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November 2012

**Growing into
the future**



A Special Report on Keppel Offshore & Marine



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Over the past decade, Keppel Offshore & Marine (Keppel O&M) has demonstrated the strength that working together can bring. The merger of Keppel FELS, Keppel Shipyard and Keppel Singmarine into Keppel O&M in 2002 brought together 300 years of experience under one roof to create a leading global offshore and marine solutions provider.

The combined strength of Keppel O&M has delivered an unrivalled global network of yards that underpins our 'Near Market, Near Customer' strategy. Today we have 20 yards in countries spanning the Asia Pacific, Gulf of Mexico, Brazil, the Caspian Sea, the Middle East and the North Sea regions.

Whether our customers require a rig to be built in Brazil, a liquefied natural gas (LNG) carrier to be repaired in the Middle East, an offshore vessel for operation in the Caspian Sea or a specialised unit with unique features designed and constructed in Singapore, Keppel O&M is able to offer that capability.

At Keppel O&M, we understand the need for customised solutions and this is why we have invested significantly in our own proprietary designs, as well as cutting-edge research and development (R&D).

The results speak for themselves. Since 2000, Keppel O&M has built 50% of the jackup rigs and one-third of the semisubmersible rigs to enter the global market. Keppel FELS' deliveries include 35 KFELS B Class jackups and 15 semisubmersibles built to our proprietary designs. In addition, to date, Keppel Shipyard has completed over 100 offshore conversion and upgrading projects, while Keppel Singmarine has built 400 vessels.

This year, we sealed the order for six DSS™38E semisubmersibles, another of our proprietary designs, for offshore Brazil. The Group's net orderbook has grown

from S\$1.9bn in 2003 to S\$9.4bn in 2011, and as at the end of the third quarter of 2012, it has reached S\$13.1bn with deliveries extending to 2019. For 2012 to-date, we are pleased to have secured a healthy S\$8.8bn worth of new orders.

With technological development key to meeting the future challenges of the offshore and marine industry, we rationalised our various R&D and engineering units and formed the Technology Division earlier this year. This is so that the Group can better tap on its various technology platforms to strengthen our focus required to maintain leadership.

But we are not all about numbers, technology and designs. The power behind Keppel O&M's success is our people. Keppelites past and present have put their heart and soul into building the company and positioning it for growth. We would also like to thank our customers, business partners as well as government officials around the world for their support, and for helping to transform our vision into reality.

This supplement published jointly with Seatrade provides an insight into the last 10 years of the Group, its businesses and its people, and how Keppel O&M is positioning itself to remain a leader in its field in the decades to come.

We look forward to continue with the win-win partnerships we have with our customers, partners, subcontractors, vendors and classification societies. The drive to explore and develop ultra-deepwater fields and increasingly harsh operating environments will present extreme challenges. But I am certain with the Keppel Can-Do spirit, and with strong collaborations with our customers and service providers, we can overcome these challenges to meet the needs of the global energy industry.

Choo Chiau Beng

CEO of Keppel Corporation and
 Chairman of Keppel Offshore & Marine

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Synergies from integration

Chief Executive Officer Tong Chong Heong explains how an integrated and united team is core to Keppel Offshore & Marine's success

It has been a decade since the move was made to bring Keppel FELS, Keppel Shipyard and Keppel Singmarine under the umbrella of Keppel Offshore & Marine (Keppel O&M).

Tong Chong Heong, Chief Executive Officer of Keppel O&M shares, "It has been shown that this is probably the best decision we have made in a long time. Answerable to the same management, the three companies have been working together to reap synergies.

"The creation of Keppel O&M also brought clearer direction and purpose to our overseas yards. Keppel AmFELS in the US used to come under Keppel FELS, while our yards in the Philippines came under Keppel Shipyard. As such, the yards were managed quite differently and supported narrow sets of interests. Once they all came under Keppel O&M, they had to adopt common practices and standards as well as serve the group's common vision.

"Pursuing our 'Near Market, Near Customer' strategy, we are present in almost all major oil producing regions in the world today. Our customers in these various markets enjoy the convenience of working with our local teams, yet still benefit from the experiences of our global network, including our flagship yards in Singapore."

For customers with multiple projects, even if they are of different vessel types, Keppel O&M offers the option of working with a single overarching entity for a range of services. "Our customers appreciate the fact that all their projects will receive the attention and support of a cohesive senior management team," Tong adds.

Tong cites the example of Keppel O&M's partnership with the Italian oil and gas contractor Saipem S.p.A (Saipem) as one which spans not only project types but also countries. In mid-2011, Keppel FELS completed for Saipem the semisubmersible (semi) drilling rig Scarabeo 9, and Keppel Shipyard and Keppel Singmarine also



Dan Rabun, Chairman, President and Chief Executive Officer of Ensco, and Tong Chong Heong, Chief Executive Officer of Keppel O&M, celebrate strong relations between Ensco and Keppel. The two companies have collaborated on projects in Singapore, the US, Brazil and Qatar

The integration replaced energy sapping competition between the Keppel yards with synergies. With unity, we are able to optimise and mobilise our global resources for our customers.

Tong Chong Heong, Chief Executive Officer of Keppel O&M

recently worked on the world's largest pipelay vessel Castorone. Presently, Keppel Verolme is undertaking for Saipem the upgrading of the semi drilling unit, Scarabeo 6.

The formation of Keppel O&M has also led to a more concerted action to rationalise resources. While each yard maintains varied areas of specialisation – such as in rig engineering, repair and construction, ship repair and conversion or shipbuilding – its facilities and workforce can be used

to support the operations of its sister companies.

Tong elaborates, "As of third quarter 2012, we have an orderbook of S\$13.1bn, with deliveries extending into 2019. Next year, Keppel FELS is scheduled to deliver 20 rigs. For the yard to achieve this, it will have to rely on the support of its sister yards. Keppel Singmarine, for instance, is doing a portion of Keppel FELS work now. Subsequently, Keppel FELS will integrate these various portions.

"With good teamwork between our yards, demanding delivery schedules are achievable."

While Tong is pleased with the achievements of Keppel O&M over the last decade, he believes that there is still room for growth. He shares, "Our challenge now is to continue to work together to grow our capabilities to meet the needs of today and tomorrow."

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on their 10th anniversary!*


FRONTLINE



Sustaining market leadership

Not one to rest on its laurels, Keppel Offshore & Marine relentlessly pursues opportunities to sharpen its competitive edge

Talking to Chow Yew Yuen (YY Chow), Chief Operating Officer of Keppel Offshore & Marine (Keppel O&M), the message that comes across loud and clear is that the group is focused on maintaining leadership in the markets it serves.

Keppel O&M leads in the jackup and semisubmersible (semi) newbuilding market, and is strong in ship repair, conversion and construction. Despite its pole position, the group continues to review its businesses and processes to come up with ways to stay ahead of new developments and competitors.

A central element that Keppel O&M has identified for its continued growth is its investment in technology, both in terms of research and development (R&D) and improving the processes and productivity of its yards.

In line with this view, the group recently established a Technology Division.

Chow elaborates, “We now have four divisions: Offshore, Marine, Specialised Shipbuilding and Technology. The Technology Division brings together our existing R&D and technology commercialisation units. It will also help to coordinate our process and productivity improvement efforts.

“Market-relevant proprietary designs make our services more attractive, while enhancements to our processes and efficiency make us more cost-competitive. The net impact is more robust operations.”

Keppel Offshore & Marine Technology Centre (KOMtech), the R&D arm of the Technology Division, has in its stable of projects concepts for deep waters and harsh environments. For example, in partnership with ConocoPhillips, KOMtech is designing a first-of-its-kind, ice-worthy jackup for the Arctic Seas.

