

Marine & Offshore

Factsheet 2011

Leading the World in Marine Engineering

At a Glance

Singapore is home to a thriving marine & offshore industry. Blessed with an excellent location at the confluence of major shipping lanes, the Singapore marine industry has long been a leading centre for ship repair. In recent years, the industry has seen an unprecedented boom, largely driven by the strong demand from the offshore industry.

Today, Singapore has attained global leadership, with a dominant global market share of rig building and Floating Production Storage Offloading (FPSO) vessel conversion, in addition to ship repair.

The key activities of Singapore's marine & offshore industry include shipyard operations (ship repair, building of marine vessels and offshore structures), vessel design and engineering and marine equipment & services.

The industry is led by two large shipyard groups, SembCorp Marine Ltd and Keppel Offshore & Marine. There is also a strong cluster of medium-sized yards with capabilities for building and repairing specialized vessels. Supporting these yards is a sizeable industry providing classification services, design and engineering, marine equipment and services. These include navigation, communication, propulsion and auxiliary equipment, as well as ship classification societies and emergency response services.

Industry Vision

EDB is committed to maintaining Singapore's strong position in the global marine & offshore industry into the coming decade. We will continue to build on Singapore's strengths to be an integrated hub that offers:

- World-class shipyards with leading-edge capabilities and strong global leadership positions
- Complex marine systems and components design and manufacturing
- Comprehensive marine-related services, including classification and naval architecture/marine engineering capabilities

Key Projects

- **Rolls-Royce**, a global power systems company, announced that it will be moving the global headquarters for its Marine business to Singapore. Rolls-Royce has been active in Singapore's marine industry for more than 30 years. The new headquarters will take on key global responsibilities including business development, marketing and corporate services.

Capability & Capacity Expansion

- **Becker Marine**, a leader in marine rudder systems, signed an MOU with Singaporean marine equipment manufacturer, Mencast Marine, and Dutch precision-machining house, Amersfoort BV, for the setup of its first Asian rudder-manufacturing facility. This will see the highest value components of the rudder system being produced wholly in Singapore for the global market.
- **Berg Propulsion**, a leader in marine propellers and thrusters, launched its first plant outside of Sweden. This plant will be their most advanced facility worldwide, and Berg plans to use innovative manufacturing methods for greater efficiency.
- **Keppel FELS** upgraded their existing facility to manufacture oil rigs that can be deployed in deeper waters and withstand harsher environments. Several new ship docks were built to augment Keppel's existing rig building capacity, along with specialized infrastructure to facilitate Keppel's foray into newer technology areas.
- **MacGregor-Plimsoll** established an offshore crane manufacturing plant for their most advanced range of active-heave compensation cranes, leading the way in the company's strategy to strengthen its Asian presence.
- **Sembcorp Marine** has commenced construction of a new integrated yard facility, which represents Singapore's drive to stay at the forefront of the marine and offshore industry during constant innovation and modernisation. The state-of-the-art facility incorporates a revolutionary shipyard design as well as the latest production technology and processes. As a result, land use is optimised and the supply chain efficiency

improved, thereby achieving a quantum leap in productivity, resource optimisation and operational synergy.

Manpower

- **University of Glasgow-Strathclyde (UGS)**, renowned globally for their naval architecture and marine engineering programs, partnered NTU to provide two new fourth year specializations. These specializations are in Naval Architecture & Marine Engineering, and Naval Architecture & Ocean Engineering. The experience of UGS' faculty will enhance the local engineering curriculum. The programme is facilitated by the Singapore Maritime Foundation (SMF).
- **Ngee Ann Polytechnic** has put in place a Diploma level and an Advanced Diploma level course in response to the growing demand for personnel trained in Marine Engineering and ship technology. In addition, Ngee Ann Polytechnic and Singapore Polytechnic are partnering the University of Newcastle upon Tyne to offer a Bachelors' degree program in Naval Architecture & Marine Engineering under the Foreign Specialized Institute (FSI) Scheme. The program begins in September 2008 and expects 60-80 students per year.
- **Association of Singapore Marine Industries (ASMI) Super V Scheme** was launched in November 2006 to attract more locals to join the shipyards as Trainee Supervisors. The 'ASMI Super V' Scheme is a tripartite initiative by ASMI, the National Trades Union Congress (NTUC) and Singapore Workforce Development Agency (WDA). The scheme allows suitable job seekers, without relevant marine-related skills, to be employed by the participating shipyards, and then placed on a structured skills training road map. It is a holistic approach to employment, reskilling and training.
- **The Peak** is a Mandarin TV drama serial that sought to showcase the vibrancy and multi-faceted nature of the offshore, marine and maritime businesses. It was jointly sponsored by Keppel Group, the Maritime and Port Authority of Singapore (MPA), SMF and ASMI. The serial also occupied the top place as Singapore's most watched TV programme since it premiered in January 2007, according to Taylor Nelson Sofres, an independent market research house.

Positioning for the Future

Research & Development

To position ourselves for the future, the industry is investing in R&D capabilities. The government is also building the marine and offshore R&D infrastructure to support these initiatives.

