EMBARGOED TILL AFTER DELIVERY OF SIEW OPENING REMARKS BY MR CHAN CHUN SING, MINISTER FOR TRADE AND INDUSTRY, ON 26 OCTOBER 2020, AT 9.30AM

MEDIA RELEASE

26 October 2020

Singapore's First Floating Energy Storage System

The Energy Market Authority (EMA) and Keppel Offshore & Marine (Keppel O&M) have jointly awarded a research grant to pilot Singapore's first floating Energy Storage System (ESS). This project was awarded to a consortium led by Envision Digital International Pte Ltd (Envision Digital). This is part of the $10 million partnership between EMA and Keppel O&M to develop innovative energy solutions in the marine sector announced earlier in April this year.

2 Keppel O&M will be working with the consortium to deploy a 7.5 MW/7.5MWh lithium-ion battery ESS on Keppel O&M's Floating Living Lab (FLL). This will be Singapore's largest ESS deployment to date, with sufficient capacity to power more than 600 4-room HDB flats a day. As Singapore's hot and humid environment can affect the performance of the ESS, the testbed will use an innovative liquid-cooling solution that utilises seawater to cool the battery cells and enhance the lifecycle of the ESS.

3 The ESS will also explore the first-of-its-kind battery stacking solution in Singapore. This could potentially reduce the footprint required for deployment by up to 40%. Findings from the project are expected to be applied to ESS on mainland Singapore. This would help support power grid stability and resilience, and facilitate the adoption of more renewable energy such as solar.

4 EMA's Chief Executive, Mr Ngiam Shih Chun, said: "Energy storage and smart energy management systems support the deployment of more renewable energy in Singapore. This project will pave the way to overcome our land constraints, and set the blueprint for similar deployments in the future. We hope to continue co-creating more of such energy solutions with the industry as we work towards a more sustainable energy future for Singapore."

5 The ESS will also be integrated with a Smart Energy Management System (SEMS) on the FLL to enhance its operational efficiency. Supported by artificial intelligence and machine learning algorithms, the SEMS will optimise the efficiency of

operations and reduce overall energy usage. The project is expected to be completed in 2023. More details of the project can be found in the Annex.

6 Mr Chris Ong, Chief Executive Officer of Keppel O&M, said: “We are proud to work with the consortium led by Envision Digital to pilot the first floating ESS on our FLL. Besides supporting Singapore’s energy needs, the developed solution will have multiple applications such as supporting areas with intermittent power supply, and rapid deployment to provide emergency power for places or remote islands affected by power disruptions. It can also be deployed on hybrid or fully electric vessels to significantly reduce carbon emissions. In line with Keppel’s Vision 2030, we are committed to the development of clean, efficient and cost-effective solutions that contributes to sustainable urbanisation."

7 With the aim of encouraging greater adoption of cleaner energy, the $10 million partnership forged between EMA and Keppel O&M highlights the co-creation efforts from the government and industry to spur innovative energy solutions and build capabilities in the wider industry ecosystem.

ANNEX: Details of Project

- END -

About the Energy Market Authority

The Energy Market Authority (EMA) is a statutory board under the Ministry of Trade and Industry. Our main goals are to ensure a reliable and secure energy supply, promote effective competition in the energy market and develop a dynamic energy sector in Singapore. Through our work, EMA seeks to forge a progressive energy landscape for sustained growth.

Website: www.ema.gov.sg | Follow us: Instagram: @EMA_Singapore | Facebook: facebook.com/EnergyMarketAuthority | Twitter: @EMA_Sg

About the Keppel Offshore & Marine

Keppel Offshore & Marine (Keppel O&M) is a world leader in providing total solutions to the offshore, marine and energy industries. Bolstered by a global network of yards and offices, it has extensive know-how across a wide range of capabilities – design & engineering, new builds, conversions & repairs, and support services

A pioneer in offshore solutions, Keppel O&M has a strong track record in designing and building high-performance offshore drilling rigs, production platforms and specialised ships. It is a trusted partner in the conversion, repair and modification of diverse and complex rigs and vessels, and is also a developer of integrated solutions for the offshore renewable and infrastructure industries.

Backed by robust operational excellence, Keppel O&M innovates and leverages new technologies to deliver projects on time, on budget, safely, reliably, and to the highest quality. For more information, visit www.keppelom.com.

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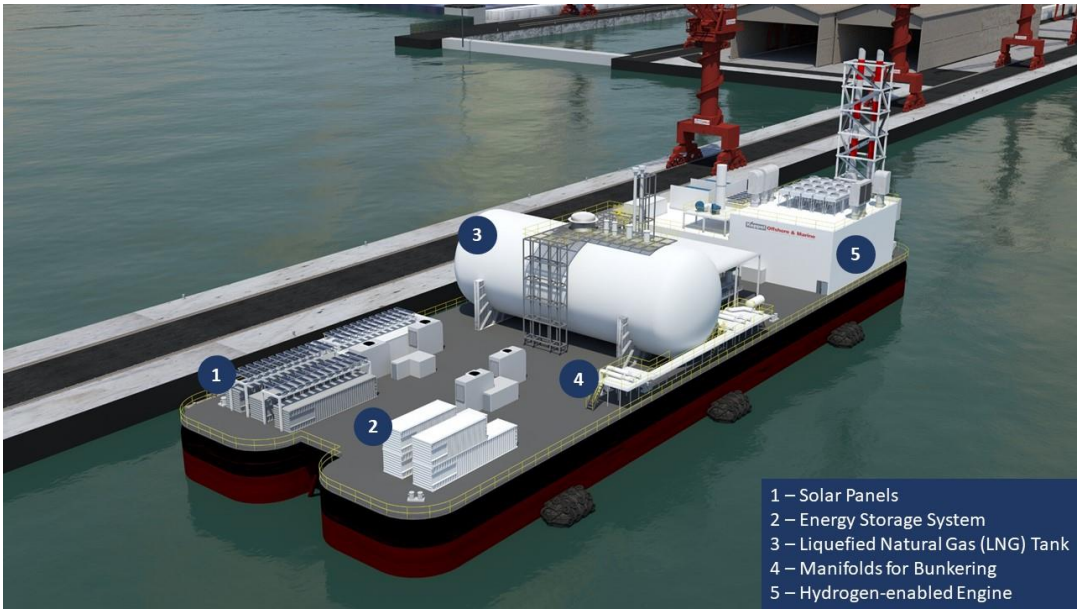
ANNEX

DETAILS OF PROJECT



Artist Impression of Keppel O&M's Floating Living Lab, the first such offshore floating testbed in Singapore

Title	Description	Project Team
Marinised AIoT-Enabled Energy Storage System (ESS) and Digital Solution for Carbon Neutral Shipyard	**Current situation**: There is an increasing need to explore floating energy solutions as a strategic alternative to overcome land constraints. There is also an imperative to improve energy efficiency and lower the carbon footprint of Singapore's shipyards, as part of Singapore's climate change commitments. **Aim**: • To develop an ESS solution that is customised for the marine and offshore sector; and • To integrate the solution with a smart energy management system to optimise energy efficiency in marine and offshore operations. If successful, the developed floating solution can be implemented in other shipyards across Singapore and replicated on the mainland, providing strategic alternatives in our energy landscape.	Principal Investigator: Envision Digital International Pte. Ltd. Co-Investigators: • Mirai Electronics Pte. Ltd. • Fuji Bridex Pte. Ltd. • National University of Singapore • Institute of Infocomm Research (I^2R) at the Agency for Science, Technology and Research (A*STAR)