

OFFSHORE MARINE

A newsletter of Keppel Offshore & Marine

Issue 1 / 2020

MCI (P) 073/01/2019



HARNESSING SYNERGIES

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CENTRESPREAD

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Keppel Offshore & Marine's Board Safety Committee members and senior management were briefed on safety measures at a safety visit to the Gimi FLNG project.

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Keppel Offshore & Marine is a subsidiary of Keppel Corporation



Keppel O&M secured approximately \$720 million worth of offshore wind contracts from Tennet and Ørsted in 2019

Pursuing opportunities

Mr Loh Chin Hua, CEO of Keppel Corporation and Chairman of Keppel Offshore & Marine (Keppel O&M) outlined the Group's performance and strategic developments at the Company's 4Q & FY 2019 results webcast and briefing to media and analysts on 23 January 2020. Below are extracts from his speech.

During the year, Keppel O&M remained focused on execution, delivering 13 newbuild and conversion projects. In addition, Keppel O&M started 2020 with the delivery of the fifth out of 11 jackup rigs that it is building for Borr Drilling.

On the back of our increased topline, cost management efforts and lower impairment provisions, our O&M Division achieved a net profit of \$10 million, a significant improvement over the loss of \$109 million in FY 2018. This is the first time our O&M Division has returned to profitability since FY 2016. The operating profit in FY 2019 was \$76 million before revaluations, major impairments and divestments (RIDs), more than double the \$37 million for FY 2018.

Our new order wins for 2019 were

in excess of \$2.0 billion, up 18% compared to 2018. Keppel O&M's diversification strategy has borne fruit, with gas and renewables making up over 60% of these new orders.

During the year, we also secured over 100 scrubber and ballast water treatment system retrofit projects, as shipowners sought to meet the IMO 2020 requirements on the sulphur content of marine fuel, as well as the standards set out by the Ballast Water Management Convention.

Our net orderbook stood at \$4.4 billion as at end-2019. To manage the increased workload, Keppel O&M hired 2,800 additional direct employees over the course of 2019, more than we had initially anticipated, and we expect to increase our headcount by a further 1,500 in 2020. With Keppel O&M having returned to profitability, our goal for 2020 is to further enhance the performance of our O&M business.

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IN CONVERSATION

OffshoreMarine reproduces highlights of management's responses to questions from the media and investment community at the Company's 4Q & FY 2019 results webcast.

Q: The O&M Division made a loss in 4Q 2019. What drove the losses? Are you still confident of a sustained recovery, given the weaker orders in 4Q 2019?

CHC: The loss for 4Q 2019 was because of the share of losses in associate companies, in particular, Floatel had to do an impairment exercise on its vessels. As a result, Keppel O&M had to take its share of the impairment losses. The underlying business of Keppel O&M at the operating level is profitable.

CO: For the whole of 2019, the amount of order wins was slightly above \$2 billion, which is 18% higher than the previous year. Although the offshore & marine market is still challenged, our diversification has got us a wider portfolio of projects. We will continue to chase value-add projects in 2020 and continue on the growth trajectory.

Q: I have a few questions on offshore and marine. Could you help us understand the intent to

improve the headcount by another 1,500 even though orderbooks have been quite sluggish. Is this just based on work that you expect to complete based on your current orderbook, or in anticipation of something that you might secure?

LCH: The planned increase in workforce is due to the anticipated increase in workload. You can see that we have been steadily building up our net orderbook. We expect that in the next few years, we will be

Keppel O&M's yards have been focussed on execution, optimising its operations and harnessing synergies to manage the increased workload from its new orders



executing the net orderbook. This is actually based on the workload that we currently have. We have high hopes. We hope that there will be even stronger orders this year. KOM is now working on quite a number of enquiries.

Q: Is the pipeline of O&M tenders/ enquiries stronger this year vs. last year?

CO: What we can see is that there is a strong pipeline of enquiries in place compared to last year or two years back. We are seeing a

stronger pipeline of enquiries. But it's also sector dependent. It depends on FID timing and different projects coming online, but we are actively engaged in all of them.

Maybe we can share with you on some of the areas that we are actually looking at in terms of the offshore renewables business. From adjacency and capability in design, construction and procurement, we are able to reach out to customers in areas of offshore renewable energy and

offshore wind market. We are able to do the support, installation and also all the substation-type of construction and design – so we are going full force out in the market to make sure that we are able to reach out to the potential customers.

LCH – Mr Loh Chin Hua,
CEO of Keppel Corporation

CHC – Mr Chan Hon Chew,
CFO of Keppel Corporation

CO – Mr Chris Ong,
CEO of Keppel Offshore & Marine

Tapping renewable energy

Keppel Offshore & Marine (Keppel O&M) is committed to incorporating environmentally responsible practices that contribute to efficient and sustainable operations.

Over 21,000 units of solar panels have been installed in Keppel O&M's yards in Singapore, which effectively reduces carbon footprint by about 4,100 tCO₂ per year.

Since 1 January 2020, renewable energy certificates which are generated from these solar panels have been purchased by Keppel Land through its electricity retailer Keppel Electric for Keppel Bay Tower. Combined with clean energy from the installation of solar panels

at Keppel Bay Tower, this will result in a reduction of over 2,400 tonnes of carbon emissions per annum, an amount which would otherwise require about 12,000 trees to absorb over around 50 years.

