

Singapore Marine Industry's Performance in 2018

OVERVIEW

Total Turnover

2018 continued to be yet another challenging year for the Singapore marine and offshore engineering (M&OE) industry as it struggled to cope with the protracted industry downturn into its fourth consecutive year, and a global environment dominated by geopolitics and rising protectionism. The current offshore cyclical downturn is the longest in the history of the industry. Oil prices remained volatile impacted by geopolitics and global production output.

Despite the strong headwinds and tough operating environment, the Singapore M&OE industry recorded a total turnover of S\$10.3 billion in 2018. This was due in part to the sale of an inventory of newbuild jack-up rigs from earlier contracts. The total industry turnover in 2018 was 5% higher than the turnover of S\$9.8 billion achieved in 2017.

Major projects delivered in 2018 included ten jack-up rigs, three fixed platform topsides, a newbuild Floating Storage and Offloading (FSO) vessel, four Floating Production, Storage and Offloading (FPSO) conversions and two newbuild LNG (Liquefied Natural Gas) dual-fuelled tugs.

Order Books

Notwithstanding the oil price volatility and highly competitive market in 2018, our industry majors were able to replenish their existing order books with new contracts secured. Singapore shipyards clinched new orders totalling some S\$3.9 billion during the year, slightly more than the S\$3.8 billion secured the year before.

The new orders demonstrated the customers' confidence in our shipyards and the quality of our solutions and delivery. As at end 2018, the industry's total order book stood at some S\$7.5 billion with deliveries stretching to 2021. This was S\$0.85 billion lower than the total order book of S\$8.35 billion as at end 2017.

The new orders secured were for offshore production, gas and renewable energy projects as well as specialised shipbuilding. The contracts included a newbuild harsh environment semi-submersible drilling rig, newbuild roll on/roll off (ropax) passenger ferries, FPSO and Floating Storage and Regasification Units (FSRUs) projects, cruise ship repairs and upgrades, LNG-related solutions such as LNG bunker vessels and dual-fuel tugs, fast patrol boats, scrubber retrofit projects and wind farms substation topsides.

Docking Capacity

There were 17 dry docks in Singapore in 2018, one more than the year before. The 17 docks have docking capacity ranging from 100,000 to 500,000 deadweight tonnes and a combined total docking capacity of 5,130,000 deadweight tonnes.

Besides the dry docks, there were 15 floating docks and ship lifts compared to 14 in 2017. These floating docks and ship lifts have lifting capacity ranging from 2,050 to 65,000 tonnes and a combined total lifting capacity of 297,450 tonnes.

Total Employment

Total employment for the industry in 2018 was 64,300 persons. The total workforce in the industry shrank by 11% with 7,900 fewer workers compared to 72,200 persons employed in 2017.

The reduction in employment was due to natural workforce attrition, retrenchment, lower recruitment and renewal of work permits during the year due to fewer new projects, consolidation of operations and closure of businesses adversely affected by the prolonged industry downturn.

To prepare the marine workforce for emerging business in new growth areas, industry players have embarked on reskilling and upskilling of their employees to build competencies and skills sets to execute projects in these market segments.

Workplace Safety & Health

Workplace Safety and Health (WSH) remains a core value and a priority area of focus in the industry as it continues to enhance WSH capabilities and competencies across the entire value chain. The goal is to build up a robust WSH culture by engaging industry stakeholders such as employees, sub-contractors, vendors and customers; and securing their commitment and participation in the WSH journey. The collective efforts and inclusive approach have resulted in improvement in WSH in the industry over the decades.

Industry members received a total of 45 accolades across various categories at the National WSH Awards 2018. These awards were presented to companies and individuals in recognition of their outstanding performance in WSH and contributions towards making their workplaces safer and healthier.