Through R&D partnerships with institutes and universities, KOMtech is

growing its repository of knowledge and technology capabilities. This year, it formed a consortium with Keppel O&M FloaTEC, a deepwater floating production system specialist, and the National University of Singapore to explore solutions for the development of Brazil’s offshore fields. The consortium is seeking collaborations with Brazilian institutes and universities to further enhance its competencies.

On the process and productivity front, Keppel O&M will be stepping up efforts to share improvements made at one yard to the rest of the group so that benefits are reaped by all.

By standardising productivity, Keppel O&M stands to further sharpen its competitive edge. “It is very powerful. We are benchmarking all our yards against best practices,” Chow says. “The general belief is that productivity is not important when operating in a low-cost country. Keppel thinks otherwise – we think that the low-cost advantage is only meaningful and sustainable if our operations are productive.”

In the third quarter of 2012, the group made a strong push into the offshore wind market with the delivery of one of the world’s largest multi-purpose offshore wind turbine installers, Seafox 5. Chow shares, “We are constantly on the lookout for opportunities to apply our design, engineering and construction expertise to adjacent industries. Seafox 5, for instance, employs our proven jacking technology.”

As part of its forward thrust, Keppel O&M will also continue to grow its global footprint. Chow notes, “We already have a presence in almost all regions with active exploration and production (E&P) activities. E&P is gaining momentum in Africa and Mexico; we have been following developments closely, and have been serving these regions through our existing yards. When the time is right, we hope to further establish ourselves in those markets.”



Dilma Rousseff (left), President of Brazil, and Chow Yew Yuen (right), Chief Operating Officer of Keppel O&M, at the naming of P-56 at BrasFELS, Keppel O&M's yard in Brazil, in June 2011. This is the first Floating Production Unit (FPU) to be completely built in Brazil

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Coming together

The formation of Keppel Offshore & Marine in 2002 has enabled the group to offer integrated solutions and be more competitive. More recently, the group brought its research and development as well as process and productivity units under one division to address the challenges of the future in a more concerted manner

At the turn of the century, Keppel's offshore and marine companies were well-established in their chosen business segments. Operating independently from each other however limited the extent to which Keppel could reap synergies.

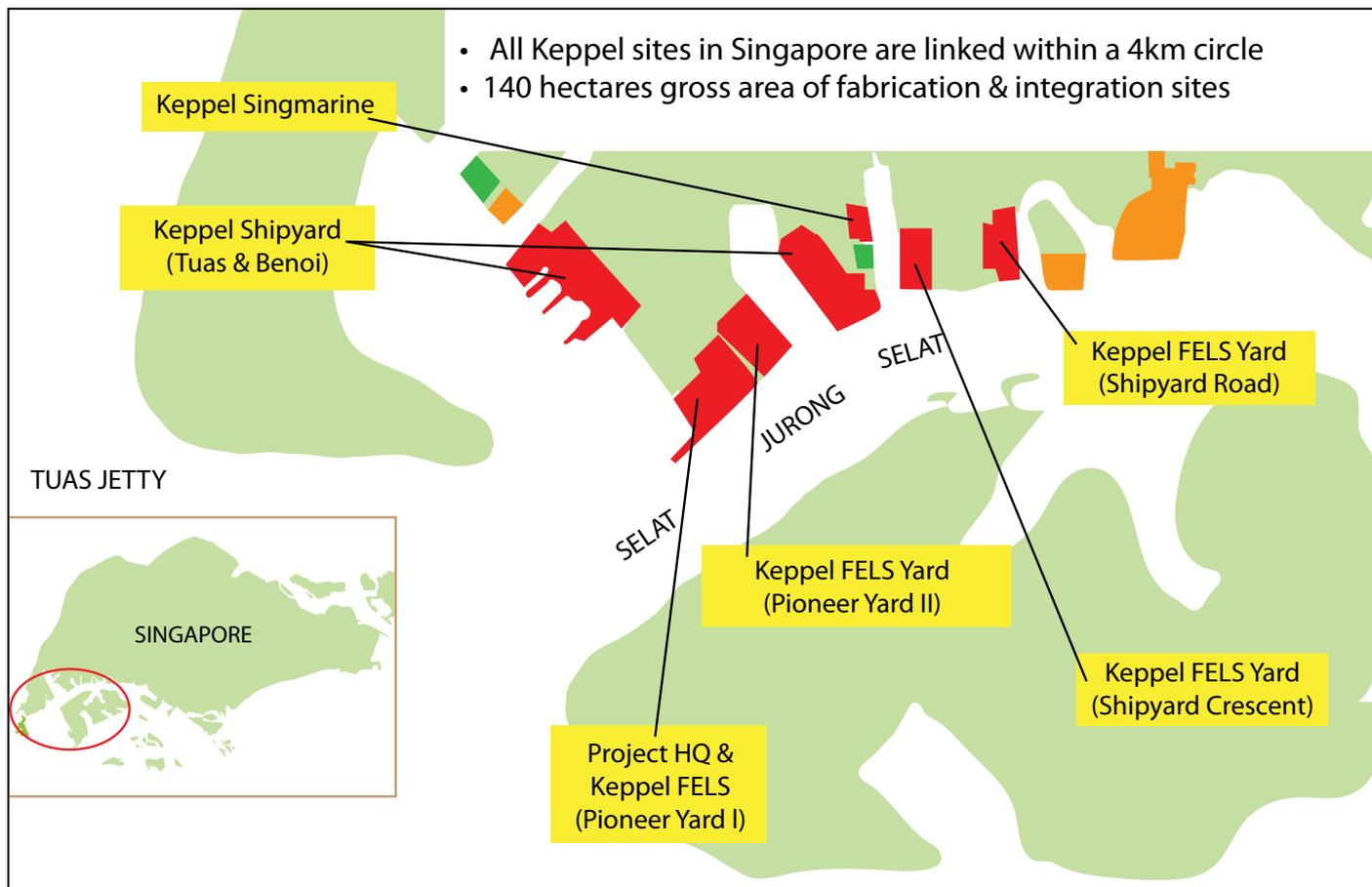
Choo Chiau Beng, Chief Executive Officer of Keppel Corporation and Chairman of Keppel Offshore & Marine (Keppel O&M) explains, "To become a truly global company, we would have to

forge a unified team. There would be no more in-fighting and competing against each other within the group. We would be focused on our customers and the marketplace."

In 2002, these offshore and marine companies were restructured under the umbrella of Keppel O&M. To optimise capabilities and infrastructure, the companies were also streamlined to focus on distinct but complementary segments of the industry.

It was determined then that Keppel FELS would concentrate on the design, and construction of offshore rigs; Keppel Shipyard would look into ship conversion, upgrading and repair; and Keppel Singmarine would focus on shipbuilding.

Specialisation in these respective areas enabled these companies to deepen their competencies and achieve exceptional performances, while diversity in businesses across Keppel O&M made the group more resilient against the cycles of the offshore oil



"Keppel O&M's seven yards in Singapore are within a 4km radius, and are linked by roads and floating cranes. The close proximity facilitates the sharing of resources and collaborations on projects."

Tong Chong Heong, Chief Executive Officer of Keppel O&M



Celebrating the successful completion of Saudi Aramco's first purpose-built jackup are: (L-R) Wong Ngiam Jih, Chief Financial Officer of Keppel O&M; Loh Chin Hua, Chief Financial Officer of Keppel Corporation; Choo Chiaou Beng, Chief Executive Officer of Keppel Corporation and Chairman of Keppel O&M; Khaled Al-Buraik, Vice President, Drilling and Workover, Saudi Aramco; Mohammad Al-Hattab, Manager, Department Head, Southern Area Oil Drilling Department, Saudi Aramco; Chow Yew Yuen, Chief Operating Officer of Keppel O&M; and Wong Kok Seng, Managing Director (Offshore) of Keppel O&M and Managing Director of Keppel FELS



Applying manufacturing methodologies to its rigbuilding operations, in 2008 Keppel FELS became the first Singaporean company to receive the Manufacturing Excellence Award (MAXA), which is accorded to Singapore-based companies that have achieved world-class manufacturing standards



After a successful pre-conversion at Keppel Shipyard in Singapore, P-57 had its topside modules seamlessly integrated at BrasFELS, Keppel's yard in Brazil

Systematic transfers of knowledge, skills and systems from Keppel O&M's yards in Singapore to our overseas units enable all our operations to provide high quality and efficient services.