This has contributed to Keppel Bay Tower being the first commercial development in Singapore to utilise renewable energy to power all its operations, as well as the offices of tenants in the building.



Solar panels laid out at Keppel O&M's yard

Trusted partner



Keppel O&M delivered its first rig of 2020, Heimdal, on 15 January 2020

Keppel Offshore & Marine (Keppel O&M) works closely with customers to ensure every project is completed to their highest satisfaction. In the last few months, the company extended its track record with the reliable

delivery of several newbuild and upgrade projects.

Mr Tan Leong Peng, MD (Newbuilds) of Keppel O&M, said, "With our strong track record in design, engineering

and execution, Keppel O&M is committed to providing value added solutions for our customers."

B CLASS JACKUP RIGS

On 12 December 2019, Keppel O&M delivered the state-of-the-art KFELS B Class jackup rig, Cantarell III, to a wholly-owned subsidiary of Grupo R with a perfect safety record. As part of the deal, Grupo R has entered into a sale and leaseback arrangement for the rig with a wholly-owned subsidiary of Keppel O&M.

Cantarell III will be leased back to Grupo R on a bareboat charter at competitive day rates over ten years, and will be deployed to work in offshore Mexico on a charter which will commence in 1Q 2020.

Under the bareboat charter, Grupo R has the right to purchase the rig at pre-agreed prices during the term of the bareboat charter. After the fifth year, Keppel O&M may, at its discretion, put the rig to Grupo R at a pre-agreed price.

Cantarell III is equipped with Keppel's proprietary RigCare Solution – a suite of digital services to support the rig's lifecycle needs, significantly increasing uptime and safety while reducing maintenance costs. Together with the Cantarell IV jackup rig, which was delivered by Keppel to Grupo R earlier this year, they are the industry's first drilling rigs with Smart Notations. Cantarell IV has been performing well in the Xikin field for Pemex

and it has been able to utilise its RigCare features to further improve its operations.

Separately on 15 January 2020, Keppel O&M delivered another KFELS B Class jackup rig to Borr Drilling. Heimdal, the fifth of 11 jackup rigs that Keppel is building for Borr Drilling, was delivered safely, on time, and on budget. Following this delivery, Borr Drilling will have eight KFELS B Class rigs in their fleet.

With a market share of about a quarter of all jackup rigs delivered since 2000, the KFELS B Class is the workhorse of the industry and continues to be the preferred rig solution for shallow water exploration.

SEMISUBMERSIBLE

On 31 December 2019, the Victory class semisubmersible oil rig Ocean Onyx was redelivered to Diamond Offshore. The oil rig is contracted to drill in Otway, Victoria, South Australia, for Beach Energy for a period of two years.

Keppel O&M performed major upgrades on the rig in this turnkey project, undertaking the complex



The redelivery of Ocean Onyx was expedited by Keppel O&M and completed on time, on budget and with zero lost-time incidents

global and detailed engineering, augmenting the hull and main deck, enhancing multiple critical systems, and safety compliance to requirements of the regulatory body, National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). As a result of the upgrades, the lifespan of the rig was extended by 20 years.

The project was carried out with a perfect safety record, incurring zero lost-time incident over more than 2 million manhours of work.

It was also completed on time and within budget. In recognition of these achievements, a performance and safety bonus was awarded by Diamond Offshore to Keppel O&M.

Keppel O&M's long-standing relationship and familiarity with Diamond Offshore facilitated timely engagement from the beginning, subsequently leading to the seamless execution.

Ocean Onyx was first upgraded in 2012 by Keppel O&M in Brownsville.

Continues on page 8...

Keppel O&M delivered its fourth dredger, Sanderus, safely and with zero lost-time incidents



Continued from page 7.

Both Keppel O&M and Diamond Offshore have collaborated on more than 12 major projects since 2005.

LOW EMISSION DREDGER

Further extending its track record in the non-oil and gas segment, Keppel O&M on 17 December 2019 delivered its fourth Trailing Suction Hopper Dredger (TSHD) to the Jan De Nul Group safely and with zero lost-time incidents.

The delivery of 6000m³ Ultra-Low Emission vessel (ULEv) Sanderus follows the delivery of three 3500m³ TSHDs earlier in 2019, all ULEVs and the world's first

European Union Stage V dredgers.

Keppel O&M is also currently building Ortelius, a 6000m³ dredger which is identical to the Sanderus, for Jan De Nul Group.

Sanderus is fitted with a two-stage filtering technique for exhaust gases. It complies with the EU Stage V and International Maritime Organisation's (IMO) Tier III regulations.

Mr Robby De Backer, Director of Newbuilding Department of Jan De Nul Group, said, "Like all our new dredgers, Sanderus is equipped

with a state-of-the-art exhaust gas treatment system that extracts up to 99% of the nanoparticles from exhaust gases. It will enable dredging at the lowest levels of emissions to date. In partnering with industry leader Keppel, we have been assured of excellent service, engineering expertise and reliability in receiving a high quality product safely, on time and on budget."

Upon delivery, Sanderus sailed immediately to Belgium for maintenance dredging works on the river Scheldt and alongside the coast.

