

Factsheet on Floating Living Lab



The Floating Living Lab will have onboard:

- Liquefied Natural Gas (LNG) bunkering facilities for harbour crafts and small vessels. Supported by FueLNG, a licensed LNG bunker supplier in Singapore and Keppel O&M's joint venture with Shell Eastern Petroleum, the FLL will also be able to refuel LNG to FueLNG's bunker vessel;
- Pressurised LNG tanks (IMO Type C) and cargo handling system suitable for simultaneous bunkering and power generation;
- A smart grid and power generation that includes LNG, Solar Photovoltaic and Energy Storage Systems (ESS) such as batteries;
- A Digitalised Energy Management application leveraging Keppel O&M's proprietary IIoT (Industrial Internet of Things) platform, AssetCare, to enable machine learning on energy output optimisation as well as predictive analytics for efficiency and reliability; and
- A dedicated area where Keppel can work with the wider eco-system to testbed and demonstrate innovative technologies in the marine and floating power space, such as biofuels, hydrogen or electrification solutions for harbour vessels.

2. Keppel O&M's FLL will be located off its shipyard and will be able to generate electricity from LNG and other energy sources to meet the needs of its yard in Singapore, with excess electricity to be exported to the national power grid.

3. It will also be able to harness synergies across the Keppel Group, whether through the test bedding of new technologies from across Keppel Group's business units such as IoT-enabled energy storage devices or utilising the power solutions on floating data centres and infrastructures. The FLL will be able to leverage Keppel's smart yard low latency connectivity infrastructure powered by M1 in the digitalisation of the smart grid.

4. The FLL will serve as a proof-of-concept for Keppel's proprietary small-scale LNG to power solution which is more economical and sustainable compared to diesel fuelled power generators. It can be used to meet power demands in areas with limited power infrastructure as well as provide secure power in the event of natural catastrophes.

5. The small-scale LNG market is expected to serve up to 100m tonnes of LNG by 2030, for both the power and marine markets, according to a recent report by APEC Energy Working Group September 2019. Global market revenue for virtual power plants is expected to expand by more than 48% per annum between 2018 and 2028, according to Navigant Research. The FLL can function as a distributed energy solution for this trend of consumers, reducing costs and generating extra revenue.