

SUSTAINING COMPETITIVENESS

Sembcorp Marine's sustainable growth rests on its ability to create long-term value for stakeholders. The Group stays competitive by focusing on three important material areas: Innovation and Solutions Development; Value Chain Management; and Customer Alignment.



LEADING PROVIDER OF GAS CARRIER REPAIR AND UPGRADE SOLUTIONS

INNOVATION AND SOLUTIONS DEVELOPMENT

Anchored in robust core values, a strong innovation culture as well as disciplined technology research and engineering development capabilities, the Group offers cost-effective, safe and environmentally-friendly solutions with the aim of transforming the industry, expediting energy transition, and enabling customers to stay ahead of the competition.

Sembcorp Marine's innovation approach is built upon three pillars – researching emerging technologies and new opportunities; development of talent, products, systems and processes; and collaboration with innovators, institutions and the industry.

Sembcorp Marine's pipeline of strategic technology research and solution development programmes have led to a suite of safer, smarter, environmentally sustainable and more superior products and solutions for customers, the industry and the community. These efforts also

further the intents of the relevant United Nations (UN) Sustainable Development Goals.

Sustainable products

Sembcorp Marine is committed to developing sustainable, safe and cost-effective solutions that add value to both the Group and its stakeholders by providing reliable infrastructure to generate new income streams and create economic growth.

Market-Ready Natural Gas Solutions

The Group champions the adoption of natural gas (NG) as a greener alternative to conventional carbon fuel. Natural gas, also a common by-product of subterranean fuel extraction, is an environmentally-friendlier fuel with lower carbon emissions compared to traditional fuels.

Sembcorp Marine has developed a comprehensive suite of solutions to accelerate the adoption of gas as a globally preferred fuel. These include solutions for production, processing and transportation of gas, as well as gas-powered offshore and marine vessels.

<p>CLIMATE</p>	<ul style="list-style-type: none"> Delivering market-ready natural gas product solutions Expediting renewable energy and low carbon adoption
<p>OCEAN</p>	<ul style="list-style-type: none"> Providing turnkey green technology products and services Chemical-free ballast water management and corrosion protection systems
<p>EARTH</p>	<ul style="list-style-type: none"> Reducing environmental footprint of operations Centralised, smart and efficient operations

Notable programmes and solutions implemented for sustained business growth that are aligned with UN Sustainable Development Goals

For example, the Group's innovative and cost-effective Gravifloat near-shore gas terminals provide scalable and more economically viable solutions for global gas liquefaction and regasification developments. Sembcorp Marine has also developed a portfolio of vessels powered by gas engines. This includes gas engine tug vessels which will replace the existing tugboat fleet at its flagship Tuas Boulevard Yard. Not only will the new-generation tugs help Tuas Boulevard Yard reduce its carbon footprint effectively, the technology installed in these vessels is relevant to other applications, such as liquefied natural gas (LNG) carriers and bunker vessels.

Sembcorp Marine is also a leading provider of gas carrier repair and upgrade solutions. In the last five years, the Group has consistently topped the global market for servicing the highest number of LNG carriers annually. For more information, please refer to page 130.



Sembcorp Marine's proprietary gas-powered vessel designs, such as the LMG 60-TGH LNG-battery hybrid azimuth stern drive harbour tug (top photo) and LNG bunker vessel, contribute to a low carbon future



An innovative and proven alternative to conventional ship-shaped floating platforms to address the challenge of operating in harsh environment safely and efficiently

Mitigating Climate Change with Renewable Energy Solutions

Sembcorp Marine's innovative technology and construction expertise help customers reduce their carbon emissions. The Group is currently executing an engineering, procurement, construction, hook-up and commissioning project to deliver two offshore windfarm substation topsides to Ørsted Wind Power subsidiary Optimus Wind Limited. The topsides will be deployed at the Hornsea 2 Offshore Wind Farm in the North Sea. This 1.4 gigawatt capacity facility will have the capacity to power over 1.3 million homes when operational in 2022.

The Ørsted contract follows Sembcorp Marine's successful delivery of the Dudgeon Wind Farm substation platform from its yard at Lowestoft, UK. The project won the Best Energy Project Award at the 2016 East of England Energy Group Awards.

Sembcorp Marine will also design and construct three roll on/roll off passenger (ropax) ferries for Norled AS, to be deployed in Norwegian shortsea routes. These zero-emission vessels will operate on batteries rechargeable

at hydroelectricity-based shore power points available along their service routes.