In 2018, the number of workplace accidents in the industry dropped to 271 from 295 in 2017. This was a decline of 8% or 24 fewer accidents compared to 2017. Despite a multi-prong approach and continuous efforts to engage all stakeholders towards the Vision Zero incidence goal, the year in review saw an increase in the number of fatal accidents in the industry. There were four fatal accidents in 2018 compared to two in 2017. As a result, the workplace fatal injury rate increased to 6.2 per 100,000 employees in 2018. This was a significant increase from the record low rate of 2.7 per 100,000 employees in 2017.

The Accident Severity Rate (ASR) was 171 man-days lost per million man-hours worked in 2018. This was 80% higher than the ASR of 95 man-days lost per million man-hours worked in 2017. The industry's Accident Frequency Rate remained the same at 1.5 accidents per million man-hours worked in 2018 as compared to the year before.

SECTORAL PERFORMANCE

Ship Repair & Conversion Sector

Port Statistics from the Maritime and Port Authority of Singapore (MPA) showed a drop in the number of vessel calling in Singapore specifically for repairs. In 2018, the MPA recorded a total of 2,782 vessel calls repairs, as compared to 3,507 in 2017. This was a decrease of 725 vessels or 20.7% year-on-year.

The total gross tonnage of the vessels that called for repair also decreased from 33,714 million grt in 2017 to 29,829 million grt in 2018. This was 3,885 million grt or 11.5% lower than the year before.

In the ship repair sector, there has been stiff competition from overseas, especially from the Chinese shipyards. Apart from the steady stream of repair, upgrading and refurbishment projects on various vessel types such as tankers, bulk carriers, cruise ships and LNG carriers, there was substantial volume of marine scrubber installation and ballast water management system (BWMS) projects completed. Singapore shipyards undertook more than 125 BWMS and scrubber retrofit projects during the year as ship owners adopted alternative solutions to reduce sulphur emissions in the run-up to the International Maritime Organization (IMO)'s 2020 deadline for its emission requirement of 0.5% global sulphur cap.

A total of 71 LNG projects were carried out as the industry sharpened its skills and capabilities in LNG engineering solutions and upgraded its facilities to provide quality solutions and services to LNG ship owners. Sembcorp Marine emerged once again as the world's top LNG vessel repair shipyard (for the sixth time) with a total of 41 LNG ships serviced and upgraded in 2018.

With her increasing track record in cruise ship repair and upgrade, and the boom in global cruise tourism in Asia, Singapore is well-positioned to seize opportunity in this specialised market. Sembcorp Marine was named Asia's top cruise ship repair and upgrade solution provider with the completion of ten cruise vessel projects. Among these were cruise ships Golden Princess, Norwegian Jewel and Costa Fortuna.

Seven FPSO and FSO projects were undertaken in 2018. These included the delivery of newbuild FSO Ailsa, the world's first FSO with a 40-year hull lifespan to MODEC Systems for deployment in the TOTAL-operated Culzean field in the UK North Sea, the conversion of tankers to FPSO Kaombo Norte and FPSO Kaombo Sul for Saipem for the Kaombo field project offshore Angola; and conversion of FPSO La Noumbi for Dixstone and FPSO BW Adolo for BW Offshore.

Other FPSO projects delivered were the upgrading of FPSO Pyrenees Venture for MODEC/BHP, and major repairs and demucking works for Chevron Thailand's Benchamas FSO.

Projects in progress included the conversion of FPSOs Liza Destiny for SBM Offshore, Ngujima-Yin for Woodside and Ingenium II for KrisEnergy. At various stages of construction were the construction of newbuild FPSO hull and living quarters for Equinor's Johan Castberg field in the Barrents Sea, and the fabrication of an internal turret for SOFEC's FLNG Coral Sul.

Specialised Shipbuilding Sector

A total of 53 vessels were launched in 2018 with a total gross tonnage of 106,484 grt. Although this was 28.4% lower or 21 vessels fewer than the year before, the total gross tonnage was only 1% lower than the total gross tonnage of 107,127 grt for the 74 vessels launched in 2017.