With strong competencies and good teamwork between our yards, demanding delivery schedules are achievable. In 2009, the group delivered 14 rigs.

We will best this performance in 2013 when we deliver 21 rigs.

Wong Kok Seng,
Managing Director (Offshore) of
Keppel O&M and Managing Director of
Keppel FELS

and gas and shipping markets.

With careful planning, the benefits of integration were reaped quickly. The group was able to consolidate in areas such as procurement, labour and facilities.

A central procurement unit was created to coordinate the procurement of common items for Keppel O&M's companies. The benefits of increased purchasing power and economies of scale is reflected in the group's bottom line. In the two years that followed the merger, Keppel O&M achieved savings of S\$43m over what it would have spent had the companies made their purchases separately.

In addition, with greater unity, Keppel O&M has also been able to link its facilities in Singapore and overseas to undertake

more projects than they would have been able to do so individually.

Expanding to be close to its customers and their market, the group today has 20 yards worldwide, spanning the Asia-Pacific, Brazil, the Gulf of Mexico, the Caspian Sea, the Middle East and the North

Sea regions (see page 20).

Systematic transfers of knowledge, skills and systems from Keppel O&M yards in Singapore to its overseas units have ensured that their operations readily reach high levels of productivity.

Chow Yew Yuen, Chief Operating Officer of Keppel O&M, notes, "Our cohesive network of yards makes it possible for us to set these delivery records. They also enable us to fulfill local content requirements for markets such as Brazil and the Caspian Sea.

34
newbuild orders from Q4 2010 to Q3 2012 are for Keppel designed jackups or semis



Keppel O&M believes that a focus on technology will help sustain the group's growth into the future. (L - R) Michael Chia, Managing Director (Marine) and Managing Director (Technology) of Keppel O&M, Sit Peng Sang, Board Member and former Executive Director, Tong Chong Heong, Chief Executive Officer and Choo Chiau Beng, Chairman

A focus on technology

Keppel O&M has achieved much over the last decade. The group reaps the benefits of integration to offer customers the solutions they require in the locations where they need them.

However, the need to develop solutions for ultra-deepwater fields and to work in ever harsher environments means pushing the technological envelope and Keppel O&M is counting on its technology leadership to stay ahead of the curve.

"We are taking active steps to ensure that our solutions continue to remain relevant in the changing exploration and production landscape," states Chow.

In April this year, Keppel O&M paved the way for a more technological-driven business by establishing the Technology Division. This division brings together the group's established and new research and development (R&D) as well as process and productivity units for more coordinated efforts.

Technology and innovation has long played a part in the success of Keppel O&M. Of the 39 newbuild orders that Keppel O&M has secured from fourth quarter 2010 to third quarter 2012, 34 are for Keppel O&M-designed jackup or semis.

A winning formula

Michael Chia, Managing Director (Marine) and Managing Director (Technology) of Keppel O&M, is confident that technology leadership will remain one of Keppel O&M's key differentiators in the future.

"Our propriety designs are widely sought after as they deliver high-performance, and are value-for-money," shares Chia.

Keppel Offshore & Marine Technology Centre (KOMtech), the group's main R&D unit, now comprises two arms, Shallow Water and Deepwater.

On-going projects of the Shallow Water segment include Arctic jackup rig design, offshore wind solutions, liquefied natural gas (LNG) applications and environmental solutions for the offshore oil and gas industry.

The deepwater segment concentrates on ultra harsh-environment semis, tension leg

platforms as well as drillships.

Apart from Singapore, Keppel O&M has a technology centre in the Netherlands, KOMtech Europe, and is in the process of setting up another unit in Brazil, KOMtech Brazil. Chia elaborates, “These centres will help us stay on the pulse of the technological needs of the European and Latin American markets. They will also facilitate our R&D collaborations with industry and academic institutes in these regions. We are looking to strengthen our R&D activities in the US as well.”

A collaborative approach

“The Technology Division enables better coordination and communication between our R&D units and commercialisation channels,” says Chia.

“Our commercialisation teams take our concepts and basic designs to the customers

for feedback. Their inputs help to ensure the commercial viability of these designs, which are later brought to reality.”

For example, the division’s Offshore Technology Development (OTD) collaborates with customers to flesh out designs for jackup rigs and its components. The Deepwater Technology Group (DTG) team does the same for semis and other floating structures, while its Marine Technology Development (MTD) works on offshore support vessels and specialised units.

A new arm under the Technology Division is the KOMtech Shipyard Technology Group which focuses on improving process and productivity.

“Through this unit, we capture the best practices of each yard and disseminate them to the rest of the group. This will bring up the performance of all our yards,” explains Chia.

“The unit is also responsible for

developing and implementing a productivity benchmarking system to ensure that our yards are optimised.”

In sum, Keppel O&M’s efforts to improve its technology capabilities and processes will mean for customers a broad range of viable solutions delivered through enhanced methods of engineering and construction.

Technology leadership will be one of our key differentiators. We want to position ourselves as a choice partner for conceptualising and constructing market-relevant solutions.

Michael Chia, Managing Director (Marine) and Managing Director (Technology) of Keppel O&M



The KFELS Super A Class is a viable cost-effective solution for harsh environments and cold climates



Celebrating a successful collaborating between their companies were (L-R) Vincent Duignan, Deputy General Manager of Hoang Long Joint Operating Company (HLJOC), Hassan Basma, Executive Director and Chief Executive Officer of Bumi Armada, Dato' Sri Haji Mahamad Fathil Bin Dato' Mahmood, Chairman of Bumi Armada, Dr Ngo Huu Hai, General Manager of HLJOC, Sobolev Mikhail Anatolevich, First Deputy General Director, Vietsovpetro and Tong Chong Heong, CEO of Keppel O&M

Harnessing long-term partnerships

A strategy of developing long-term partnerships with customers from around the world is providing Keppel Shipyard with a strong platform for the future.

Receiving a steady stream of ship repair as well as ship conversion and upgrading projects from these customers, Keppel Shipyard's three yards in Singapore are kept busy with healthy baseloads of work and have built up strong delivery track records over the years.

"High customer loyalty contributes to robust operations," says Michael Chia, Managing Director (Marine) and Managing Director (Technology) of Keppel Offshore & Marine (Keppel O&M). "Our long-term customers coordinate closely with us on when their vessels might stop by. They also keep us updated on the requirements of their projects. As such, we are able to plan our resources to meet their needs."

Keppel Shipyard places equal focus on both business segments – ship repair, and ship conversion and upgrading. Through

this strategy it effectively manages the cycles of the offshore and shipping market.

Chor How Jat, Managing Director of Keppel Shipyard, elaborates, "The two segments have overlapping resource demands. By catering to both segments, Keppel Shipyard is better able to sustain a large pool of skilled employees, comprehensive yard infrastructure and strong supporting network."

By and large, oil and gas vessels have to meet high safety and quality standards, and are part of a tight supply chain in which the repercussions of delays and disruptions are severe. Adopting best shipyard practices, and with extensive experience in large and complex projects, Keppel Shipyard believes it has a competitive advantage for these high stakes projects.

Partners in FPSO conversion

Since Keppel Shipyard's first offshore conversion project in 1981, when it delivered one of the world's first converted

Floating Production Storage and Offloading (FPSO) units, the company has built up a strong track record of more than 100 FPSO, Floating Storage and Offloading (FSO), and Floating Storage and Regasification (FSRU) conversion and upgrading projects as at the end of the third quarter of 2012.