Sembcorp Marine's zero-emission ropax ferries are powered by lithium-ion batteries and can accommodate 300 passengers and 80 vehicles

Safeguarding the Ocean

Sembcorp Marine's green technology solutions promote ocean sustainability, covering areas such as ballast water treatment, exhaust gas cleaning, biofouling control and corrosion control.

In 2018, the Group secured \$160 million in orders for the retrofitting of ballast water management systems and gas scrubbers for 58 vessels.

Sembcorp Marine also markets its own proprietary Semb-Eco LUV Ballast Water Management System (BWMS), which comes with International Maritime Organization (IMO) and US Coast Guard Alternate Management System certifications. Boasting a low carbon footprint, the Semb-Eco LUV

SUSTAINING COMPETITIVENESS



Sembcorp Marine has collaborated with one of Singapore's largest energy providers to install a 4.5 megawatt-peak solar farm and a digital energy saving system at Tuas Boulevard Yard

BWMS helps vessels mitigate the risk of invasive aquatic species in turbid or highly challenging tropical waters.

The Semb-Eco ELMag system is a non-chemical corrosion control solution, especially suited to ships with a water-cooled stern tube shaft for effectively preventing oil and chemicals from polluting the ocean. It has been successfully installed on five vessels operating in the environmentally-sensitive Alaskan waters.

Going Deeper, Harsher, Colder

Sembcorp Marine's solutions are designed and built to stringent requirements for safe operation in demanding environments. In response to the opening of the northern arctic sea routes, the Group's subsidiary LMG Marin has developed its first polar expedition cruise ship design, which complies with the stringent DNV-GL polar class PC(6) standard. This ice-class vessel design will have an unrivalled level of safety and conforms fully to Safe Return to Port

requirements in the 2009 International Safety of Life at Sea treaty.

To further the Group's ambition of meeting the operational requirements of deeper, harsher and colder environments, 2018 saw Sembcorp Marine acquiring the intellectual property rights and design expertise of global circular hull solutions provider Sevan Marine ASA. The circular hull design offers an innovative alternative to conventional ships and floating platforms and provides new methods of addressing the challenge of operating in harsh environments safely and efficiently. A newly established subsidiary, Sevan SSP AS, will position the Group as a leading engineering, procurement, construction and commissioning solutions provider for circular hull floater projects.

Reduced Environmental Footprint for Operations

Sembcorp Marine's flagship Tuas Boulevard Yard is a next-generation smart and sustainable yard. It is

equipped with bigger and deeper docks for today's mega-size vessels; automated production facilities; and advanced environmental management features. As a living lab, the yard collaborates with various technology partners to test-bed innovative processes, advanced equipment and new technologies. Such endeavours strengthen the Group's operations and capabilities in developing and delivering new products and solutions for sustainable growth and with a reduced environmental footprint.

Harnessing Solar Power

Sembcorp Marine invests in sustainable energy sources in its operations. In late 2018, an ambitious solar farm installed on the rooftop of Tuas Boulevard Yard's steel fabrication workshop came online.

The 4.5 megawatt-peak panels will be fully operational in 2019. This renewable energy project is a collaboration with Singapore Power. It involves integrating the

solar farm at Tuas Boulevard Yard with a digital energy-saving system to harness, manage and monitor the power generation. The system features energy storage capabilities, energy sensors and a real-time digital platform to optimise energy usage throughout the yard. It is able to lower grid-supplied electricity consumed by the yard's steel fabrication facility, resulting in an equivalent of 2,500-tonne carbon emissions reduction per year.



Read more about Sembcorp Marine's environmental sustainability approach and initiatives on pages 67, 134 - 139.

Operationalising Drone Technology

As offshore and marine structures are often large and difficult to access, the use of drone technology has significant benefits, such as replacing high-risk inspection tasks carried out by humans with remotely-controlled and efficient drones, as well as reducing the overall time and resources required to complete the inspections.

To ensure safe and authorised operations, a team of drone operators has been certified and issued permits by the Civil Aviation Authority of Singapore to support daily inspections alongside class surveyors.

In 2018, Sembcorp Marine successfully completed the test-bedding of drone-based safety inspections and launched this new application at Tuas Boulevard Yard.

Sembcorp Marine is also the first in Singapore to have received the ABS External Specialist Certificate for the quality inspection of vessels using unmanned aerial vehicles (UAVs).