Strengthening industry ties

On 3 February 2020, the Rio de Janeiro State Government delegation led by Mr. Bernardo Sarreta, Undersecretary of Oil, Gas and Energy, visited Keppel Offshore & Marine's BrasFELS shipyard in Brazil. As the most established offshore and marine facility in the Latin American region, BrasFELS has been an important contributor to the oil and gas development in Brazil.

The delegation was warmly welcomed by the senior management of BrasFELS including President, Mr Herman Effendy and Keppel FELS Brasil's Commercial Director, Mr Gilberto Israel.

Following a tour of the shipyard,



The Rio de Janeiro State Government delegation, led by Mr. Bernardo Sarreta (6th from left), Undersecretary of Oil, Gas and Energy, visited the BrasFELS shipyard

the parties discussed the capabilities of the shipyard and opportunities in the oil and gas sector. The shipyard visits are part

of a State Government programme aimed to revitalise the Naval industry after an economic crisis that hit the Rio de Janeiro State.



FPSO Abigail-Joseph, the world's fastest brownfield FPSO modification and upgrading project, was delivered by Keppel O&M safely and on time

Fast-tracked delivery

Testament to its engineering expertise, Keppel Offshore & Marine (Keppel O&M) on 26 February 2020 delivered the world's fastest brownfield Floating Production Storage and Offloading vessel (FPSO) modification and upgrading project safely and on time.

Named FPSO Abigail-Joseph, the vessel was delivered to Yinson Nepeta Production Ltd (Yinson), a wholly-owned subsidiary of Yinson Holdings Berhad.

Mr Chris Ong, CEO of Keppel O&M said, "This is our 134th floating production vessel, and we are pleased to be able to fast-track the project and upgrade it in under seven months. This achievement reflects Keppel's track record of reliability and quality, anchored in our strong engineering and project

management capabilities, which enable us to offer value adding solutions for customers."

Keppel's scope in this project includes refurbishment and life extension work, engineering and procurement, fabrication and installation of new structures including the helideck and riser balcony, as well as the installation, integration and completion of topside modules.

Mr Lim Chern Yuan, Group CEO of Yinson Holdings, added, "This is our third FPSO conversion project with Keppel since 2012, and our close partnership has grown from strength to strength. Leveraging our FPSO expertise and Keppel's experience in vessel conversions, we are able to achieve this significant industry milestone and bring FPSO Abigail-Joseph

to market quickly, maximising its operational uptime."

Chartered by First Exploration and Petroleum Development Company Ltd (FIRST E&P) on a firm seven-year contract with options to extend, FPSO Abigail-Joseph will be deployed in Block OML 83/85 in the Anyala-Madu field, Niger State, Nigeria.

FPSO Abigail-Joseph has a processing capacity of 50,000 barrels of oil per day (bopd) and 60,000 barrels of liquid per day (blpd). It also has a gas compression capacity of 34 million standard cubic feet per day (mmscfd) and a storage capacity of not less than 550,000 barrels of oil. It is designed for 15 years of operations without dry docking.

Combating the coronavirus

Since the novel coronavirus (COVID-19) was first detected and made public in January 2020, Keppel Offshore & Marine (Keppel O&M) has been quick to implement its Pandemic Response Plan across all its business units, including Singapore and China. When Singapore increased the DORSCON (Disease Outbreak Response System Condition) level from Yellow to Orange on 7 February, Keppel O&M correspondingly stepped up measures across all its yards.

These include:

- Setting up temperature screening stations at all check points including dormitories
- Increased frequency of cleaning, sanitization and disinfection of premises
- Split team arrangements to work from alternate sites
- Distribution of thermometers for employees to measure their temperature twice a day
- Placing employees returning from affected countries on a 14 day stay home notice
- Visitors to the yard will have to fill up a travel declaration and have their temperature taken
- Activate public health response measures such as social distancing in offices and yards and postponing large scale gathering events
- Increase awareness of COVID-19 symptoms and reinforce good personal hygiene habits
- Leverage Keppel O&M's global network of companies to source



Keppel O&M's premises have implemented various measures including temperature screening, and travel declarations for all personnel, including contractors, employees and visitors

for medical supplies for business units in countries facing shortages

- Conduct tabletop exercises to handle suspected or confirmed cases in our premises including necessary disinfecting and close contact tracing

Keppel O&M's operations in China have also adopted similar measures according to the local operating environment and government guidelines. These measures are not new to Keppel O&M as it has been holding pandemic exercises over the years as part of business continuity plans to minimise disruptions.

In a message to employees, Mr Chris Ong, CEO of Keppel O&M said, "The safety of our employees

remains the key concern as we prepare for this virus outbreak that could be for the long haul. As the situation continues to evolve rapidly with new information emerging daily, our plans will need to be adjusted accordingly. I am proud and inspired by your positive spirit in facing up to this challenge in your work, especially our frontline staff. With your commitment and teamwork, I am confident that we can overcome this challenge before us."

In addition to safety and hygiene, Keppel O&M has also put in place measures to mitigate the impact to its operations such as having a multi-pronged supply chain and is engaging its suppliers regularly as it continues to assess the evolving situation.

3D-printing ready

To maintain its competitive edge, Keppel Offshore & Marine (Keppel O&M) invests in new technologies such as additive manufacturing (AM) that have the potential to increase productivity and efficiency.