Among the newbuilds delivered in 2018 were two dual-fuel tugs including South East Asia's and Singapore's first LNG-powered tug, KST Liberty and Maju Loyalty, built by Keppel Singmarine. The dual-fuel tugs are equipped with containerised, type-C ISO-certified LNG tanks on the main deck and a LNG vaporiser. The construction of

these two tugs was co-funded by the MPA under its LNG Bunkering Pilot Programme, and both vessels have been conducting LNG bunkering operations in Singapore since delivery in September 2018.

Other newbuilds completed were Red Sailfish, the first of three fire-fighting and rescue vessels for the Singapore Civil Defence Force, Littoral Mission Vessels Fortitude and Dauntless for the Republic of Singapore Navy, as well as fast crew boats Nautica Gambir and Nautical Langsat. Most of the vessels launched during the year were utility vessels, workboats, tugs, barges and ferries.

Major shipbuilding activities in progress during the year included the design and construction of three roll on/roll off passenger ferries for Norled AS and LNG bunker vessels. Asia's largest LNG bunker vessel with dual-fuel engines will be built in Singapore by Sembcorp Marine for deployment in Singapore.

Offshore Sector

In 2018, offshore rigs utilisation rates continued to improve and more rigs were put to work as more drilling activities came on stream. This is due to the decisions by national oil companies to ramp up production activity in regions such as China, India, Mexico, the Middle East and West Africa.

Major offshore projects delivered in 2018 included ten jack-up rigs and three offshore production platform topsides. The ten jack-up rigs delivered comprised two KFELS Super B 400 Bigfoot Class jack-ups Skald and Saga, and eight Pacific Class 400 jack-ups, Gerd, Groa, Gersemi, Grid, Gunnlord, Gyne and Natt to Borr Drilling, and jack-up Hakuryu 14 for BOT Lease.

The three fixed offshore platform topsides consisting of a well-head platform, utilities & living quarters and a central processing facility were delivered to TOTAL for the Culzean gas field project in the UK North Sea. Semi-submersible rig West Rigel was sold to Transocean and renamed Transocean Norge would be delivered in February 2019 for drilling operations in the Norwegian Continental Shelf.

Work in progress included the construction of Heeremar's Sleipnir, the world's largest semi-submersible crane vessel and Pacific Class 400 jack up rig Njord, the construction and integration of hull, topsides and living quarters for Shell's Vito newbuild semi-submersible Floating Production Unit in the Gulf of Mexico, construction of newbuild FPSO hull, living quarters, topside modules for TechnipFMC's newbuild FPSO to be deployed at the Karish deepwater field in Eastern Mediterranean and two ultra-deepwater drillships for Transocean.

INDUSTRY OUTLOOK

2019 will continue to be another tough year for the M&OE industry as it attempts to stay resilient in a global environment of rising protectionism, nativist politics and trade tensions. Developing economies, global economic growth and urbanisation will continue to drive up energy demand globally and natural gas is expected to overtake coal as the second largest source of energy. Beyond geopolitics, other trends affecting the industry are changes in demographics, slowdown in economic growth and market concerns on falling demand, and the impact of disruptive technologies and digital revolution.

There are strong signs of a slow but steady recovery in the marine and offshore industry. Global offshore exploration and production budget and expenditure have improved with more production projects moving towards the final investment decision (FID) stage. There is cautious optimism on the improving market outlook for the industry with oil and gas operators planning to sanction at least 100 offshore and field development projects in 2019.

In the offshore rig sector, there are signs of improvements with gradually declining rig supply overhang and increased tendering activity. Offshore rig utilisation and day rates have improved and more drilling activities are expected to come on stream, driven by drilling activities in the North Sea and West Africa regions. According to HIS Markit, the average demand for mobile offshore drilling units is expected to increase by 13% between 2018 and 2020 with niche markets such as Norwegian North Sea and the Gulf of Mexico experiencing higher demand. The global demand for shallow-water jack up rigs will improve through to 2020, and rig attrition will help to rebalance the demand and supply of jack-ups.