Drone technology has effectively mitigated the risks associated with conducting surveys in difficult locations

Working with Partners to Drive Industry Technology Development

The Sembcorp Marine Living Lab at Tuas Boulevard Yard provides collaborative opportunities for academic institutions, industry stakeholders and innovation partners to realise innovative ideas and translate research results into applications and solutions. The Living Lab platform facilitates test-bedding of emerging technologies and new products in real

and operational-scale yard operations and product environment.

The Group has various ongoing collaborations with like-minded partners, leveraging one another's expertise and unique knowledge to operationalise research results into feasible applications. Such collaborations enrich the research talent pool in Singapore's offshore and marine industry.



Sembcorp Marine works closely with industry partners and stakeholders to realise the maximum potential of offshore and marine R&D collaborations

SUSTAINING COMPETITIVENESS



Semcorp Marine worked with ABS classification society, customers and stakeholders to test-bed and jointly develop the world's first Cybersecurity-Ready Notation issued to a drilling rig

Product Excellence

Semcorp Marine adopts a risk-based approach to product development and ensures its products fully comply with rules and standards of IMO, International Organization for Standardization (ISO) and associated marine classification societies.

All Semcorp Marine products undergo strict risk and safety assessments during the design and construction phases, executed in close consultation with customers and industry specialists. During these phases, internationally developed and acknowledged standards such as the Hazard Identification (HAZID) and Hazard & Operability (HAZOP) studies are used to identify, manage and eliminate safety, environmental and operational risks at the earliest practicable stage.

Before delivery, the Group ensures all its products meet the stringent international standards of safety, health, security, environment and quality applicable to the intended location and scope of operation. These standards include IMO's International Convention for the Prevention of Pollution from Ships (MARPOL), the International Convention for the Safety of Life at Sea (SOLAS), as well as the Code for Construction and Equipment of Mobile Offshore Drilling Units (MODU Code). The vessels and offshore platforms built by Semcorp Marine also comply with strict statutory requirements, such as US Coast Guard Regulations, Brazilian Regulatory Standards, UK HSE requirements, Norwegian Maritime Authority Regulations, and regulations from Petroleum Safety Authority Norway and the Norwegian NORSOK

standards. Additionally, Semcorp Marine has worked with specialist partners to address global offshore and marine cybersecurity concerns. In 2018, a high-specification jack-up rig completed by Semcorp Marine became the first drilling rig to be awarded the ABS Cybersecurity-Ready Notation.

Technical and operational safety manuals, which include comprehensive details on health, safety and environment signage, safety data sheets as well as vessel operation instructions, are prepared by the company to ensure that customers and users are equipped with the necessary knowledge to operate the product safely. These manuals undergo audits and are required to be approved by statutory regulators and classification societies.

MANAGING THE VALUE CHAIN

Sembcorp Marine's value chain is critical to its competitiveness, business growth and customer satisfaction. The Group carefully manages value inputs through the life cycle phases of its projects – from design, engineering and procurement to construction and commissioning – in order to achieve on-schedule and on-budget completion, while delivering high standards of quality, safety, reliability, as well as health and environmental standards required by customers.

Information on the material topics impacting the value chain and Sembcorp Marine's level of influence can be found on pages 124 - 125.

Supply Chain Management

To mitigate supply chain risks and ensure timely project delivery and compliance with quality, security, occupational health, safety and environment requirements, various supply chain and material management systems are in place. Key vendors of essential materials, equipment, components and services are proactively managed, closely monitored and regularly assessed for their ability to deliver and to prevent lapses that may potentially affect production deliverables.

Within its value chain, Sembcorp Marine has established due diligence processes and pre-qualification checks that verify the credentials, reliability and social responsibility of its suppliers. All of them are expected to operate ethically and responsibly, in alignment with Sembcorp Marine's Human Rights Policy and ethical codes of conduct.

.....
 Scan for more information on

**Guide to Code
of Business
Conduct**



**Supplier Code
of Conduct**



.....

In 2018, Sembcorp Marine launched its Supplier Code of Conduct, which complements the Group's Code of Business Conduct. The former provides guidance to suppliers, sub-contractors and business partners on the Group's requirements relating to business integrity, including non-tolerance of bribery and corruption, conflicts of interest, human rights, fair employment, decent labour practices, ethical sourcing, conflict minerals, health, safety and environmental responsibility, data protection and privacy as well as compliance with export controls and sanctions.

Enhancing Cost-Competitiveness

Sembcorp Marine is committed to integrating sustainability into its supply chain management and procurement processes. Within various internal platforms, strategies are deployed to enhance cost savings as well as harness operational synergies and economies of scale that are not only mutually beneficial but also aligned with customers' needs.