In January 2020, Keppel O&M in partnership with Nanyang Technological University, Singapore (NTU Singapore) and the A*STAR (Agency for Science, Technology and Research) Singapore Institute of Manufacturing Technology (SIMTech) was awarded the Lloyd's Register (LR) Certification for its Laser Aided Additive Manufacturing (LAAM) system to produce offshore grade steel.

This certification conforms to the American Society of Testing

and Materials (ASTM) A131 requirements following an audit and successful mechanical testing.

Mr Aziz Merchant, Executive Director, Keppel Marine & Deepwater Technology, said: "This certification is the first step for us to produce high-value components essential to the offshore and marine structures. AM or 3D printing as it is more commonly known will speed up production times which in turn can help bring projects to completion much quicker."

"We are pleased to work with NTU and SIMTech since 2016 on developing AM technology, and the LR certification shows that the components we produce using this method are safe and fit

for purpose – something that is paramount to our business."

Besides reducing project lead times, 3D printing can also alleviate resource constraints, reduce the carbon footprint associated with manufacturing and provide long-term cost savings.

As part of this certification, NTU researchers conducted rigorous tests on over 50 specimens of 3D-printed offshore grade steel, checking them on their material yield, tensile, elongation, fatigue and toughness properties. Coupled with an optimised 3D printing process, the material properties of the steel were found to have high standards that exceeded ASTM requirements.



The additive manufacturing technology would enable Keppel to print high-value components for offshore products with significantly faster production times and more economically

Taking stock and looking ahead in 2020

In welcoming the new year 2020, Mr Loh Chin Hua, CEO of Keppel Corporation and Chairman of Keppel Offshore & Marine (Keppel O&M), as well as Mr Chris Ong, CEO of Keppel O&M, took stock of the progress in the last year and rallied Keppelites from around the world to continue to strive for greater heights.

In his new year message to Keppelites across the Keppel Group, Mr Loh provided a broad overview of the Keppel Group's progress towards Vision 2020, which was adopted in 2014 to focus the company's strategy and transformation.

"Our goal is to make Keppel a more resilient, sustainable and purposeful company, one which can outlast all of us. Over the past few years, despite a challenging macro-environment, we have made significant progress towards our vision."

Highlighting the importance of collaboration, he shared, "We are pushing for more collaboration as OneKeppel and harnessing of synergies across the group to ensure that the whole is greater than the sum of its parts.

"In 2018, we rallied the group behind a common mission to provide solutions for sustainable urbanisation. Today, we see increasing examples of collaboration among Keppel BUs

in pursuit of our common purpose, such as between Keppel Data Centres, Keppel Infrastructure and Keppel O&M to develop energy efficient floating data centre parks, and between Keppel O&M and M1 to testbed maritime autonomous surface ships."

Mr Loh also emphasised the Keppel Group's commitment to sustainability. "Sustainability will be a key consideration in our investment decisions. This pivot towards renewables and gas can already be seen in Keppel O&M's strategy, with renewables and LNG-related solutions making up close to 60% of new orders secured in 2019. We should put our considerable engineering prowess and capabilities as a solution provider to work on climate change, one of the biggest challenges confronting our planet. In the process, we will also create new business opportunities."

Addressing employees across Keppel O&M in his new year message, Mr Chris Ong, CEO of Keppel O&M, called on Keppelites to be proactive rather than reactive in developing solutions for market while continuing to execute projects well, improving on productivity and keeping costs low.

"We have innovated a suite of smart proprietary solutions and

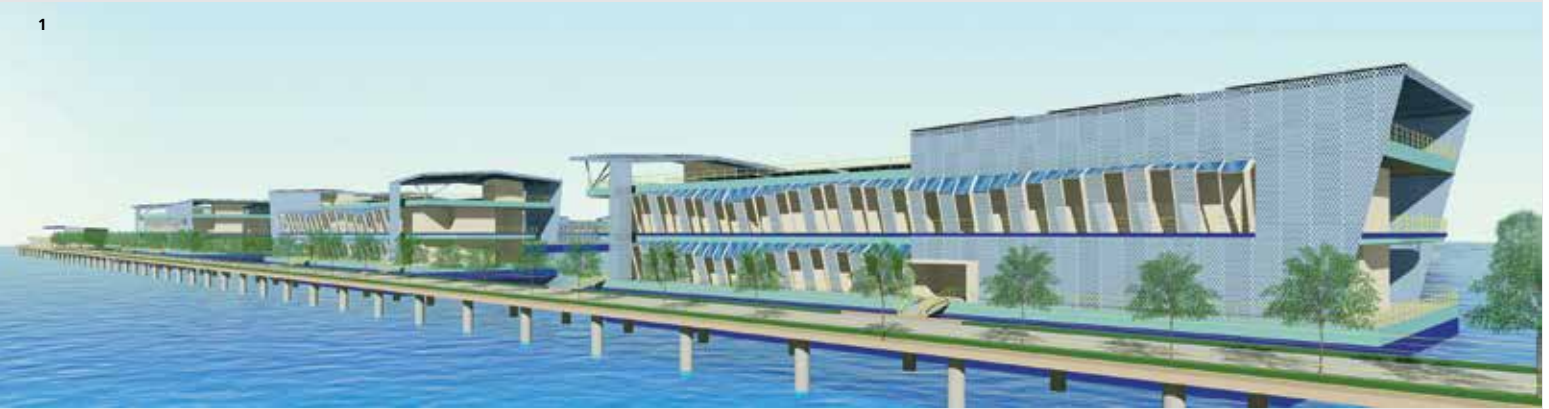
product offerings under Keppel O&M's AssetCare solutions that support our assets' lifecycle needs and significantly enhance their efficiency, safety and operability. We are very proud of the team for demonstrating offshore digital leadership by delivering the industry's first two drilling rigs with Smart Notations during the year and the recognition accorded by ABS as the first shipyard integrating smart functions and services into rigs," he elaborated.

