

Operating & Financial Review

Offshore & Marine

We aim to be the preferred solutions partner in the global offshore and marine industry.



The O&M Division continued to secure new orders, expand capabilities and enhance efficiencies of its operations in 2018.

Earnings Highlights (\$m)

	2018	2017*	2016*
Revenue	1,875	1,802	2,854
EBITDA	26	(37)	300
Operating (Loss)/Profit	(73)	(167)	135
(Loss)/Profit before Tax	(113)	(862) ^A	76
Net (Loss)/Profit	(109)	(826) ^A	29
Average Headcount (Number)	11,875	15,571	22,191
Manpower Cost	485	623	821

* 2017 financial figures have been adjusted following the adoption of Singapore Financial Reporting Standards (International). 2016 financial figures were prepared in accordance with Singapore Financial Reporting Standards and certain amounts have been reclassified for comparability purposes.

^A Includes the one-off financial penalty and related costs of \$619 million.

Major Developments in 2018

Secured about \$1.7 billion worth of new contracts.

Sold five existing drilling rigs to Borr Drilling.

Delivered eight major projects safely, on time and on budget.

Signed Technical Assistance and License Agreement with Gaztransport & Technigaz to jointly market LNG solutions.

Signed a Memorandum of Understanding (MOU) with the Maritime Port Authority of Singapore and the Technology Centre for Offshore and Marine, Singapore to jointly develop autonomous vessels.

Singapore entities achieved certification for the ISO 37001 Anti-Bribery Management System.

Focus for 2019/2020

Capture opportunities in new and existing markets.

Continue to focus on execution excellence, corporate governance and risk management.

Invest in R&D to strengthen existing capabilities and build new muscles for long-term growth.

Leverage synergies across Keppel O&M and the wider Group to build up new strengths and expand solution offerings.

Continue to explore re-purposing offshore technology for other applications.

Earnings Review

Notwithstanding the volatility in oil prices, there is growing optimism in the Offshore & Marine (O&M) sector, with more projects being sanctioned at oil prices of between US\$55 and US\$65 per barrel. During the year, Keppel O&M secured about \$1.7 billion of new orders, compared to \$1.2 billion secured in 2017. As at end-2018, Keppel O&M's net orderbook had grown to \$4.3 billion from \$3.9 billion the year before, with non-drilling solutions making up over 70% of the orderbook.

Revenue for the O&M Division was \$1.9 billion, \$73 million or 4% higher than that of FY 2017, mainly due to revenue recognition from the jackup rigs sold to Borr Drilling and higher revenue recognition from ongoing projects.

In 2018, the O&M Division registered a lower net loss of \$109 million, compared to FY 2017's net loss of \$207 million, excluding the one-off financial penalty and related costs. The improved performance was mainly due to higher operating results arising from higher revenue, a write-back of provisions for claims and lower net interest expense, partly offset by higher impairment provisions. Excluding revaluations, major impairments and divestments (RIDs), the Division turned in a net profit of \$6 million for FY 2018, underpinned by its extensive rightsizing efforts and new contract wins.

In 2018, the Division made an additional provision of \$167 million for expected losses on the semisubmersibles being built for Sete Brasil, and other provisions and asset impairments of \$44 million. Meanwhile, the Division wrote back \$96 million of provisions for claims.

Operating Review

The O&M Division continued to secure new orders, expand capabilities and enhance efficiencies of its operations in 2018.

Despite continued headwinds in the offshore rig sector, there are signs of improvements including a gradually declining rig supply overhang and increased tendering activity. One of the key contracts secured during the year is for a newbuild mid-water harsh environment semisubmersible for Awilco, marking Keppel O&M's first drilling rig order since the start of the downturn in 2014. The order win demonstrates that despite the ongoing challenges in the O&M sector, there continues to be strong demand for Keppel's quality high-specification rigs.