At the various stages of production, opportunities are identified for technical and engineering enhancements that deliver material usage efficiencies for parts and components. As much as practicable, lightness, compactness and efficiency are built into the product design to optimise the quantity of raw materials used in the delivered product.

Sembcorp Marine collaborates closely with customers to identify how product or service inputs can be enhanced in terms of quantity, standardisation or deployment, so as to reduce production costs and the total cost of ownership. The Group also works with its strategic and key suppliers to improve the quality, safety and cost-competitiveness of products and services provided.

Where relevant, the Group leverages its technical knowledge, engineering competencies and innovation capabilities to propose alternative parts and components that can meet cost-saving and sustainability objectives while keeping to customers' specification requirements.

Sembcorp Marine further aims to reduce overall transport costs and carbon footprint by sourcing locally or regionally near a project's location and subsequent point of delivery.

Leveraging Operational Synergies and Economies

Sembcorp Marine utilises a strategic approach in procuring categories of materials, components, consumables and services to achieve economies of scale and secure better value from key suppliers. The Group works closely with these suppliers to standardise products and services used in its shipyards and to better align yard operations with evolving technical standards, industry requirements and best practices. This has enabled the Group to continuously improve its cost savings, supply chain economies, competitiveness and sustainability efforts.

Moreover, Sembcorp Marine aggregates the use of transportation and logistics equipment across its yards and affiliates for better resource efficiency. This synergistic approach has further enhanced its supply chain sustainability performance while boosting the Group's access to a wider set of qualified suppliers with stronger capabilities.

The Group also actively manages raw material stocks across its shipyards via a central shared database. Inventory levels are monitored to match production needs and minimise inventory storage costs. The database helps improve inventory forecasting and enables better planning with strategic suppliers to realise production economies.

SUSTAINING COMPETITIVENESS

Inputs

Suppliers

- Raw Materials
 - Metals, mainly steel plates and pipes
 - Wood, plastics, cables and consumables
- Equipment & Parts
 - Engine room machinery, process equipment and drilling packages
 - Software, sensors and systems machinery
 - Yard infrastructure and maintenance
- Chemicals & Gas
 - Paint for anti-fouling and corrosion protection
 - Bulk gases for production
 - Chemicals for process operation and treatment

Special Service Providers

- Design Houses and Technical Consultants
- Inspection, Test, Commissioning and Certification Agencies
- Waste Management Services

Labour Providers

- Sub-contractor Labour
- Local/International Workforce



For more details on Sembcorp Marine's value chain management, please visit:

- www.sembmarine.com/sustainability/value-chain-management
- Material topics and management approaches – see Approach to Sustainability section on pages 63 - 78
- Risk mitigation measures – see Risk Management section on pages 106 - 115

Our Value Chain

DESIGN & ENGINEERING

- Products & Solutions Development
- Process Engineering
- Simulation & Testing

PROCUREMENT

- Raw Materials Sourcing
- Equipment & Parts Procurement
- Services & Manpower Contracting

Material Impacts

- Business Integrity
- Innovation & Solutions Development
- Customer Focus
- Environmental Sustainability
- Human Capital
- Total Workplace Safety & Health

Where Impacts Occur / Ability to Influence

Within Sembcorp Marine, there is a high level of influence on the material impacts during this phase. There are various management systems and risk mitigation practices in place during design, engineering and procurement to ensure quality, safety, environment and performance standards. The Group strives to practise responsible procurement and requires supply chain partners to adhere to environmental, social and governance principles in its Supplier Code of Conduct.

Green Technology Retrofit Solutions
Eg. Ballast Water Management Systems
& Exhaust Gas Cleaning Systems

Repair and Upgrade Services
for Different Ship Types

Near-Shore Gas
Platform Solutions

High-Performance
Specialised Vessels

Offshore Platforms and Modules



PRODUCTION

- Resource Planning
- Production Activities
- Project Management

QUALITY, HEALTH, SAFETY & ENVIRONMENT VALIDATION

- Quality, Health, Safety & Environment Assurance
- Compliance Checks

TRANSPORTATION & DELIVERY

- Towing Solutions
- Heavy Lifting
- Logistics Support

PRODUCT IN OPERATION

- Product Training & Documentation
- After Sales Support

Material Impacts

- Business Integrity
- Innovation & Solutions Development
- Customer Focus
- Environmental Sustainability
- Human Capital
- Total Workplace Safety & Health
- Community Engagement

Where Impacts Occur / Ability to Influence

There is a high level of involvement by the Group to manage impacts relating to quality, workplace safety and health, human capital, environmental sustainability as well as compliance with customers' location-specific operating requirements. Risk mitigation measures ensure projects are completed safely, on time and within budget. There is increasing adoption of eco-friendly and energy-efficient production processes as part of the Group's drive towards smarter, sustainable and greener operations. Some external impacts are managed at this stage, for example, labour market and community engagement.