Today, FPSOs dominate the floating production scene. Douglas-Westwood reports that FPSOs represent by far the largest segment of the floating production systems market both in terms of numbers and forecast capital expenditure (80%) over the 2013 - 2017 period.

According to Pareto Research and ODS Petrodata, about 60% are converted from ships built for other purposes, usually tankers; the remaining units are newbuilds. One-third of the converted units had their work done at Keppel Shipyard. And as FPSOs are customised to the fields in which they operate, many FPSOs are also upgraded at Keppel Shipyard before they commence on their new assignments.



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A steady stream of ship repair and ship conversion projects from new and repeat customers keeps Keppel Shipyard's three yards in Singapore busy with healthy baseloads of work

Keppel Shipyard's conversion and upgrading business has a strong emphasis on partnership with many of their projects coming from repeat customers. One such long-time partner is SBM Offshore N.V. (SBM Offshore), which owns and operates the world's largest fleet of FPSOs. Keppel Shipyard has delivered 16 FPSO/FSO projects to SBM Offshore since 2000.

Currently, the two companies are working on an FPSO conversion project,

FPSO OSX 2, for Brazil, and an FPSO upgrading and refurbishment project, FPSO N'Goma, for Angola. Keppel Shipyard completed two FPSO projects for SBM Offshore in early 2012.

Bruno Chabas, Chief Executive Officer of SBM Offshore, says, "Long-term business

**8 to 12
FPSO/FSO/FSRU
conversion and
upgrading projects are
undertaken by Keppel
Shipyard at any point
in time**

states, "With the trust and collaboration of committed and capable business partners, we have grown and enhanced our fleet of quality FPSO vessels. The Armada Claire project is our 10th major collaboration with Keppel Shipyard, and we are confident that it will be professionally

executed."

partnerships are key to our performance, our ability to deliver and our ambition in furthering our lead in the FPSO market. We value our proven partnership with Keppel Shipyard."

Touching on Bumi Armada Berhad's (Bumi Armada) latest project with Keppel Shipyard, Hassan Basma, Executive Director and Chief Executive Officer,

Even as Keppel Shipyard fortifies links with its longstanding partners, it works hard at attracting and retaining new customers with value-added services.

Smaller and newer FPSO owners and operators require more project management and engineering support for their projects. Recognising this, Keppel Shipyard further enhanced its topside module engineering and fabrication services. Capabilities for these services have been grown organically as well as through acquisitions – it has a majority stake in DPS (Bristol) Ltd, a leading designer of FPSO topsides, and a stake in Dyna-Mac Holdings Ltd, a topside module fabricator.

Through its customer-focused approach,



All smiles at the Sail Away Ceremony for FPSO Armada Sterling are: (L-R) Chor How Jat, Managing Director of Keppel Shipyard, Michael Chia, Managing Director (Marine) of Keppel O&M, Hassan Basma, Executive Director and Chief Executive Officer of Bumi Armada and Tong Chong Heong, Chief Executive Officer



The late Nelson Yeo, formerly the Managing Director (Marine) of Keppel O&M and Managing Director of Keppel Shipyard, was instrumental to the growth of Keppel Shipyard to its present leading position in the ship repair, conversion and upgrading market. Possessing a deep care for his people and the community, Yeo had also championed numerous workplace safety initiatives and social development projects

“Keppel Shipyard has strong relations with many of its customers, built up over many years with Nelson at the helm with his team. Keppel will continue to uphold our commitment to safe and quality services. These qualities, which Nelson had championed so well, are a key part of Keppel’s core values.”

Tong Chong Heong, Chief Executive Officer of Keppel Offshore & Marine



Keppel Shipyard delivered FPSO Lewek EMAS in 2011. The unit has been chartered by Premier Oil Vietnam Offshore B.V. for the development of the Chim Sao field, off southern Vietnam

Keppel Shipyard stands to continue as a choice yard for new and repeat customers for a diverse range of FPSO projects.

In good repair

On the repair side of the business Keppel Shipyard has a strong core of long-term customers too. Through prompt and professional turnarounds, Keppel Shipyard has earned its place as the preferred partner in the Far East for repair works for many established shipping companies.

For example, Niederelbe Schiffahrtsgesellschaft mbH & Co. KG's (NSB) – one of Germany's largest container shipowners – has been a repair customer of Keppel Shipyard since 1988. NSB has a fleet of over 100 vessels, most of which have been repaired at Keppel Shipyard at some point or another.

Bozidar Petrovic, Vice President of NSB, says "Our long standing partnership

stems from mutual understanding and trust. We have always been able to dock our vessels at Keppel Shipyard and expect a quality vessel returned on time, or even ahead of time."

Over the last five years, over half of Keppel Shipyard's repair revenue has stemmed from tanker, container ship and gas carrier projects. Other projects include tug/supply vessels, offshore support vessels and bulk carriers.

Despite its strong competencies as a ship repairer, Keppel Shipyard continues to improve its capabilities and facilities in tandem with the changing needs of its customers.

One of Keppel Shipyard's drydocks, Raffles Dock, has been widened and lengthened so that it can accommodate

80%
of Keppel Shipyard's
ship repair projects
today are from regular
customers

vessels such as double-hulled Malaccamax ships and the new generation of ultra-large containerships (ULCS), which measure 400 metres (m) in length and have a capacity of 18,000 teu (twenty foot containers). Currently, there are few repair yards with drydocks capable of taking in such large vessels.

To ensure it gets the most from its facilities Keppel Shipyard is also focusing on enhancing its productivity.

Presently, the shipping and repair markets are challenging; in both sectors, the size, value and frequency of jobs are all down. Chor says, "We have a symbiotic relationship with our customers. When there is reduced activity and revenues in the shipping sector, we have to do our best to help and do our bit with lower costs and lower margins. As the market recovers, we grow together."

Replicating capabilities across borders

Also taking on a mix of ship repair and offshore projects are Keppel Subic Shipyard in the Philippines and Nakilat-Keppel Offshore & Marine (N-KOM) in Qatar.

Bulk carriers and container ships plying the Pacific trade route form the majority of repair jobs for Keppel Subic Shipyard. 80% of the yard's repair projects are from regular customers, many of which also work with Keppel O&M's yards in other locations.

Over the years, as the yard's capabilities grew, it ventured into offshore work. It has supported Keppel FELS in Singapore by constructing the mid-pontoon sections of two semisubmersibles. The yard has also collaborated with Keppel Shipyard on two FPSO conversion projects.

Support from the Philippine yards has both schedule and cost benefits. "Our yards in the Philippines have a lower cost base than our yards in Singapore,"

10%
of the global LNG
fleet docked at
Keppel O&M yards
in 2011

explains Toh Ko lin, President of Keppel Philippines Marine and Keppel Subic Shipyard. "Indeed, we are confident that in the long run our Philippines yards will be more cost competitive than yards in other low cost markets."

With good yard infrastructure – including a 550 m long drydock, the largest in the Philippines – Keppel Subic Shipyard is equipped to take on large repair and offshore projects. In time to come, as the yard takes on more offshore projects, it will be better positioned to ride the cycles of the shipping market.

Nakilat-Keppel Offshore & Marine (N-KOM) – a 20:80 joint venture between Keppel O&M and Qatar Gas Transport Company (Nakilat) – also undertakes a mix of ship repair and offshore projects.

Qatar is the world's leading LNG exporter. Located within the Ras Laffan Industrial City, close to the LNG terminals and the Port of Ras Laffan,

N-KOM takes on a large number of gas carrier projects. The yard has been engaged for about 50 LNG projects to-date.