As the 2020 deadline for the International Maritime Organization's (IMO) 0.5% global

sulphur cap approaches, Keppel O&M is seeing more demand for scrubber retrofits. The company secured 65 contracts for such projects in 2018 from a variety of customers. Additionally, Keppel O&M has seen continued demand for liquefied natural gas (LNG) related solutions such as LNG carriers and dual-fuel tugs. In 2018, Keppel O&M secured over \$600 million worth of LNG and scrubber projects.

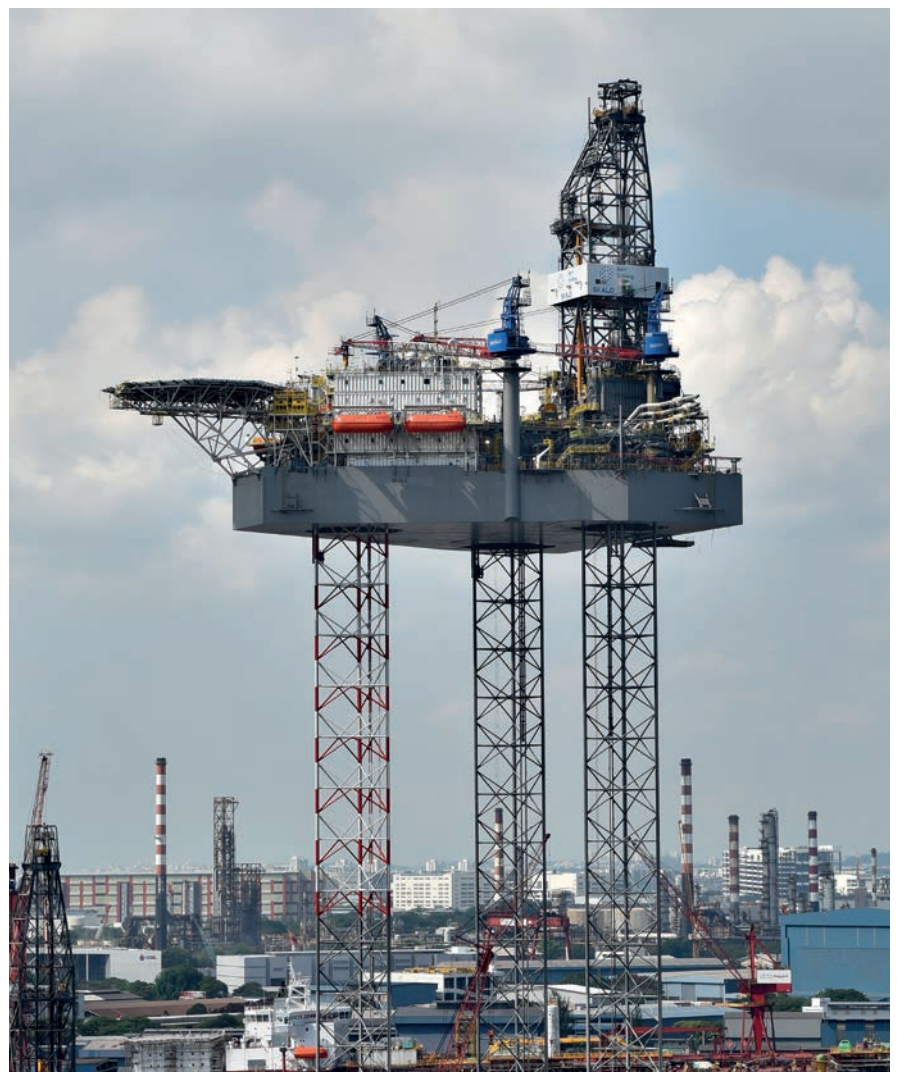
The rightsizing efforts that Keppel O&M had undergone to streamline operations and reduce overheads bore fruit in 2018, when the Division turned a profit excluding RIDs. During the year, Keppel O&M's direct global headcount was reduced by 17% from 2017, while its subcontract headcount in Singapore fell by 5% in the same period.