Material Impacts

- Business Integrity
- Innovation & Solutions Development
- Customer Focus
- Environmental Sustainability
- Human Capital
- Total Workplace Safety & Health
- Community Engagement

Where Impacts Occur / Ability to Influence

There continues to be a strong focus in managing customer relationships and fulfilling their delivery requirements. Influence of the Group is reasonably high regarding material topic impacts. To provide greener fleet transport solutions to customers, research and development is in progress for the design and construction of LNG-hybrid tugs to progressively renew the Group's diesel-powered tug fleet. Management systems and risk mitigation measures are in place to control product-related impacts, such as safety and emissions.

Jack-up Rigs for Up to 400ft Operational Depth



Semi-Submersible Rigs for Harsh-Environment Operation



Next-Generation Drillships for Ultra-Deepwater Operation



Floating Production, Storage and Offloading Vessels (FPSO)



FLNG Solutions for Deepwater Operation



SUSTAINING COMPETITIVENESS

Sustainable and Responsible Supply Chain Practices

Sembcorp Marine's sustainability focus in its value chain processes is aimed at managing its environmental, social, governance and economic impacts.

As part of its efforts to mitigate the potential impacts of climate change, the Group sources sustainably produced equipment and parts to provide customers with greener alternatives. Products and solutions that do not harm the environment and have lower carbon footprint are preferred. These include environmentally-friendly paints, coatings and materials as well as energy-efficient products for customers' projects and for the Group's business operations.

To conserve resources, materials such as steel and blasting grit are recycled or repurposed for internal use. Scrap materials are consolidated and recycled using approved and licensed service providers. Waste material is disposed of responsibly using service providers with nationally accredited permits.

In compliance with environmental and public health requirements by the International Maritime Organization, Montreal Protocol provisions and Singapore's National Environment Agency, Sembcorp Marine does not procure materials, parts, equipment or products containing harmful substances, including asbestos and ozone-depleting compounds such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halon.

 For information on Sembcorp Marine's environmental programmes, please refer to the Environmental Sustainability section on pages 134 - 139.

The Group avoids the entry of conflict minerals into its supply chain by not procuring tin, tantalum, tungsten, gold and other raw materials originating from conflict-affected or high-risk areas. The process of extracting and producing these minerals often involves forced labour, violence and human rights abuses propagated by divisive groups for unethical causes. Vendors are also expected to ensure that their supplied products do not include any conflict minerals.

A reliable system of due diligence and internal control processes helps Sembcorp Marine ensure that suppliers comply with its Code of Business Conduct and Supplier Code of Conduct.

To be selected into the Group's approved vendors list, suppliers undergo a strict qualification process, including a declaration that their business practices and their supply chain partners operate responsibly and ethically, consistent with Sembcorp Marine's Code of Business Conduct and Supplier Code of Conduct.

As at end 2018, 100% of active suppliers in the Group's approved vendors list declared compliance with Sembcorp Marine's ethical codes of conduct and sustainability standards.

Tender bids are reviewed based on merit through a fair and objective process, with suppliers expected to observe fair competition regulations and conduct during the tendering process. Sustainability requirements are also incorporated into the terms and conditions of contracts.

Sembcorp Marine regularly reviews its existing suppliers through a cross-functional committee, ensuring that these suppliers continue to meet

high standards of quality, reliability and performance as well as comply with the Group's sustainability and corporate governance requirements. The evaluation process includes documentation reviews, verification checks, company status updates and onsite audits where necessary; particularly for key suppliers with large spend value, purchase volumes or impact on production schedules.

If a contracted supplier fails to perform or is unable to comply with Sembcorp Marine's standards and requirements, the Group will request the vendor to implement corrective measures to rectify the relevant issues. If the supplier is still unable to fulfil the requirements, it will be removed from Sembcorp Marine's approved vendors list.

Contractors supplying manpower to Sembcorp Marine's yards must declare that their operations and human resource practices are in compliance with the Group's Human Rights Policy, Supplier Code of Conduct and applicable employment legislation. In Singapore, the Group's resident contractors are required to attain bizSAFE Level 4 certification, which ensures that an externally-audited workplace safety and health management system is in place. Regular assessments and periodic audits on contractors' dormitory and workshop facilities are done to ensure that the Group's safety, performance, quality, human rights and sustainability requirements are met.