The addition of N-KOM to Keppel O&M's global network of yards has bolstered the group's position as a specialist in repairing LNG vessels. In 2011, N-KOM, Keppel Shipyard and Keppel Subic Shipyard together serviced 10% of the global LNG fleet in the 12-month period.

Leveraging Keppel O&M's reputation as an expert in rig repair, N-KOM also gradually established itself as a sound rig repair, modification and upgrading facility.

As at end of the third quarter of 2012, the yard has been entrusted with seven jackup projects. Its customers, Gulf Drilling International, Rowan Companies Inc. and Enscopl, are long-time customers of its sister companies, Keppel FELS and Keppel AmFELS in the US.

N-KOM was recently conferred the 'Shipyard of the Year' award at the Lloyd's List Awards, Middle East and Indian Subcontinent event.



BrasFELS - Keppel O&M's yard in Angra dos Reis, Rio de Janeiro, Brazil - is the most comprehensive shipyard in Latin America

Leading in the production phase

Keppel Offshore & Marine (Keppel O&M) is fast growing its reputation as the go-to guy for floating production systems. This bodes well for the group as floating production expenditure is expected to reach US\$91bn between 2013 to 2017 – a 100% increase over the preceding five years – according to Douglas-Westwood.

For many years, Keppel O&M's strong reputation for floating production systems projects was anchored by Keppel Shipyard in Singapore, which boasts top owners and operators of Floating Production Storage and Offloading (FPSO) units as its regular customers (see page 11).

FPSOs accounts for 60% of floating production systems in service or available worldwide. Today, about one-third of the converted FPSO units in service or available worldwide have had their transformation carried out by Keppel Shipyard.

Floating Production Units (FPUs), Tension Leg Platforms (TLPs) and Spars account for another 35% of the floating production systems market. Keppel O&M has also delivered a number of such units over the years.

Chow Yew Yuen, Chief Operating

Officer of Keppel O&M, shares, "Even as our yards in Singapore continue to lead in the floating production systems market, our overseas facilities have also strengthened their know-how for such solutions, broadening their range of production services for the offshore oil and gas industry."

Heavy production in Brazil

Rapidly scaling the learning curve for engineering and constructing floating production systems is BrasFELS, Keppel O&M's yard in Angra dos Reis, Rio de Janeiro, Brazil.

Acquired by Keppel O&M about a decade ago, BrasFELS has grown into the most comprehensive yard facility in the Latin American region.

"We saw the need to be in Brazil early on, even before the pre-salt finds and requirements for local content. BrasFELS has since delivered a number of landmark projects to high customer satisfaction. In fact, our projects built there helped to prove the level of local content that could be accomplished. One such major project is the floating production unit (FPU) P-56; it is the first 100% made-in-Brazil FPU and

has 73% local content," shares Chow.

P-56, along with the FPUs P-52 and P-51, which were delivered in 2007 and 2008 respectively, had helped establish BrasFELS position in Brazil and globally. They showcase the yard's competencies and commitment to Brazil's local content requirements.

The production vessels completed by Keppel Shipyard and BrasFELS' since 1994 for Brazil have a total production capacity of some 1.9m bopd.

Petrobras aims to double its production capacity from 2.1m bopd in 2012 to 4.2m bopd in 2020. This increase will be supported by the addition of 38 production units within this period.

BrasFELS presently has on its orderbook five FPSOs; three of these projects were secured in the third quarter of 2012 and add up to US\$1.15bn.

Two of the three projects are from Petrobras-led consortiums, Guara BV and Tupi BV, for the fabrication and integration of topside modules on two FPSO vessels, P-66 and P-69. As part of the agreement, Petrobras has an option for a similar contract to be exercised by first quarter 2014.

The third contract is for a US\$200m

job from MODEC and Toyo Offshore Production Systems Pte Ltd (MTOPS) to fabricate and integrate topside modules for the FPSO vessel Cidade de Mangaratiba. MTOPS is a joint venture between MODEC and Toyo Engineering Corporation. Work on this vessel is scheduled to start in fourth quarter 2012 and complete by second quarter 2014.

Shigero Usami, President of MODEC Singapore, explains why BrasFELS was chosen: "In partnering an established shipyard like BrasFELS, we help ensure that our customers get their FPSOs on time to meet their production targets."

BrasFELS also has a hand in the construction of P-61, a Tension Leg Wellhead Platform (TLWP) for the Papa-Terra field in the Campos Basin, Brazil.

In February 2010, FloaTEC, a joint venture between Keppel FELS and McDermott International (McDermott), entered into a US\$1bn contract with the Papa-Terra Joint Venture, consisting of Petrobras and Chevron, to build and operate P-61.

The project is slated to complete by mid-2013, and its scope comprises design, engineering, construction, maintenance and installation work, as well as a three-year contract to operate the TLWP.

The construction of the TLWP was given to BrasFELS, while FloaTEC



Brazil's former President, Luiz Inacio Lula Da Silva (waving flag), celebrates with Petrobras and BrasFELS the successful delivery of the FPU P-51

undertakes the global engineering and basic design work and manages the supply of risers, well systems and tendon components.

Eric H. Namtvedt, President of FloaTEC, notes, "This project underscores FloaTEC's ability to draw on its parents' global resources to offer a robust and cost-effective solution to where our customers

need them.

"Though P-61 is BrasFELS first TLWP project, the yard's rich fabrication and integration experience as well as the good teamwork between FloaTEC, Keppel FELS, and McDermott have ensured its steady progress."

Tandem leap forward

Collaborations with its sister yards in Singapore have supported the growth of BrasFELS capabilities and standards. The partnership between Keppel FELS and BrasFELS on P-52 and P-51 paved the way for BrasFELS to undertake P-56 – its third

FPU project – on its own.

BrasFELS also worked with Keppel Shipyard to serve up the group's quality conversion services. After pre-conversion works at Keppel Shipyard, FPSO P-57 called on BrasFELS, which fabricated and integrated the unit's topside modules, piping and electrical equipment.

More recently, the yards collaborated on FPSO Cidade de Paraty, which is presently at BrasFELS for the installation and integration of topsides. The FPSO was previously at Keppel Shipyard for hull conversion.

FPSO Cidade de Paraty will be deployed in the pre-salt region of the Santos Basin and will have a production capacity of 120,000 bopd and be able to compress 5m cubic metres of gas per day.

Chow reiterates, "Collaborations and joint projects between our yards provide our customers with unique value propositions. They also facilitate knowledge transfers, and so grow the capabilities of all our business units."

"Having worked closely with its sister yards over many years, BrasFELS has built up a strong range of competencies. We believe that the yard is in a good position to support Brazil's broad range of exploration and production activities."



Showing Maria das Gracias Silva Foster (left of centre), President and Chief Executive Officer of Petrobras, around BrasFELS is Kwok Kai Choong (right of centre) President and Chief Executive Officer of Keppel FELS Brasil

Global network

“Pursuing our ‘Near Market, Near Customer’ strategy, we are present in almost all major oil producing regions in the world today. Our customers in these various markets enjoy the convenience of working with our local teams, yet still benefit from the experiences of our global network, including our flagship yards in Singapore.”