As part of ongoing efforts to strengthen its compliance controls, Keppel O&M executed a review and audit of its anti-corruption compliance. In November 2018, the Division's entities in Singapore achieved certification for the ISO 37001 Anti-Bribery Management System. Keppel is committed to putting in place effective and robust compliance and governance regimes and discharging the undertakings given as part of the 2017 global resolution.

New Builds

In 2018, contracts for five jackup rigs being constructed by Keppel FELS were successfully novated to Borr Drilling for a total value of approximately US\$745 million. The deal included an upfront payment of US\$288 million from Borr Drilling, and the rigs are

Keppel O&M delivered its first two of ten jackup rigs, SKALD (in picture) and SAGA, to Borr Drilling.



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1 Senior management from Keppel O&M and Perenco Group, together with government officials from Republic of the Congo, celebrated the naming of FPSO La Noumbi, Keppel's sixth project for Perenco and the fifth for the Republic of the Congo.

2 Keppel O&M is building Southeast Asia's first LNG bunkering vessel which will provide LNG to other vessels passing through the Port of Singapore.

expected to be delivered progressively from 2019 to 2020. Meanwhile, Keppel FELS delivered to Borr Drilling the first two of five jackup rigs, whose contracts were novated from Transocean in 2017.

Keppel FELS reached a significant milestone in 2018, securing a contract worth US\$425 million from Awilco to construct a mid-water semisubmersible drilling rig for harsh environment use. It was the first newbuild drilling rig to be awarded in the offshore rig market in three years.

Keppel FELS will continue to seek opportunities in niche segments such as harsh environment semisubmersibles, as well as the Middle East and Mexican jackup markets. Building on its engineering expertise in offshore platforms, Keppel FELS will also actively explore opportunities in the renewables and production sectors, as well as opportunities to collaborate with other Keppel business units on floating infrastructure projects.

In the specialised shipbuilding space, Keppel Singmarine clinched contracts from new customer Van Oord to build two Trailing Suction Hopper Dredgers, and delivered two dual-fuel tugs to Keppel Smit Towage and Maju Maritime in 2018.

Furthering its position as a preferred partner for the gas industry, Keppel Singmarine was entrusted to build a bunkering tanker by Mitsui & Co (Asia Pacific), a bunkering vessel by FueLNG and an ice-class LNG bunker vessel by Shturman Koshelev.

In China, Keppel Nantong is on track to deliver three dredgers to Jan De Nul in 2019. Keppel Nantong has also commenced works on the dual-fuel LNG bunker vessel for FueLNG and a dual-fuel bunker tanker for Mitsui. The yard continues to play a vital role in supporting Keppel O&M's newbuild business in Asia.

In the Americas, Keppel AmFELS is undertaking two dual-fuel containerships for Pasha Hawaii, built to Keppel's proprietary design, which includes energy saving features such as a state-of-the-art engine, an optimised hull form, and an underwater propulsion system with a high-efficiency rudder and propeller. Scheduled to be delivered in 2020, the Jones Act vessels will run on LNG from day one in service. Keppel AmFELS will continue to build on its track record for the construction of Jones Act vessels in the US, newbuild offshore rigs and platforms, as well as aftermarket services including repairs, upgrades and modifications of rigs for customers in the Gulf of Mexico.

Conversions & Repairs

During the year, Keppel Shipyard completed two Floating Production Storage & Offloading (FPSO) conversion projects, namely FPSO La Noumbi for Dixstone, an affiliate of the Perenco Group, and FPSO BW Adolo for BW Offshore. As at end-2018, there were three FPSO conversion and modification projects ongoing, namely FPSO Liza Destiny for SBM Offshore, Ngujima-Yin for Woodside and Ingenium II for KrisEnergy. Keppel Shipyard is also executing fabrication of the internal turret

of Coral Sul FLNG for SOFEC. In 2018, Keppel Shipyard also received a Limited Notice to Proceed (LNTP) to commence early conversion works for the Gimi FLNG over a period of up to four months, worth up to \$50 million. Full construction works will commence when Keppel Shipyard receives the final notice to proceed.