Supplier Engagement

Sembcorp Marine actively engages its suppliers through briefings, workshops, industry sharing and trade events. This strengthens relationships and promotes win-win outcomes and continuous improvement in

business excellence, sustainability, corporate governance, innovation and occupational safety and health.

In 2018, several technical visits and factory acceptance tests were carried out at suppliers' manufacturing facilities to enhance the Group's understanding of production and delivery processes for improved operational planning, quality coordination and product execution.

Another important aspect of engagement is aligning suppliers with the Group's core values, operating principles and corporate policies. This is done by communicating and disseminating Sembcorp Marine's corporate governance policies, Code of Business Conduct and Supplier Code of Conduct to supply chain partners. In doing so, the Group ensures that its vendors and contractors are aware and have declared their adherence to the required standards.

Sembcorp Marine actively promotes technology advancement and



Close partnership with suppliers in technical exchange and knowledge sharing

knowledge exchange among its customers and suppliers. In 2018, the Group organised and participated with key equipment vendors, material suppliers and embassy delegates in several sharing sessions on innovative technologies, technical updates and product and service upgrades. Such collaborations ensure that Sembcorp Marine's engineering, procurement and operational functions are kept

abreast of new, innovative and sustainable technologies that can be deployed in the manufacturing processes of the Group's products and services. The knowledge sharing also contributed to improved welding methods, development of alternative and innovative production techniques, and the enhanced sustainability of material and components procured.



Gaining innovation insights from technology sharing by suppliers



Engagement with supplier delegates from Norwegian Energy Partners (NORWEP) in 2018

SUSTAINING COMPETITIVENESS

CUSTOMER ALIGNMENT

Sembcorp Marine's customer alignment strategy involves creating value, forging strong links and developing partnerships with customers for mutual success and growth. This involves reinforcing brand loyalty, enhancing satisfaction and building trust by ensuring execution excellence, ethical business practices as well as high standards of customer safety and security.

In 2018, Sembcorp Marine was awarded \$1.18 billion in new contracts. Marking its expansion into the gas value chain, renewable energy engineering and sustainable solutions, the Group has secured \$200 million in orders from this segment. These include:

- Engineering, procurement, construction, hook-up and commissioning works on two topsides from Ørsted Wind Power subsidiary Optimus Wind Limited for the Hornsea 2 Offshore Wind Farm in the UK North Sea; and
- The first contract of its kind for the Group to design and construct three identical plug-in roll on/roll off passenger (ropax) ferries for Norwegian company Norled AS, based on a proprietary design by Sembcorp Marine's wholly-owned subsidiary LMG Marin.

Sembcorp Marine also diversified into LNG bunker vessel construction with its first newbuild order secured in February 2019 from Indah Singa Maritime, a subsidiary of Mitsui O.S.K. Lines. The contract calls for the design and construction of a 12,000cbm LNG bunker vessel with two GTT Mark III Flex membrane tanks. To be chartered to Pavilion Gas on completion, the vessel will be the largest of its kind built locally, in terms of size and LNG tank capacity.



Teams from Sembcorp Marine and Shell celebrating the strike steel ceremony of the Vito FPSU project



Key representatives commemorating the construction commencement of TechnipFMC's turnkey EPC FPSO newbuild project



Sembcorp Marine and Equinor representatives marking the first steel cut for the Johan Castberg FPSO project

With the recent improvement in the offshore oil and gas industry, Sembcorp Marine won several new orders in 2018 on the strength of its proven track record and global leadership in turnkey offshore and marine solutions. These comprise:

- Construction and integration of hull, topsides and living quarters of Shell's Vito semi-submersible Floating Production Unit (FPU) for the US Gulf of Mexico; and
- Engineering, procurement and construction (EPC) of hull and living quarters as well as topsides fabrication and integration for TechnipFMC's newbuild FPSO for deepwater field developments in the Eastern Mediterranean.

In addition, the Group is finalising an approximately US\$166 million agreement with Teekay Offshore Partners' wholly-owned subsidiary Varg for EPC works relating to the modification, repair and life extension of the Petrojarl Varg FPSO.

In the area of gas value chain solutions, Sembcorp Marine is on track to deliver Sleipnir, the world's largest semi-submersible crane vessel for Heerema, which uses LNG as a primary fuel.

