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## **Comparative Analysis of Hydrogen-Ready Gas Turbines in Peninsular Malaysia and the Techno-economic viability**

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### **Abstract**

As decarbonization shapes the world towards a transition to renewable energy sources, hydrogen viability shows potential as an alternative fuel for power generation in Peninsular Malaysia.

This presentation aims to evaluate the viability of hydrogen-fueled gas turbines for the existing gas plants that are hydrogen ready, and the future potential to introduce combined-cycle hydrogen-fueled gas turbine in the Peninsular Malaysia electricity supply industry.

In effort to ensure the balanced energy mix whilst maintaining the competitive HHI index value, hydrogen is seen as the promising potential fuel for power generation. Hydrogen combustion does not produce carbon emissions. However, as the properties for hydrogen differs from natural gas during combustion, there will be associated cost impact to address the potential safety risks and modifications to enable the gas turbine to burn a blend of natural gas and hydrogen, or 100% hydrogen firing in the future.

In this context, the presentation will aim to evaluate the viability of the hydrogen-fueled gas turbines, by assessment of current research by gas turbine manufactures and industry development. The techno-economic viability will be examined with comparison with natural gas fueled gas turbine, and the technical challenges associated with the use of hydrogen in gas turbine.

The presentation, will also include the current hydrogen roadmap for Peninsular Malaysia, and how the government is supporting the deployment of the hydrogen industry with the regulatory and policy frameworks.

The presentation concludes the feasibility of the hydrogen-fueled gas turbine in Peninsular Malaysia, in view of the nation's goal for net zero carbon emission by 2050.