In 2018, Keppel Shipyard repaired 328 vessels, compared to 383 vessels the year before, and completed a scrubber retrofit project on a very large crude carrier. Notably, repair jobs for LNG carriers grew to 30 in 2018 compared 23 in the preceding year. It also secured a total of 65 scrubber retrofit projects and completed nine Ballast Water Treatment System (BWTS) installations during the year.

In the Philippines, Keppel Batangas repaired 76 vessels in 2018, 66 of which were for domestic customers. Keppel Subic repaired 57 vessels, 33 of which were for foreign customers from across Europe, Asia and Central America. Keppel Subic also established its first track record in the ballast water management system market with the installation of a BWTS on NORD Savannah, a Panamanian bulk carrier owned by Nissen Kaiun. Keppel Subic will capitalise its track record to secure more similar projects before the full implementation of the Ballast Water Management Convention's requirements by 2024.

In Brazil, the FPSO P-69 was successfully completed by BrasFELS and achieved its first oil milestone in October 2018.

The vessel is currently undergoing further offshore commissioning. In 2018, BrasFELS completed repair jobs on six vessels from both new and repeat customers including MODEC, Helix, McDermott and QGOG. BrasFELS also signed an MOU with Ocyan and Magma Global to provide the latter's composite multi-bore riser solutions, which will bolster BrasFELS's position as a one-stop solutions provider for deepwater production platforms.

Market Review & Outlook

Notwithstanding the oil price volatility, there is returning confidence in the O&M sector although we do not foresee a V-shaped recovery.

In 2018, utilisation rates continued to improve as more rigs were put to work, underpinned by national oil companies' decisions to ramp-up activity in regions such as China, India, Mexico, Middle East and West Africa. In Brazil, the international oil companies have secured significant acreages, and there is growing optimism that potential foreign investments will flow into the Brazilian oil & gas industry. According to Brazil's Agency of Petroleum, Natural Gas and Biofuels (ANP), improvements to the Local Content (2018) rules will unlock investments in 36 FPSOs up to 2027.

It is expected that drilling activity will continue to pick up in 2019, driven mainly by increased drilling activity in the North Sea and West Africa regions. There are also more opportunities in FPSOs and Floating Storage Re-gasification Units (FSRU), especially conversions, with several projects approaching Final Investment Decision (FID) in 2019 and 2020. As the 2020 deadline for the International Maritime

Organization's implementation of the 0.5% sulphur cap on marine fuels approaches, demand for greener solutions such as LNG vessels remains robust. Meanwhile, continued rig attrition and secondary rig transactions will help to rebalance the demand and supply of the jackup rig market.

The cut in exploration & production (E&P) expenditures by oil companies and fleet operators has driven the industry towards greater efficiency and productivity. From increased automation to the digitalisation of vessels, technology will be a key driver for the industry moving forward.

To remain competitive in a changing market environment, Keppel O&M has re-positioned itself and improved on existing core products and services. At the same time, leveraging technology, the Division is developing innovative solutions to stay ahead of the curve.

Enhancing operational productivity and efficiency, Keppel O&M is also developing yards of the future. The use of emerging technologies including robotics, enhanced IoT solutions, smart sensors, predictive analytics, and artificial intelligence are being evaluated and incorporated into the manufacturing process.

Today, Keppel O&M is leaner, fitter and more agile, and ready to seize opportunities. We remain confident of the long-term potential of the O&M industry as the demand for energy remains strong, fuelled by urbanisation and global economic growth.

Offshore Rigs

According to information provider IHS Markit, the average global demand for mobile drilling offshore units (MODU) is expected

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to increase by 13% between 2018 to 2020, with niche markets such as the Norwegian North Sea and Gulf of Mexico experiencing higher demand. While the global demand for shallow-water jackup rigs will improve through to 2020, IHS Markit expects the increase in MODU demand to be driven by semisubmersibles and drillships as operators ramp-up activity in deepwater areas.

