Joint Press Release

Keppel and ExxonMobil to explore low-carbon ammonia solutions for Singapore

SINGAPORE, 20 April 2023 - Keppel Infrastructure[1] and ExxonMobil Asia Pacific have announced the signing of a Memorandum of Understanding (MOU) to develop access to low-carbon hydrogen and ammonia for scalable commercial and industrial applications in Singapore.

In addition to being a hydrogen carrier and storage medium, ammonia can be used directly as a carbon-free fuel or broken down into carbon-free hydrogen for use in power generation, as well as feedstock for refinery and petrochemical operations.

This MOU follows the Singapore government's launch of its National Hydrogen Strategy in October 2022, which expects hydrogen to meet up to half of Singapore's power needs by 2050. As part of this hydrogen strategy, the Energy Market Authority and the Maritime and Port Authority of Singapore issued an expression of interest in December for proposals to build, own and operate low- or zero-carbon power generation and bunkering facilities on Jurong Island.

Currently, natural gas meets most of Singapore's power generation demand. The Keppel-ExxonMobil collaboration has been formed to address the call to develop competitive solutions that can support Jurong Island's sustainability goals and Singapore's hydrogen strategy.

Keppel is also looking to use low-carbon hydrogen for Singapore's first hydrogen-ready 600 MW advanced combined cycle power plant. The Keppel Sakra Cogen Plan is expected to operate with at least 30% hydrogen and will have the capability of shifting to run entirely on hydrogen. Currently under construction, the plant will be sited on Jurong Island and is expected to be completed in the first half of 2026.

At the same time, given the strong demand for low-carbon electricity in Singapore, Keppel is conducting a feasibility study of developing a power plant that could use ammonia directly as a fuel on Jurong Island. This would complement Keppel's offering as Singapore's leading independent power producer and retailer.

ExxonMobil is advancing its world-scale low-carbon hydrogen facility at its integrated complex in Baytown, Texas, from where ammonia will be produced[2]. The low-carbon hydrogen, ammonia and carbon capture facility is expected to produce 1 billion cubic feet of low-carbon hydrogen per day, making it the largest low-carbon hydrogen project in the world at planned startup in 2027-2028. More than 98% of the associated CO2 produced by the facility, or around 7 million metric tons per year, is expected to be captured and permanently stored.

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[1] Through a wholly owned subsidiary

[2] A final investment decision for the project is expected by 2024, subject to stakeholder support, regulatory permitting, and market conditions

Cindy Lim, CEO of Keppel Infrastructure, said, "Deep decarbonisation of power generation and major industries is a key impetus for countries seeking pathways to net zero emissions. Globally, clean hydrogen is one of the most effective decarbonisation strategies, especially for hard-to-abate sectors, like maritime and petrochemical. As a forerunner in the energy space, Keppel is pleased to work with ExxonMobil to accelerate the end-to-end development and deployment of ammonia to support industries and Singapore's sustainability goals."

ExxonMobil's Asia Pacific President for Low Carbon Solutions, Irtiza Sayyed, said: "ExxonMobil is pleased to work with Keppel to evaluate low-carbon solutions as part of our goal to reduce our emissions and help others reduce theirs. This is an example of how we can provide critical, scalable solutions to reduce CO2 emissions in support of our company's and Singapore's net-zero ambitions."

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About Keppel Infrastructure

Keppel Infrastructure (KI) is the infrastructure arm of Keppel Corporation, a global asset manager and operator with strong expertise in sustainability-related solutions spanning the areas of energy & environment, urban development and connectivity.

KI provides solutions for some of the world's most pressing challenges through its power & gas, environment and new energy businesses by leveraging its proprietary technology, strong technical expertise and proven operating capabilities.

KI has a track record of developing energy and environmental infrastructure end-to-end, including power generation assets, waste-to-energy (WTE) facilities, large-scale district cooling systems, as well as NEWater and desalination plants. In Singapore, it operates a 1,300-megawatt high efficiency gas-fired combined cycle power plant and a utility pipe rack and pipeline network in Jurong Island. It is also Singapore's leading electricity retailer, and the first and largest district cooling systems developer and service provider. Globally, through Keppel Seghers, it is one of the leading WTE technology providers with more than 100 project references in 20 countries.

KI is expanding its presence, in Singapore and overseas, in areas such as power generation, waste management, district cooling, renewables and energy storage, electric vehicle charging infrastructure and other clean energy opportunities.

For more information, please visit www.kepinfra.com

About ExxonMobil

ExxonMobil, one of the largest publicly traded international energy and petrochemical companies, creates solutions that improve quality of life and meet society's evolving needs. The corporation's primary businesses - Upstream, Product Solutions and Low Carbon Solutions - provide products that enable modern life, including energy, chemicals, lubricants, and lower-emissions technologies. ExxonMobil holds an industry-leading portfolio of resources, and is one of the largest integrated fuels, lubricants and chemical companies in the world.

ExxonMobil is one of Singapore's largest foreign manufacturing investors with over S$25 billion in fixed asset investments. Our Singapore affiliate, ExxonMobil Asia Pacific Pte Ltd (EMAPPL), has manufacturing facilities which include an integrated world-scale refining and petrochemical complex in Jurong and Jurong Island. EMAPPL has a network of service stations under the Esso brand, operates a lubricant plant and is a supplier of cylinder cooking gas. It serves its customers and commercial markets in the region with industrial, aviation and marine fuels, lubricants, petrochemicals and liquefied natural gas.

For more information, visit www.exxonmobil.com.sg or follow us on Instagram.

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