AUTHOR: No author available SECTION: BUSINESS PAGE: A2 PRINTED SIZE: 198.00cm² REGION: KL
MARKET: Malaysia PHOTO: Full Color ASR: MYR 2,700.00 ITEM ID: MY0047285329

24 FEB, 2022

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Borneo Post (Kuching), Malaysia

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KUCHING: TNB Power Generation Sdn Bhd (TNB Genco), a wholly-owned subsidiary of Tenaga Nasional Bhd (TNB) has signed a tripartite Memorandum of Understanding (MoU) with IHI Corporation (IHI) 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 and 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 CO_2 emissions in coalfired power plants which suppresses nitrogen oxides while stabilising combustion.

"Low-carbon fuel like ammonia has the potential to reduce our dependency on coal," TNB Genco managing director Dato' Nor Azman Mufti said.

"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 per cent and 50 per cent 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 per cent Greenhouse Gas (GHG) intensity reduction in 2030.

Datuk Nor Azman Mufti

The tripartite MoU was signed on October 6, 2021 during the Clean Fuel Ammonia Association Conference.

The MoU was signed by Nor Azman, IHI president and chief executive officer Ide Hiroshi and Petronas Gas + New Energy's head of Hydrogen Adlan Ahmad and witnessed by Minami Ryo, director general Policy of 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 CCS.

CCS technology is a chemical absorption system which captures the CO_2 where the recovered CO_2 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 CO_2 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 per cent of Malaysia's power generation market share will support the application of ammonia co-firing technology at its coal-fired power plants.