Keppel O&M is exploring how technology can define the future of jackup rigs by introducing new systems and expanding rig capabilities. These rigs of tomorrow will transform the current rigs, making them more efficient, ergonomic and versatile without compromising on safety.

In collaboration with the Group, Keppel O&M is also exploring opportunities to re-purpose its offshore technology for other applications such as floating data centre parks.

With an extensive suite of proprietary solutions for the offshore drilling market and network of yards around the world, Keppel O&M is well positioned to ride the upturn when it returns.

Floating Production Systems

The number of operating vessels in the FPSO market grew to 183 at end-2018 from 178 at end-2017. According to Rystad Energy, more than 30 FPSO projects could be sanctioned between 2019 and 2021, while the Energy Maritime Associates forecasts between 83 and 173 orders for floating production systems over the next five years.

With a complete suite of O&M solutions, Keppel O&M will remain focused on pursuing opportunities for a variety of production solutions including FPSO conversions, mobile offshore production units, production semisubmersibles and tension leg platforms. We aim to leverage synergies across the Group to provide value-added solutions for our customers.

Gas Solutions

Global demand for gas continues to be led by Asia, which accounts for 50% of the expected growth in demand for natural gas from 2017 to 2022. Westwood estimates global capex on floating liquefaction and import vessels to reach US\$37.6 billion over the 2018 to 2023 period, representing a 66% increase compared to the total capex of US\$22.6 billion over the 2012 to 2017 period. Of these, Africa and North America are expected to account for the largest proportion of floating liquefaction capex.

Market research also estimates that the number of LNG-fuelled vessels will more than double to 200 by 2020 from 77 vessels in 2016, driven partly by the IMO 2020 regulations. Wood Mackenzie also reports that 2019 is expected to be a record year for LNG project sanctions, with the capacity of projects likely to reach FID tripling to over 60 million metric tonnes per annum (mmtpa) in 2019 from 21 mmtpa sanctioned in 2018.

With the successfully converted Hilli Episeyo operating offshore Cameroon, floating LNG solutions are gaining traction globally, especially in Africa. Riding on Hilli Episeyo's success, Keppel Shipyard received a LNTP for Gimi FLNG in 2018. The Greater Tortue Ahmeyim development offshore Mauritania and Senegal, for which Gimi FLNG is slated to operate, achieved FID at end-2018 while project execution activities for the field are expected to commence in 2019.

With its ability to provide end-to-end solutions across the gas value chain, Keppel O&M is well positioned to capture opportunities in the gas industry.

Specialised Shipbuilding

Prospects in the specialised shipbuilding market remain robust, particularly for non-oil related solutions such as dredgers and containerhips amongst others.

Leveraging its technology and construction expertise, Keppel O&M is able to provide an

extensive range of non-oil related solutions and is also capturing opportunities in the Jones Act market through Keppel AmFELS in Brownsville, Texas.

Keppel O&M's capabilities in non-drilling and gas solutions will provide the company with new growth areas and revenue streams, despite continuing challenges in the offshore drilling sector.

Shiprepair

With the enforcement of IMO's 0.5% global sulphur cap, ship owners are actively pursuing alternative solutions, such as the installation of scrubbers, to reduce sulphur emissions. In 2018, Keppel O&M secured a total of 65 scrubber retrofit projects and anticipates more awards in the run-up to the IMO 2020 deadline.

As global demand for LNG continues to increase, charterers are likely to seek more spot vessels, resulting in ship owners reactivating idle vessels. This would generate more shiprepair work for yards.

Over the longer term, the shipping industry will also continue its drive towards greater efficiency by reducing costs, improving utilisation and deploying new technologies, while meeting environmental standards.

Against this backdrop, Keppel O&M is well placed to provide retrofitting solutions to meet the changing needs of the shiprepair industry.

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