director, Dato' Nor Azman Mufti



Stesen Janakuasa Sultan Azlan Shah (SJSAS) in Manjung, Perak is one of coal-fired power plants owned by TNB Genco. TNB Genco owns 52.79% of Malaysia's power generation market share.