Tong Chong Heong,

Chief Executive Officer of Keppel Offshore & Marine



BULGARIA

- **Keppel FELS Baltech**
Offshore & marine engineering company

THE NETHERLANDS

- **Keppel Verolme**
The most established offshore & marine yard in Europe

AZERBAIJAN

- **Caspian Shipyard Company**
Builder & repairer of rigs & ships
- **Baku Shipyard**
Builder & repairer of offshore support vessels and tankers

KAZAKHSTAN

- **Keppel Kazakhstan**
Offshore engineering & construction facility

QATAR

- **Nakilat-Keppel Offshore & Marine**
Repairer of vessels up to ULCCs

UNITED ARAB EMIRATES

- **Arab Heavy Industries**
Repairer & builder of small to medium-sized vessels

INDIA

- **Keppel FELS Offshore and Engineering Services Mumbai**
Offshore & marine engineering Company

CHINA

- **Keppel Nantong Shipyard**
Builder of offshore support vessels & tugboats
- **Keppel FELS Engineering Shenzhen**
Offshore & marine engineering Company

VIETNAM

- **Keppel FELS (Vietnam)**

THE PHILIPPINES

- **Keppel Philippines Marine**
Comprehensive solutions provider for marine and offshore projects
- **Keppel Batangas Shipyard**
Repairer & builder of small to medium-sized vessels & offshore fabrication facility
- **Keppel Subic Shipyard**
Provider of shiprepair, conversion & construction solutions

JAPAN

- **Regency Steel Japan**
Manufacturer of large, high-quality steel structures

SINGAPORE

- **Keppel Offshore & Marine (Headquarters)**
Global leader in offshore & marine
- **Keppel FELS**
World leader in design & construction of mobile offshore structures
- **Keppel Shipyard**
Leader in the repair & conversion of all kinds of vessels
- **Keppel Singmarine**
Leading builder of offshore support vessels & tugboats
- **KOMtech Centre**
R&D Centre for new technologies and processes
- **Offshore Technology Development**
Designer of jackup rigs & critical equipment
- **Deepwater Technology Group**
Designer & developer of deepwater semisubmersible solutions
- **Marine Technology Development**
Designer of offshore support vessels & tugboats
- **Asian Lift**
Specialist in heavy lift
- **Keppel Smit Towing**
Coastal towing solutions provider

AUSTRALIA

- **Keppel Prince Engineering**

INDONESIA

- **PT Bintan Offshore**
Offshore fabrication facility

Meeting demand around the globe

With global energy consumption continuing to grow, a new cycle of oil and gas field development is underway in deeper waters and harsher environments. This is spurring orders for offshore assets, and Keppel Offshore & Marine is strategically positioned to meet these needs

Global population growth and increased wealth in many parts of the world such as Asia and Latin America have spurred energy demand. ExxonMobil's 2012 Outlook for Energy: A View to 2040 sees a 30% growth in demand for energy globally between 2010 and 2040.

In line with demand, Exploration & Production (E&P) investment is fast expanding. The Dahlman Rose Original E&P Spending Survey and DNB Markets Survey both forecast E&P investment for 2012 to be just slightly shy of \$600bn; this is a record for the global E&P industry.

"Offshore [oil and gas] does indeed look good," says Eelke Oosterhuis, Head of Energy, Asia-Pacific for ABN AMRO. "2012 will see record E&P spending and

that will continue for the next few years."

While international oil companies (IOCs) continue to play a critical role in the evolving energy landscape, national oil companies (NOCs) continue to gain prominence. Douglas-Westwood say 80% of existing reserves are now controlled by NOCs. They now account for the largest portion of E&P spending. According to DNB Markets, 42% of E&P spending in 2012 will come from NOCs while 31% will come from IOCs.

Embodying national aspirations, the NOCs have placed local content demands on drilling, production and support assets deployed for their projects and in their waters.

Keppel O&M's Chief Executive Officer

Tong Chong Heong, notes, "Countries are looking to be self-sufficient and increase E&P in their backyards, Keppel's 20 yards worldwide are well-placed to serve their interests whether it is in delivering state-of-the-art offshore and marine solutions or building in-country to meet their local content requirements."

The Golden Triangle

Much of the deepwater development will be focused on the Golden Triangle of Latin America, Gulf of Mexico and West Africa. Douglas-Westwood sees the region accounting for 72% of spending on deepwater E&P between 2012 and 2016.

The biggest discoveries are Petrobras'



Strategically located at the gateway of the Gulf of Mexico, Keppel AmFELS serves one of the most robust oil and gas markets in the world



Floatel Superior, built to the DSS™20NS design, is well-suited for operations in the North Sea

pre-salt discoveries offshore Brazil. Brazil demands high local content, and Keppel O&M is well-positioned to serve this need having set up BrasFELS, one of its two yards in the country, in 2000.

Since then, BrasFELS has constructed some of the world's largest floating production units for Petrobras, P-51, P-52 and P-56, with the last being completely built in Brazil. Currently, the yard has contracts for six semisubmersible (semi) rigs from Sete Brasil Participações S.A. (Sete Brasil) and \$950m worth of Floating Production Storage and Offloading vessel (FPSO) contracts from Petrobras.

Chow Yew Yuen, Chief Operating Officer, Keppel O&M says, "We believe drilling contractors are likely to ramp up orders for deepwater rigs based on Petrobras' new 2012-2016 business plan to invest some US\$142bn on exploration and production, including the development of the ultra-deepwater pre-salt oil fields.

"We are also optimistic on the growth of the repair, maintenance and upgrade business in Brazil. While the newbuild programme is underway, drillers may look at deploying rigs and vessels from their existing fleet to work in Brazil."

Demand for Offshore Support Vessels (OSVs) is also expected to increase to support E&P. To meet this demand, Keppel O&M acquired a yard in Navegantes, Santa Catarina, in April 2010. Named Keppel Singmarine Brasil, the yard is

capable of building a comprehensive range of OSVs.

In the Gulf of Mexico, activity has now passed pre-Macondo level and rig activity is expected to steadily increase with deepwater exploration having only just started.

Keppel O&M is also a strong supporter of Mexico's oil and gas programme. The Keppel AmFELS yard in Brownsville, Texas, has completed projects for Mexico's National oil company, PEMEX. It is currently building another two jackup rigs for Perforadora Central to be deployed in Mexico.

While Keppel O&M currently has no yard in Africa, Chow says that the Group is keeping a close eye on developments there. "There are opportunities in West Africa, and we will look at them. However, these will have to meet our criteria including a reasonable return on our investments. In the

meantime, the West African market can be served by our yards in Singapore, the Netherlands and Brazil," he said.

This is exemplified by Keppel Shipyard's current refurbishment and upgrade of the FPSO Xikomba for SBM. The vessel is expected to be delivered in 2013 and will be chartered by Eni Angola for 12 years for the development of Block 15/06 offshore Angola.

Another project heading to the African waters of Equatorial Guinea is West Esperanza, a semi drilling tender (SSDT) under construction at Keppel FELS. The vessel is due to start operations at the end of the second quarter of 2013.

North Sea

While the North Sea has been in production for many years, activity and rig utilisation rates remain high in this region.

DNB Markets reports that "niche markets for jackups in the North Sea remain strong and benefit from high rates." Although Norwegian oil production is



Keppel has delivered to Rowan companies three KFELS N Class jackups. The design is in full compliance with requirements for rigs operating in the Norwegian sector of the North Sea

The GDI - Keppel FELS Relationship

Al-Khor



Al-Zubarah



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Gulf Drilling International (GDI) signs contract with Keppel FELS for two jackup rigs. From left: Yoichi Onoe, Chief Operating Officer of GDI; Ibrahim J. Al-Othman, Chief Executive Officer of GDI; Tong Chong Heong, Chief Executive Officer of Keppel O&M; and Wong Kok Seng, Managing Director (Offshore) of Keppel O&M and Managing Director of Keppel FELS

decreasing, the number of wells drilled in its waters is increasing. Keppel FELS is currently building five of its proprietary KFELS Super A Class jackup rigs which are customised for work in the UK sector of North Sea. It already has three other jackups, which have been built to the KFELS N Class design, at work in the North Sea for Rowan Companies.

Another Keppel yard helping to service rigs and related offshore projects in the North Sea is Keppel Verolme in the Netherlands. The yard is in proximity to the oil fields of Scotland, UK and Norway, and has direct access to the North Sea.