The company is exploring ways to re-purpose its proprietary technology and "will continue to invest in research and development, build new capabilities and competencies so as to create new possibilities for the future," he added.

He praised the efforts by Keppelites and the training required to take Keppel O&M to the next level. "Each and every one of you will be developed to your full potential in the domains of your interest. In 2019, we accomplished over 368,000 training hours for our employees across the globe. Recognising the rapidly growing share of gas and renewables in the future energy mix, we have also geared our training to build competencies in these domains."

"A strong testament of Keppel O&M's safety culture is

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1. Keppel Infrastructure and Keppel O&M are collaborating to develop energy efficient floating data centre parks
2. The Cantarell IV is the first rig equipped with Keppel's proprietary RigCare solution which features smart sensors and digital twin-based analytics
3. Renewables and LNG-related solutions made up close to 60% of Keppel O&M's new orders secured in 2019

the recognition at the annual Workplace Safety and Health (WSH) Awards organised by the Ministry of Manpower (MOM) Singapore for the numerous and highest number of awards won by a single organisation consecutively in 2018 and 2019. Whilst we celebrate that recognition, we must continue our steadfast journey in safety. We must make

certain that all Keppelites return home from work safely to our families at the end of each day."

Mr Ong also emphasised the importance of compliance and recognised the efforts of Keppelites in Keppel O&M's achievement of the ISO 37001 certification for its global operations.

In summary, Mr Ong called on Keppelites to continue to do good, as they do well. "In 2019, Keppel O&M contributed more than 4,000 volunteering hours globally, spanning across activities such as spring-cleaning for the elderly, blood donation drives as well as beach clean-ups," he shared.

Quality in execution

With a strong foundation in engineering and extensive project management experience, Keppel Offshore & Marine (Keppel O&M) ensures quality at every stage of the project. In the past quarter, it marked significant milestones for a range of vessels.

SEMISUBMERSIBLE

Keppel O&M commenced construction of the second midwater harsh environment drilling semisubmersible unit for Awilco Drilling with the strike steel ceremony held on 1 November 2019. Similar to the first rig, it is specially designed, configured and outfitted for water depths up to 1,500m and able to work in the harshest environments of North West Europe, including the Barents Sea.

When completed in 2022, the drilling rig will have a low environmental footprint and be able to operate in harsh environments, including the Norwegian Continental Shelf, the UK Continental shelf and the Barents Sea.

Keppel O&M has a strong track record of having delivered 25 semisubmersible rigs since 2000.

DREDGER

In the same month, Keppel O&M commenced construction of the second high-specification Trailing Suction Hopper Dredger (TSHD) for Van Oord. The strike steel ceremony was held on 6 November 2019. The 10,500m³



The strike steel ceremony for the midwater harsh environment drilling semisubmersible was attended by representatives from Awilco and Keppel O&M

dredger is scheduled for delivery in 2021 and will be equipped with dual-fuel systems capable of running on LNG.

TSHDs are mainly used for dredging loose and soft soils such as sand, gravel, silt or clay. The dredged material can be deposited on the seabed through bottom doors or discharged through a floating pipeline to shore and used for land reclamation.

LNG BUNKERING VESSEL

Construction of the ice-class LNG bunkering vessel for Shturman Koshelev LLC is on schedule and the project marked the laying of the keel on 17 December 2019. To be built to a proprietary design of Keppel O&M's ship

design and development arm, Marine Technology Development, the vessel will operate in the Baltic Sea when completed in end 2020.

This project leverages Keppel O&M's strong track record in ice-class vessels, experience in cryogenics, and comprehensive suite of solutions along the gas value chain.

Keppel O&M has delivered 11 ice-class vessels to-date and is currently building LNG-fuelled vessels including Singapore's first LNG bunkering vessel.

FPSO

On 7 February 2020, the Liza Unity Floating Production Storage and Offloading vessel (FPSO) made its maiden dry docking at