Other projects currently in progress include the construction of two proprietary design Jurong Espadon III high-specification ultra-deepwater drillships for Transocean; turnkey EPC of hull and living quarters for Equinor's newbuild FPSO for deployment at the Johan Castberg field development in the Barents Sea; FPSO P-68 topsides fabrication and integration, including hull carry-over work, as well as FPSO P-71 topside modules construction, both for Tupi B.V.



Connecting with international customers through participation in global trade shows

Forging Strong Relationships

Building Brand Awareness

Sembcorp Marine has evolved into an integrated brand offering turnkey engineering, procurement, construction and commissioning (EPCC) solutions and a full suite of oil and gas value chain capabilities for the offshore, marine and energy industries.

To strengthen its branding and market position, the Group connects with prospective and current customers

through regular marketing road shows and participation in major trade exhibitions globally as well as networking events in key markets.

Sembcorp Marine is also actively involved in technology seminars, technical sharing sessions and industry events to build awareness of the Group's new products and capabilities, such as its renewable energy solutions; green technology; arctic solutions; Gravifloat LNG terminal facilities; Sevan SSP circular hull solutions; and cruise ship designs.



Showcasing Sembcorp Marine's green technology retrofit solutions, including its proprietary ballast water management system, at industry forums and summits



Sembcorp Marine networking reception in Houston, Texas, USA



Promoting Sembcorp Marine's global capabilities at international conferences



Collaborating with customers to continuously enhance HSE best practices

SUSTAINING COMPETITIVENESS

Fostering Partnership

Cultivating strong partnerships is a top priority for the Group.

In the offshore segment, Sembcorp Marine's partnerships with technology and engineering partners have contributed to its progressive expansion into the gas value chain as well as renewable energy and turnkey EPCC solutions. These partnerships have also enabled Sembcorp Marine to chart new technology frontiers in developing solutions for deeper, harsher and colder environments.

In the repairs and upgrades business, Sembcorp Marine has established strong long-term partnerships via Alliance Agreements and Favoured Customer Contracts (FCC) with major offshore, marine and shipping players.

The Alliance and FCC partnership agreements – where partner vessels sailing in the region call exclusively at Sembcorp Marine's yards for repair and upgrading services – bring mutual benefits. On top of safe, high quality and timely deliveries, Alliance and FCC partners are also assured of priority dock space and resources for refitting, refurbishment or life extension works. The steady stream of repair and upgrading work from these world class partners also helps strengthen Sembcorp Marine's revenue base, QHSE (quality, health, safety and environment) systems and expertise. The strong synergy between the Group and its partners has led to continuous innovation and improvements to ship repair and upgrading processes.

In 2018, long-term partnership agreements were signed with Shell/ GasLog and Solvang ASA of Norway for the exclusive refits of their vessels in the region. The Group also won its single biggest green technology retrofit contract of the year – for installing 13 marine scrubbers and four



Several LNG vessels undergoing repairs and upgrades in Tuas Boulevard Yard

ballast water management systems on Greek owner Maran Tankers' vessels.

As a further affirmation of its superiority in ship repair and upgrading, Sembcorp Marine retained its position as the world's top LNG repair yard for the sixth time, with a total of 41 LNG ships serviced in 2018. Sembcorp Marine's long-term customers in the LNG and gas carrier segment include BP Shipping, Chevron LNG, China LNG Shipping, GasLog LNG, Northwest Shelf Shipping Services Company, MOL LNG UK and Teekay Gas UK.

In the cruise ship market, Sembcorp Marine has strategic partnerships with Carnival Corporation and Royal Caribbean Cruises – the world's top two cruise companies – as well as close ties with regular customers, including Asia's leading cruise lines, such as Genting Cruise Line / Star Cruises, and numerous niche-market cruise owners and operators. The Group reprised its role as Asia's top cruise ship repair and upgrade solutions provider with 10 projects delivered in 2018.

The Group also has a strong track record in servicing container vessels, working with major customers such as Maersk Line, Hapag-Lloyd, United Arab Shipping Company, Evergreen Marine, Pacific International Lines, PT Pelayaran Tempuran Emas and NSC Shipmanagement.

Sembcorp Marine is as well a trusted partner in naval ship repairs, having completed projects with the Republic of Singapore Navy and other long-term customers in 2018.



Cruise vessel Norwegian Jewel undergoing refurbishment in Admiralty Yard

Reinforcing Brand Loyalty

Sembcorp Marine builds its reputation on executing and delivering projects on time, with high standards of quality as well as health, safety and environment (HSE) practices.