Its comprehensive facilities include one of Europe's largest docks this enables it to undertake the dry-docking, repair and maintenance, modification, conversion and construction of various vessel types. It has completed numerous projects for the North Sea including repairs and refurbishment of jackup rigs, FPSOs and semi.

The Middle East

Home to the world's largest exporters of oil and gas, the Middle East is diversifying from onshore to offshore E&P.

Capital expenditure (capex) in Saudi Arabia is expected to reach \$5.8bn over 2011-2015, up from \$4.5bn over 2006-2010.

Located in Qatar, the leading producer and exporter of liquefied natural gas

Keppel FELS is our trusted partner as they have proven themselves time and again with high quality projects delivered safely, on time and within budget.

Ibrahim J. Al-Othman, Chief Executive Officer of Gulf Drilling International

(LNG), Nakilat-Keppel Offshore & Marine (N-KOM) plays a critical role in servicing the LNG carriers plying the region. The yard, a joint venture between Keppel O&M and Nakilat, also undertakes other offshore, marine and infrastructure projects.

Further supporting the region's rig building programme is Keppel FELS which has delivered two and is constructing two more KFELS B Class jackups for Gulf Drilling International Ltd (GDI) of Qatar.

Ibrahim J. Al-Othman, Chief Executive Officer of GDI says, "GDI has become the leader of Qatar's drilling market in a matter of just six years. Keppel FELS is our trusted partner as they have proven themselves time and again with high quality projects delivered safely, on time and within budget."

Keppel O&M also operates Arab Heavy Industries (AHI), a ship repair facility in United Arab Emirates (UAE). The two yards put Keppel O&M in a strategic position to support the oil and gas needs of the Middle East.

Caspian Sea

The Caspian Sea holds a tremendous amount of untapped oil and gas reserves with many countries in the region starting to invest in more offshore rigs to increase production.

Azerbaijan is the largest offshore producer in the region of oil and gas. The State Oil Company of Azerbaijan (SOCAR) stated recently that it intends to invest \$4bn in the construction of four drilling rigs within five years.

Keppel's Caspian Shipyard Company (CSC), the most established yard in the country, has been in discussions with SOCAR to build one or two of the semis. CSC has a track record of completing rigs



Built to Keppel's proprietary KFELS B Class design, NEZALEZHNIIST will be deployed on the Ukrainian shelf of the Black Sea for its owner Chernomornaftogaz

NYK Shipmanagement - an efficient organization with well-trained, innovative and motivated personnel serving customers without compromising on safety, security and environment protection.

**NYK Shipmanagement congratulates
Keppel Offshore & Marine on its 10th anniversary!**



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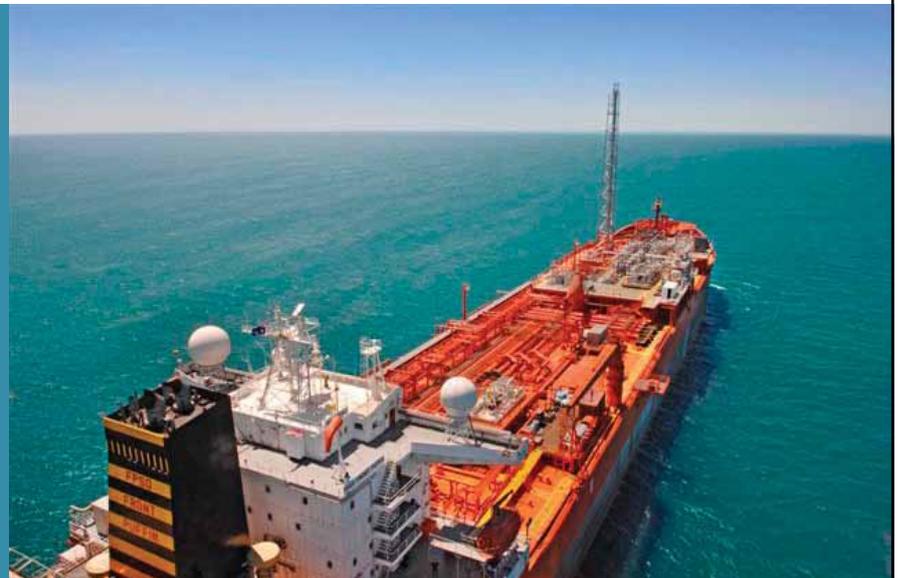
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We congratulate **Keppel Offshore & Marine** in celebrating 10 years of excellence in the delivery of Floating Production Storage and Offloading solutions

The FPSO Front Puffin was converted by Keppel in 2007 and is presently available from within Southeast Asia for inspection and global redeployment

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www.rubicon-offshore.com



for the Caspian Sea, having delivered the first semi, jackup rig and ice-class Floating Storage and Offloading (FSO) unit built in-country. This was done in collaboration with its sister yards in Singapore which fabricated modules that were then shipped through the narrow Volga Don Canal for completion at CSC.

CSC is also able to support the completion of rigs going to the Black Sea of Ukraine. It is helping to complete the installation of the legs of a KFELS B Class jackup rig built by Keppel FELS for Ukraine's state oil and gas company, Naftogaz. It is the second of two jackups that Keppel FELS built for Naftogaz.

Extending Ukraine's rig expansion programme, Naftogaz recently announced on 2 October 2012 that it would buy two more offshore platforms in open tenders to boost domestic natural gas output. Supported by CSC and with its track record for Ukraine, Keppel FELS is expected to lead the race to secure the contracts.

According to Ukraine's official estimates in 2011, the country boasts proven reserves of natural gas (1,200bn cubic meters) and oil and gas condensate (220m tons).

Kazakhstan meanwhile, with proven oil reserves estimated at 30bn barrels and natural gas reserves at 85trn cubic feet by the Oil and Gas Journal in January 2012, is also starting to order newbuild rigs.

Kazakh national oil company, KazMunayGas, through its indirect wholly-owned subsidiary, Teniz Burgylau, placed an order for a KFELS B Class jackup rig from Keppel Kazakhstan and its consortium partner Ersai Caspian Contractor.

On the contract, Nurlan Bekzhanov, General Director of Teniz Burgylau says, "Kazakhstan aims to steadily increase its oil and gas production to become one of the world's top oil and gas producers and exporters. For our rig, we have decided on the KFELS B Class jackup design as it is an industry benchmark for such rigs. With the established track record of Keppel O&M as the world's leading offshore rig designer and builder, and its presence in Kazakhstan, we believe we have chosen the right partner to provide our first jackup drilling rig."

Asia-Pacific

The Asia-Pacific region is growing in significance, in particular Southeast Asia and Australasia. Douglas-Westwood expects the region to account for 16% of total E&P spending in 2012, an increase of 7% on the previous year.

The region is seeing an increasing portion of expenditure in the deepwater market and Douglas-Westwood expect \$29bn in deepwater expenditure in Asia-Pacific over the next five years. This would include over 350 well completions, with

New frontier

The Arctic region represents one of the final frontiers when it comes to oil and gas exploration and production. Still in its nascent stages of development, the challenging region would require a whole new class of assets.

In February 2012, Keppel Offshore & Marine Technology Centre and ConocoPhillips announced plans to jointly design a first-of-its-kind iceworthy jack-up rig to operate in the Arctic seas.

The rig will be capable of operating on a self-sustaining basis for 14 days and would be equipped with a hull designed for towing in ice. The project is due to be completed at the end of 2013.

No stranger to the arctic requirements, Keppel O&M has previously constructed two ice breakers that are successfully working for LUKOIL-Kaliningradmorneft in the Barents Sea.

28% in Australia, 27% in India, 24% in Malaysia and 14% in Indonesia.

In Southeast Asia a move to develop marginal and trapped fields is fueling demand for floating production units.

