



PRESS RELEASE

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TNB, PETRONAS AND IHI SUCCESSFULLY CONDUCT MALAYSIA'S FIRST AMMONIA CO-COMBUSTION EXPERIMENT FOR COAL-FIRED POWER GENERATION

- Positive result, in favour with objective towards decarbonisation of the power sector

Tenaga Nasional Berhad's (TNB) wholly-owned subsidiaries, TNB Research Sdn Bhd (TNBR) and TNB Power Generation Sdn Bhd (TNB Genco) together with IHI Power System Malaysia Sdn Bhd (IPSM) and PETRONAS Hydrogen Sdn Bhd (PETRONAS Hydrogen) have successfully conducted an ammonia co-combustion test as part of a joint initiative to decarbonise the country's power sector. The ammonia and coal co-combustion test was recently carried out at TNBR's test rig facility in Kajang, Selangor.

The experiment of ammonia co-firing was successful with Carbon Dioxide (CO₂) and Sulfur Dioxide (SO₂) emissions being reduced in accordance with the co-firing rate. In addition, there was no generic ammonia detected at the exit of the furnace during the experiment. The flame temperature for both cases of coal and co-firing do not vary significantly. The result seems to be in favour of the experiment objective towards decarbonisation, which would be a great opportunity for TNB to move forward in having pilot plants upon obtaining approval from the authorities.

The co-combustion test was led by IPSM, an expert in the development of ammonia combustion technology. PETRONAS Hydrogen's role in the experiment is in supplying ammonia and the associated equipment while TNBR, which owned the test rig facility, supported the experiment through co-combustion execution that includes manpower, utility, and measurement devices. TNB Genco provided 3 types of coal that are currently being used in its existing coal power plant for the experiment.

The main objective of the experiment is to determine the impact of co-firing ammonia as carbon-free fuel together with coal in a coal-fired power generation system. Theoretically, ammonia co-firing could significantly reduce Carbon Dioxide (CO₂) emissions which suppresses nitrogen oxides while stabilising combustion.

The experiment was conducted using three types of commonly used coal in Malaysian coal-fired power plants. The ammonia ratio is increased gradually from 0% up to 60% for each coal type experiment. Besides CO₂ emission, the test is to observe the impact on boilers, flame stability, amount of unburned coal, flue gas properties, sulphur oxide measurement, coal slagging and fouling.

Ammonia and coal co-combustion experiment is part of TNB's initiatives to explore 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.

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TNB Power Generation Sdn Bhd (TNB Genco) Managing Director, Dato' Nor Azman Mufti (front) and TNB Genco Chief Operating Officer, Ir. Roslan Abd Rahman (left) are discussing the experiment and result through co-combustion execution with IHI Power System Malaysia Sdn Bhd (IPSM) Managing Director, Masato Tamura (back) at TNBR's test rig facility in Kajang, Selangor.



TNB Power Generation Sdn Bhd (TNB Genco) Managing Director, Dato' Nor Azman Mufti (front) is reading the result of the ammonia co-combustion test shown by IHI Power System Malaysia Sdn Bhd (IPSM) managing director Masato Tamura (back) at TNBR's test rig facility in Kajang, Selangor.