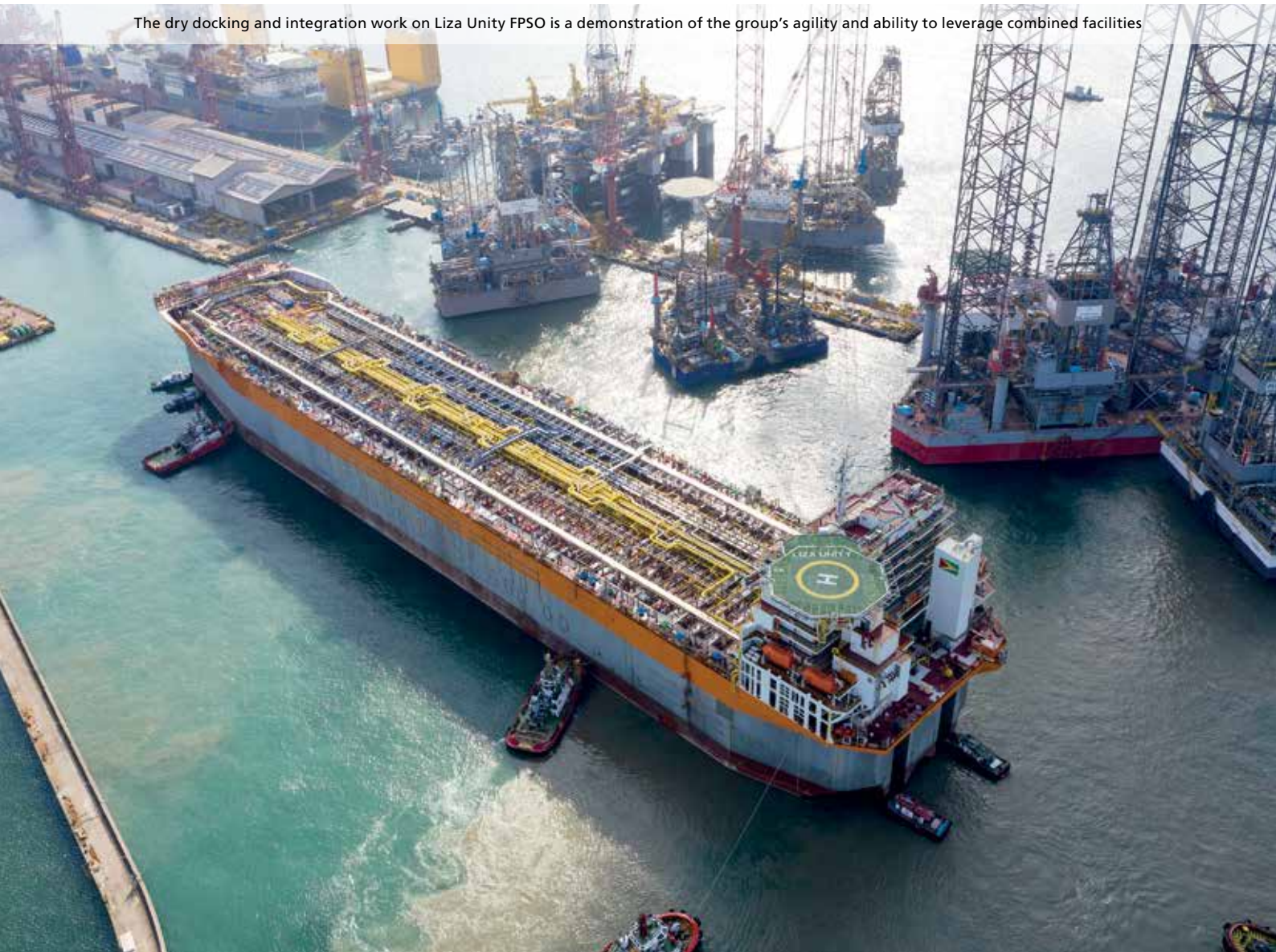
Keppel O&M's Admiral Dock, where its riser, mooring and umbilical structures will be installed. This demonstrates Keppel O&M's ability to leverage combined facilities and utilise resources across its divisions.

When completed, the Liza Unity will be the second FPSO for the Liza field development in Guyana.



Construction for the ice-class LNG bunkering vessel is on schedule and slated for delivery in end 2020

The dry docking and integration work on Liza Unity FPSO is a demonstration of the group's agility and ability to leverage combined facilities





Keppel O&M's BSC members and senior management were briefed on safety measures at a safety visit to Keppel Shipyard on 10 January 2020

Commitment to safety

Safety is a core value and Keppel Offshore & Marine (Keppel O&M) is committed to providing a safe workplace for all its stakeholders. Board Safety Committee (BSC) members and senior management make regular safety site visits to the group's operations to engage staff and understand safety challenges faced by staff on the ground.

On 10 January 2020, Mr Loh Chin Hua, CEO of Keppel Corporation and Chairman of Keppel O&M, together with management of Keppel O&M led by Mr Chris Ong, CEO of Keppel O&M, and Keppel O&M's BSC members – Mr Lim Chin Leong and Mr Tan Ek Kia and – visited Keppel Shipyard, where they were briefed on safety measures and developments for

the Gimi Floating Liquefaction Vessel (FLNG) project.

Delivery of the Gimi FLNG is expected in 2022. When completed, the FLNG will be stationed at a nearshore hub located on the Mauritania and Senegal maritime border, as part of the first phase of the Greater Tortue Ahmeyim project.

SAFETY INNOVATION

In recognition of its efforts in leveraging technology to create safer workplaces, Keppel FELS was conferred the U Safe Award (Champion Category) at the 2nd U Safe Forum & Awards for its innovative robotic diver which removed the need for divers to conduct hazardous underwater inspections.

Mr Loe Hauw Sheong, General Manager (Operations) at the New Builds Division of Keppel O&M, shared, "Besides the safety measures implemented, there is a culture of safety in the mindset of every employee, from the senior management down to the workers – we want to make sure that we do every job right, and safe."