The Group carefully manages HSE impacts throughout the life cycle stages of all its products and solutions, starting from design, engineering and procurement through to production and delivery. Impact assessments such as HAZID and HAZOP studies are conducted where necessary.

Sembcorp Marine's operational excellence is further underpinned by stringent quality, safety and environmental management system processes. Besides fulfilling internationally recognised compliance audits for ISO 9000, OHSAS 18001 and ISO 14001, annual internal audits along with regular external audits, management reviews and customer assessments are also implemented.

Stringent policies and systems ensure smooth work execution and successful management of operational, health, safety, environment, social and governance risks across the Group's global network, value chain, engineering development and project management processes.

To prevent incidents and mitigate HSE risks, all personnel and visitors accessing Sembcorp Marine work sites are issued with personal protective equipment and briefed on safety procedures. Signages and labels communicating important safety instructions and information are prominently displayed where required.

Initiatives such as Hazard Observation System, Personal Safety Involvement Scheme and Stop-Work Authority Programme collectively empower Sembcorp Marine personnel to

intervene, report and prevent potential hazards on site. To prepare for any eventualities, Sembcorp Marine yards also work closely with customers in conducting regular health, safety, security and environmental drills.

Last but not least, Sembcorp Marine's thorough quality and safety validation checks before delivering finished projects ensure that customers' specifications are met and that the Group has complied with relevant standards mandated by classification societies, IMO as well as state and port regulations.

Successful Deliveries

The Group's proven track record was further reinforced with several project deliveries in 2018.

Sembcorp Marine achieved a major milestone in the year with the delivery of Ailsa, the Group's first full turnkey newbuild FSO project, to owner MODEC and operator TOTAL. Covering design, engineering, procurement, construction and

commissioning, the FSO project was not only completed on time, but also achieved a zero lost-time incidents safety record and full compliance with UK safety regulations for operations in the harsh-environment Culzean field, located in the UK North Sea.

Another key delivery was the massive wellhead, utilities and living quarters as well as central processing facility topsides project for TOTAL. Weighing over 30,000 tonnes, the fixed platform topsides joined FSO Ailsa and high-specification jack-up rig Maersk Highlander – which the Group completed earlier in 2016 – as part of a comprehensive suite of Sembcorp Marine engineering solutions for the high pressure, high temperature Culzean field.

The Group also delivered the Kaombo Norte and the Kaombo Sul FPSO conversion projects to Saipem for the Kaombo field offshore Angola; as well as eight proprietary design Pacific Class 400 jack-ups – one unit to BOT Lease and seven to Borr Drilling.



Commemorating the repair completion of cruise ship Golden Princess

SUSTAINING COMPETITIVENESS



Celebrating the successful completion of FSO Ailsa for deployment in the Culzean field



Successful delivery of Njord, a Pacific Class 400 jack-up drilling rig to Borr Drilling



Completion ceremony for TOTAL's wellhead, utilities and living quarters as well as central processing fixed platform topsides project for operation in the Culzean field



Celebrating the conversion completion of Kaombo Sul FPSO

Customer Satisfaction

Service excellence is at the heart of Sembcorp Marine's operations. The Group maintains an open communication channel with customers, with service personnel accessible round the clock to address any needs or project-related issues.

Sembcorp Marine gathers comprehensive feedback from customers on a regular basis, as this helps the Group better fulfil project requirements; understand market changes and emerging opportunities; improve its products, solutions and processes; and maintain high satisfaction levels.

Building Trust

Sembcorp Marine safeguards customer interests by complying with data privacy protection regulations, contractual and confidentiality agreements as well as high standards of business ethics. The Group also maintains stringent security systems, protocols and practices around customers' intellectual property and physical assets.

Specifically, Sembcorp Marine yards observe the International Ship and Port Facility Security (ISPS) Code and have strict security systems, such as 24-hour security surveillance and stringent access controls that track the flow of personnel and traffic at key locations and work sites. To ensure security preparedness, regular inspections and emergency drills are conducted. These include joint exercises with government security agencies.



Njord is the first drilling rig to be accorded a Cybersecurity-Ready Notation by ABS

Sembcorp Marine yards also provide dedicated office facilities for customers to work in a safe, secure and conducive environment.

In 2018, Sembcorp Marine helped its customer Borr Drilling achieve the ABS Cybersecurity-Ready (CSR) Notation for the latter's newbuild jack-up rig, Njord; which became the first drilling rig to receive the Notation after fulfilling requirements to implement access controls and cybersecurity management systems.

The CSR Notation paves the way for Njord to achieve full ABS Cybersecurity Notations in the future.