In the offshore production space, there are opportunities in FPSO conversion in the oil market and FSRUs in the gas market with several projects approaching FID in 2019 and 2020. According to Rystad Energy, more than 30 FPSO projects could be sanctioned between 2019 and 2021. The Energy Maritime Associates projected between 83 and 173 orders for floating production systems over the next five years.

On the gas market, global demand for gas, led by Asia, continues to grow. There is renewed interest for FSRU conversions as owners look to repurpose older LNG carriers with a few FSRU projects targeting for FID in 2019. Demand for LNG has risen as the shipping industry moves towards the adoption of LNG as an environmentally sustainable and affordable marine fuel. Wood Mackenzie expected 2019 to be a record year for LNG project sanctions. Other market research forecasted that the number of LNG-fuelled vessels to more than double to 200 by 2020 from 77 in 2016. Singapore shipyards are well-positioned to capitalise on this demand.

Keppel Shipyard's pioneering FLNG conversion, the Hilli for Golar LNG, has been working successfully and delivering cargoes consistently offshore West Africa. The successful proof of concept has resulted in increased interest in FLNGs with Golar LNG proceeding with a second FLNG conversion.

In the ship repair sector, local shipyards are expecting an improved market with higher volume of work as ship owners response to Ballast Water Management Convention and deadline on the IMO 2020 sulphur cap regulation. The shift to clean energy will continue to drive demand for ballast water treatment systems and gas scrubber system retrofit projects. Many ship owners have opted for scrubber installation and the huge wave of demand for scrubber retrofits augurs well for Singapore's ship repair yards given their experience, track record and quick turnaround time. Owners are also scheduling the installation of scrubbers and fitting of ballast water treatment system with scheduled drydocking.

In the specialised shipbuilding market, there are good prospects with robust demand for LNG-powered vessels and non-oil related solutions such as dredgers and containerships. There are also opportunities for support vessels to service and support offshore wind farm installation and maintenance.

Moving forward, the business landscape has changed and the Singapore M&OE industry needs to transform to stay relevant and remain competitive as well as for sustainability and growth. The major shipyards are undergoing transformation to expand beyond their traditional markets into new markets and product segments to provide innovative solutions across the offshore, marine and oil & gas value chains. In recent years, there have been plenty of research and investments in green technology, additive manufacturing, digital technologies, LNG areas and renewable energy solutions.

The M&OE Industry Transformation Map launched in February 2018 has identified new growth areas in the LNG and offshore renewables markets for the industry's diversification and long term growth. Singapore shipyards are already active in the LNG space with strong track records in LNG vessel repairs, experience in LNG vessel construction and FLNG conversion, and proven cryogenic expertise, Singapore is well-placed to offer new solutions across the entire gas value chain and capture opportunities in the gas business.

The local supporting industry members should also build up their in-house competencies in tandem with the major players. They should invest in deepening their knowledge, enhancing skill sets and adopting new technologies to enable them to take on projects in these growing market segments.

With the offshore renewable energy market growing in Asia notably in Taiwan and also Japan, China and South Korea, there are opportunities for specialised shipbuilding of windfarm support vessels such as service operation vessel, crew transfer vessel and converted platform supply vessel to support offshore windfarm developers and EPCI contractors. Sembcorp Marine has netted contracts from offshore wind industry leader Ørsted's subsidiary Optimus Wind for the engineering, procurement, construction, hook-up and commissioning work on two topsides to be deployed on the Hornsea 2 offshore windfarm in the UK. Damen Shipyard Singapore is constructing two FCS 2710 fast crew supply vessels for Hung Hua Construction for use in Taiwan's offshore wind energy market.

The long term potential of the M&OE industry remains strong as the industry moves towards developing innovative products and enhanced solutions using new technologies such as artificial intelligence, smart sensors, predictive analytics, robotics and enhanced internet of things to help customers reduce operational cost and improve utilisation by providing them with better and smart assets with greater capabilities, better operational efficiency and higher productivity.