Held on 11 November 2019, the awards were organised by the National Trades Union Congress (NTUC) and supported by the Ministry of Manpower (MOM) and the Workplace Safety and Health (WSH) Council.

Empowering women



Ms Andrea Gay, General Manager (Gas), Keppel Offshore & Marine

including Ms Andrea Gay, General Manager (Gas), Keppel Offshore & Marine, and management advisor to FueLNG, Keppel's LNG bunkering joint venture with Shell.

In the interview, Ms Gay shared, "I am glad to be part of an organisation that is committed to sustainability and making a tangible difference to the environment and climate change.

rapid changes, the industry has been accepting of new ideas and new entrants, including from women.

"In Keppel, I have been very fortunate to be part of an inclusive organisation and have supportive mentors. I am also thankful to the guidance of several key industry veterans."

In recognition of the contribution of women within the maritime sector, the Society for Gas as a Marine Fuel (SGMF) in December 2019 published a special feature on women in gas-fuelled shipping.

The feature profiled 20 women,

"Undoubtedly, this industry has traditionally been a male-dominated one. However, rapid structural changes in the industry has shifted mindsets very swiftly in what has been in the great majority an oil-fuelled market. Against the backdrop of these

Andrea also believes in making a difference in the industry. "We are standing at the cusp of change that can make a huge difference to climate change in the industry. It is up to us to influence consumptions and make a difference", she shared.

Engaging foreign workers

Keppel values the contributions of foreign workers. As part of the International Migrants' Day celebrations held on 15 December 2019, a 2.4m x 3.8m mural was unveiled at Acacia Lodge, one of Keppel Housing's dormitories.

The 'Colour My Dorm' initiative was co-organised by Singapore's Ministry of Manpower and Ministry of Social and Family Development, and involved youth probationers working with foreign workers from Acacia Lodge to paint the mural.

Kaliaperumal Sasikumar, Technician at Alpine Engineering Services,

said, "I am very happy with the painting because it shows cricket which is a sport I love. I helped with the painting too. The youths

were very good, they taught us how to mix the paint and do the painting. We also talked a lot and I told them all about cricket!"



The mural signifies the zest of foreign workers, such as Kaliaperumal Sasikumar (pictured) from India, to live life to the fullest when working in Singapore

Relishing challenges

As a young professional in the finance industry, Jason Tan did not expect to be posted halfway across the world. However, when he was offered a role in BrasFELS, Keppel Offshore & Marine's yard in Brazil, Jason relished the challenge.

So in July 2018, he and his wife relocated to Angra dos Reis, Brazil, and the young couple began their adventure in a foreign land, despite not knowing the native language. Having spent around one and a half years in the South American country, they now know their way around.

"At first, it was a challenge adapting to the new environment. We could not communicate very well with the locals and even had trouble ordering our meals in restaurants. However, we have since picked up some of the

local lingo and are much more settled into the local operating environment. We also had support from family, friends, as well as the company and colleagues, and that helped us a lot."

In his role as Financial Controller of BrasFELS, Jason oversees the finance functions of the Keppel Group of companies in Brazil.

He was actively involved in the Brazil implementation of Project Autobots, a Keppel Group-wide project to adopt a single Enterprise Resource Planning platform and Finance Shared Services Centre. As part of the project, he worked with external consultants and internal stakeholders to implement the new systems and processes, and customise them to cater to the requirements of local regulations.

Jason and his wife spend their free time hunting for new food experiences and travel destinations. Last year, they travelled westwards to Foz do Iguaçu and visited the famed Iguaçu Falls, one of the world's largest waterfalls. The speedboat tour took them underneath some of the waterfalls as they enjoyed nature's beautiful spectacle.

When asked for advice to fellow Keppelites, Jason said, "Keep an open mind to experience new cultures and learn from locals. Always observe the people and environment around you, as from them, you will learn the local practices and cultural nuances."

Jason and his wife travelled to the famed Iguaçu Falls located at Foz do Iguaçu, Brazil



Heated competitions

Keppelites across the Group continued to bond through sports at the 2019/2020 Keppel Games, where Citius, Altius and Fortius teams battled neck and neck in the Volleyball, Bowling and Dragonboat Challenges.

Hard serves and powerful spikes were the order of the day at the Volleyball Challenge on 26 October 2019. After an impressive display of skills and teamwork by all three teams, it was Team Fortius who bagged the Volleyball Challenge trophy.

The teams crossed swords again at the Bowling Challenge on 24 November 2019, where the audience was treated to an entertaining showcase of different techniques and handiness. After a morning of intense competition, Team Citius clinched the overall champion position.

2020 kicked off with the teams vying to win the Dragonboat Challenge on 19 January. Despite the blistering heat, rowers displayed a united front and raced with strength, determination and impressive synchrony. After a gruelling day of competition, paddlers from Team Altius emerged triumphant.

In light of the coronavirus situation, the remaining games will be postponed till further notice.



Rowers displayed tremendous teamwork and determination as they raced neck and neck under the blistering heat



Volleyball players gave their all in preparation for a smack down



Keppel O&M celebrating the lunar new year with a lion dance performance

Ushering the Year of the Rat

Keppel Offshore & Marine (Keppel O&M) gathered as OneKOM to welcome the year of the rat together. The first of twelve Chinese zodiac animals, the rat symbolises resourcefulness and versatility.