- **Maritime Research Centre (MRC)** is a one-stop centre for maritime R&D in Maritime Technology at the Nanyang Technological University (NTU). The centre prides itself as the bridge between the industry and academia. With 600 professors in the College of Engineering alone, MRC has access to a myriad of experts when addressing the industry's needs. Since its inception in 2001, MRC has received invaluable support from NTU while working with other government agencies and companies on broad range of issues. The centre has demonstrated its ability to mobilise and respond promptly to offshore and marine industry's needs while identifying new opportunities for R&D and technological development.
- **Tropical Marine Science Institute (TMSI)** was formed as a University-level research institute within the NUS in 1998 in response to the need for a centre of excellence in tropical marine sciences in Singapore. Through active collaboration with the academic, government and industrial sectors, the TMSI plays a strong role in promoting integrated marine science in R&D, as well as regional and international education and training.
- **Centre of Innovation – Marine & Offshore Technology (Col)** aims to provide technology consultancy and develop practical and downstream technology platforms for SMEs in the marine industry. Set up in Nov 2006, it is a one-stop Resource Centre funded by SPRING (70%) and MOE (30%). The centre will work on collaborative models and form partnerships with the industry. Staff from COI has the expertise in marine & offshore technology, mechanical engineering, electrical & electronics engineering, instrumentation & control, industrial automation & robotics and workplace improvement & safety.

- **Centre for Offshore Research & Engineering (CORE)** was initiated by EDB with the aim to promote and coordinate R&D and develop manpower for Singapore's offshore engineering industry; to establish an influential, constructive and convenient platform for networking amongst offshore and marine industries, universities and research institutes; to develop core and strategic research programs that will result in knowledge generation and intellectual property creation; and to facilitate the transfer of technology and know-how for upgrading and training of manpower through courses and conferences. In March 2007, the centre was given a boost with the launch of a \$10 million Offshore Technology program. The centre is hosted at the National University of Singapore (NUS), and currently has 20 academic staff members leading research projects and 35 research fellows and students supported by EDB, the Agency for Science, Technology & Research (A*STAR) and the MPA.
- **The Marine Group Local Industry Upgrading Programme (LIUP)** supported by EDB, celebrated its 10th anniversary of promoting win-win relationships between customers and local suppliers, developing a stronger local marine cluster and developing core competencies and capabilities. In the coming year, the emphasis will be on promoting co-development of products and processes between Local Research Institutes and Local Enterprises.

In addition, these companies are actively growing their R&D operations in Singapore, for the local and regional markets:

- **The American Bureau of Shipping Singapore Offshore Technology Centre** will be ABS' first ever corporate R&D centre for Marine/Offshore sector outside of Houston. It will be staffed with at least 8 PhD holders to conduct high-end research in marine/offshore technology. ABS is making good progress so far, and is looking to increase the scope of R&D activities in the medium term. Expenditure is almost S\$9 million over 5 years.

- **The Keppel Offshore & Marine Technology Centre** will be Keppel's first ever corporate R&D centre for Marine/Offshore. Keppel is planning to spend S\$150 million over the next 5 years, and will staff close to 90 R&D personnel in this centre. This centre aims to maintain and improve KOM's leadership position in the marine/offshore market, as well as to move them up the value chain of activities, from being purely a fabricator and integrator to a designer and engineering team to better serve its customers.

Leading Industry Players

- **Shipbuilding, Rig Building, Ship Repair & Conversion**

- (a) Jaya Shipbuilding
- (b) Keppel Offshore & Marine
- (c) Labroy Marine
- (d) Otto Shipyard
- (e) Pan United Marine
- (f) SembCorp Marine
- (g) ST Marine

- **Marine Propulsion Systems**

- (a) Becker Marine
- (b) Berg Propulsion
- (c) Caterpillar Marine
- (d) Cummins
- (e) MAN Diesel
- (f) MTU
- (g) Rolls-Royce Marine
- (h) Twin Disc
- (i) Wartsila
- (j) Yanmar

- **Marine Electronics**

- (a) Kelvin Hughes
- (b) Kongsberg Maritime
- (c) Norcontrol IT
- (d) Radio Holland
- (e) THISS

- **Specialty Equipment Players**

- (a) ABB Marine
- (b) Dredging International
- (c) Hamworthy
- (d) Hatlapa
- (e) Tru-Marine
- (f) Unitor

- **Marine Classification & Services**

- (a) American Bureau of Shipping
- (b) BMT
- (c) Bureau Veritas
- (d) Class NK
- (e) Conan Wu & Associates
- (f) Det Norske Veritas
- (g) Germanischer Lloyd
- (h) Lloyd's Register

Outlook

The outlook for the industry remains relatively positive. The focus on developing capabilities to address the offshore market has paid off, as this sector remains relatively better off, compared to the commercial shipping market. The long term demand for oil and gas is expected to remain strong, and Singapore hopes to build on its growth momentum to invest in new capabilities which will preposition the industry for the future.

About the Singapore Economic Development Board

The Singapore Economic Development Board (EDB) is the lead government agency for planning and executing strategies to enhance Singapore's position as a global business centre. EDB dreams, designs and delivers solutions that create value for investors and companies in Singapore. Our mission is to create for Singapore, sustainable economic growth with vibrant business and good job opportunities. EDB's 'Host to Home' strategy articulates how we are positioning Singapore for the future. It is about extending Singapore's value proposition to businesses not just to help them improve their bottom line, but also to help them grow their top line through establishing and deepening strategic activities in Singapore to drive their business, innovation and talent objectives in Asia and globally.

For more information on EDB, please visit www.sedb.com

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