During his opening speech, Mr Loh Chin Hua, Chairman of Keppel O&M and CEO of Keppel Corporation, likened the company's strong ability to adapt swiftly to industry changes with the nimble zodiac animal. Mr Loh

also commented that Keppel O&M's diversification strategy had borne fruit, with gas and renewables making up over 60% of new orders in 2019.

To kickstart the lunar new year celebrations, Keppel O&M's management, employees, union members and partners were treated to a lion dance performance and "Lo Hei" (prosperity toss) session.

Committed to doing good, the

organising committee continued their partnership with Food From The Heart. The team designed both NETS FlashPay cards and Lunar New Year red packets for sale.

A total of S\$12,000 was raised together with the support of Keppel Care Foundation. All proceeds were donated to Food From The Heart, a non-profit charity that aims to feed the hungry through its food distribution programme.

Giving back

Driven to contribute back to society, Keppel Offshore & Marine (Keppel O&M) remains dedicated to supporting initiatives that matter.

AIDING EVACUEES

Following the phreatic eruption of Taal Volcano, residents within the declared 14-kilometer radius danger zone were evacuated to neighbouring areas as far as the Municipality of Bauan, Batangas, where Keppel Batangas Shipyard operates.

Keppel GK Eco Village, the community building project of Keppel, Gawad Kalinga and the local government of Bauan, opened its gates to evacuees from inside the danger zone. Over 100 displaced individuals were housed at the SIBOL Learning Center and the Nelson Yeo Multi-Purpose Hall inside the compound.

On 12 January 2020, five days after the eruption, 24 Keppel Volunteers from Keppel Batangas Shipyard distributed 200 packs of relief goods, sacks of rice, and mattresses to the evacuees at Keppel GK Eco Village and Bauan Technical High School (Bauan Tech). Bauan Tech was also converted into one of the government-run evacuation centres with 4,000 evacuees on site.

“We thank Keppel for sharing in this time of calamity in the province of Batangas,” said



Volunteers from Keppel Batangas Shipyard distributed 200 packs of relief goods, sacks of rice, and mattresses to evacuees at Keppel GK Eco Village and Bauan Technical High School

Bauan Vice-Mayor Julian C. Casapao during the distribution of relief goods, which was headed by Keppel Batangas Shipyard Senior Vice President Fadley Amin.

SPREADING JOY

On 18 December 2019, 12 volunteers from Keppel O&M brought children from the Movement for the Intellectually



Over 30 employees from Keppel Batangas Shipyard participated in the blood donation campaign in October 2019

Disabled of Singapore (MINDS) down for a day of fun at the Keppel Centre for Art Education.

There, volunteers interacted with the children and engaged them in a series of puzzles in various interactive zones.

GIVING LIFE

Continuing its partnership with the Philippine Red Cross – Batangas Chapter, Keppel Batangas Shipyard organised a blood donation campaign at the yard in October 2019.

Themed “Every Blood Donor is a Life Saver”, 37 Keppelites donated their own blood during this exercise. Given that one bag of blood (450 cc) can save 3 lives, the blood collected during this campaign has the potential to save over 110 lives.

THRASHING POLLUTION

Over in USA, Keppel Volunteers got together on the morning of 10 January 2020 to clean up the Buffalo Bayou in Houston, Texas.

Around 20 Keppelites from Keppel O&M USA and Keppel FloaTEC worked hard to remove trash, silts and weeds in an effort to restore and protect the bayou’s parks and trails.



Keppel Volunteers from Keppel O&M USA and Keppel FloaTEC worked hand in hand to remove trash, silts and weeds from the Buffalo Bayou

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To expedite the retrofit process, Keppel O&M conducts early customer engagement and preparation work before the vessel arrives, so that the vessel's time spent in the shipyard is minimised

Experts in retrofit projects

Testament to its extensive experience in retrofitting work, Keppel Offshore & Marine (Keppel O&M) clinched 104 scrubber and ballast water treatment systems (BWTS) retrofit orders in 2019. As at end-Dec 2019, Keppel O&M has secured a total of 108 scrubber and 97 BWTS retrofit projects.

With the International Maritime Organisation's 2020 regulation to cap the sulphur content of marine fuel at no more than 0.5%, and the standards set out by the Ballast Water Management Convention, there has been an increase in

demand from ship owners for exhaust cleaning scrubber systems that limit sulphur emissions and BWTS system solutions.

Mr Chor How Jat, MD (Conversions & Repairs) of Keppel O&M said, "Installation of scrubbers and BWTS can be highly complex and there has been strong demand worldwide to meet regulatory deadlines. Backed by extensive experience in conversion and retrofitting work, Keppel's ability to deliver quick, safe and reliable vessel turnarounds has made us an attractive choice for clients keen to meet their tight timelines.

"We completed Singapore's first scrubber installation last year in under 30 days and we were also the first shipyard in Singapore to successfully undertake a BWTS retrofit project back in 2013."

To expedite the retrofit process, Keppel conducts early customer engagement and preparation work, including the utilisation of 3D scanning technology, completion of detailed engineering and prefabrication of modules before the vessel arrives, so that the vessel's time spent in the shipyard is minimised.