Keppel Shipyard in Singapore has delivered a number of Floating Production Storage and Offloading (FPSO) units to customers like EMAS Offshore, Bumi Armada Berhad, PTSC Asia Pacific, Petrofac, MISC Berhad and M3ENERGY for work in Asia-Pacific countries such as India, Vietnam, Australia, Malaysia, Philippines and Thailand.

In Vietnam, Keppel Shipyard delivered one of Vietnam's largest FPSO vessels, Lewek EMAS, in 2011. The vessel has been chartered by Premier Oil Vietnam Offshore B.V. for the development of the Chim Sáo field off southern Vietnam.

Keppel O&M's yards in the region such as Keppel Nantong in China, Bintan Offshore in Indonesia as well as Keppel Batangas and Keppel Subic Shipyard in the Philippines also help support its yards in Singapore with fabrication work in order to maximise resources and meet market demand.



Symbolising the friendship between Keppel and Vietnam Truong Tan Sang, President of the Socialist Republic of Vietnam (second from left) presented Choo Chia Beng, Chief Executive Officer of Keppel Corporation (second from right) with a painting during a visit to Keppel FELS in 2011.

Erhama Bin Jaber Al Jalahma Shipyard

Qatar's premier shipyard

Located within Qatar's Ras Laffan Industrial City, and close to LNG terminals, Nakilat-Keppel Offshore & Marine (N-KOM) provides a wide spectrum of repair, fabrication, maintenance and vessel conversion services.

The yard's growing track record for safe, efficient and high quality services includes the successful turnaround of LNG carriers, LPG carriers, tankers, container ships, jackup rigs and a variety of other vessels

Yard facilities

Drydock 1

360m (L) x 66m (B) x 11m (D); 350,000dwt

Drydock 2

400m (L) x 80m (B) x 12m (D); 450,000dwt

Wharfage

2 piers of 800m length, 2 quays of 400m length and 1 loading quay of 150m

Cranage

7 x 30 tons

1 x 50 tons

2 x 100 tons



Congratulations to Keppel Offshore & Marine on its 10th Anniversary!

Hitting the gas in Qatar

The last decade has seen Qatar grow to become one of the world's largest producers and exporters of liquefied natural gas (LNG) while its state-owned Qatar Gas Transport Company (Nakilat) has become a major owner of LNG carriers.

In line with Keppel Offshore & Marine's (Keppel O&M) 'Near Market, Near Customer' strategy, the group brought its leading experience in marine and offshore work to Qatar. The group partnered Nakilat on the development of a new shipyard, Nakilat-Keppel Offshore & Marine (N-KOM) in 2007.

Since its inauguration in November 2010, N-KOM has serviced Nakilat's LNG carrier fleet and those of the wider market from its strategic location in the Middle East. Located in Ras Laffan Industrial City, near LNG terminals, and along a key point of East-West trade routes and N-KOM



Abu Bakar Mohd Nor (centre), Chief Executive Officer of Nakilat-Keppel Offshore & Marine (N-KOM), receives on behalf of N-KOM the 'Shipyard of the Year' award at Lloyd's List Awards 2012, Middle East & Indian Subcontinent event



Singapore's Minister for Trade and Industry, Lim Hng Kiang (left), and the Emir of Qatar, His Highness Sheikh Hamad bin Khalifa Al Thani (second from left), inaugurating N-KOM with Chairman of Keppel Corporation, Dr Lee Boon Yang, and Chief Executive Officer of Keppel Corporation and Chairman of Keppel O&M, Choo Chiau Beng

has been able to service the LNG, liquefied petroleum gas (LPG) carriers, tankers and offshore units operating in the region.

Abu Bakar Mohd Nor, Chief Executive Officer of N-KOM, elaborates: "Having a distinguished partner such as Nakilat in this joint-venture has been indispensable to N-KOM's success. Nakilat's presence in the shipping industry and strategic joint ventures with major fleet owners has provided us with opportunities to build up our repair, drydocking and maintenance capabilities."

The expertise and experiences of Keppel O&M and Nakilat has enabled N-KOM to rapidly ramp up its capabilities and operations. The yard has completed over 50 LNG projects to-date, including Nakilat's Q-Max and Q-Flex LNG carriers, the largest LNG vessels ever built.

Indeed, N-KOM's quick progression in just two years of operations saw it being conferred the 'Shipyard of the Year' at the recent Lloyd's List Awards, Middle East and Indian Subcontinent event.

The yard has received

commendations for its projects and earned a multitude of service agreements with major fleet owners and operators such as Shell Trading and Shipping Company (STASCO), Gulf Drilling International, Idemitsu Tanker, Mitsui O.S.K Lines, NYK Line, Kawasaki Kisen Kaisha (K Line), Iino Lines and Marine Contracting Association to provide shipyard and drydocking services for their vessels.

"We have expanded our services beyond regular ship repairs to suit the local and international market demand for comprehensive shipyard services. With the booming offshore industry and numerous drilling activities in the region, there is a vast opportunity for N-KOM to tap into this market. We have serviced a significant number of offshore vessels and we are moving towards offering our services to the onshore industry as well," adds Abu Bakar.

Expansion plans are in the works for N-KOM. The yard is enhancing its operations in the Erhama Bin Jaber Al Jalahma Shipyard, a cluster of shipyard facilities, through the addition of a Q-Max size floating dock, and a facility specialising in the repair of small ships under 20,000 dwt in the cluster.



A pair of technologically-advanced icebreakers, *Varandey* and *Toboy*, were delivered by Keppel Singmarine to LUKOIL-Kaliningradmorneft

A specialised focus

It was decided during the formation of Keppel Offshore & Marine (Keppel O&M) in 2002 that offshore support vessels (OSVs) and other specialised vessels were where the future lay for Keppel Singmarine; instead of the construction and repair of conventional ships, which the yard did in the past.

The Singapore yard, which turned 125 in 2012, has been successful at navigating the ups and downs of the shipbuilding industry by paying careful attention to the market's needs and evolving its competencies.

"We monitor the market closely. Around the time of the formation of Keppel O&M, we decided that we would focus on segments of the industry that would have great room for growth due to continued demand for energy," shares Hoe Eng Hock, Executive Director of Keppel Singmarine.

Specialist in shipbuilding

Over the years, as Keppel Singmarine's capabilities strengthened, it took on more

sophisticated projects. Already, Keppel Singmarine's track record of some 400 newbuildings includes icebreakers, pipelaying vessels, rock-dumping vessels and diving support vessels.

An important part of Keppel Singmarine's success is its ability to offer customers a suite of proprietary designs and provide turnkey solutions for every frontier.

These customised designs are developed by Keppel O&M's ship design arm, Marine Technology Development (MTD) which was set up in 2005.

As of September 2012, Keppel Singmarine has built 46 vessels designed by MTD. Key customers for these vessels include GulfMark Offshore Inc. (GulfMark), an owner and operator of OSVs headquartered in the US, and Hadi H. Al-Hammam Establishment (Hadi),

400
vessels built by Keppel Singmarine from 1970 to 2012 include sophisticated, specialised units such as icebreakers, pipelaying vessels, rock-dumping vessels and diving support vessels

a provider of marine and offshore support services to the Middle East region.

Hoe says, "Many customers come to us because we are able to provide tailored solutions which meet unique operational requirements and preferences. This is a

competitive advantage that we will

continue to hone." Amongst Keppel Singmarine's many milestone projects are a pair of technologically-advanced icebreakers, which were delivered in 2008 to LUKOIL-Kaliningradmorneft (LUKOIL), a fully-owned subsidiary of the second largest oil and gas company in Russia LUKOIL Oil Company.

Designed to work in the harshest environments, the icebreakers can cut through solid ice over 1.7 metres (m) thick, equivalent to the height of a grown man,

and operate in temperatures as low as -45°C.

Besides icebreakers, Keppel Singmarine has also delivered to LUKOIL five other ice-class vessels, of these two are Anchor Handling Tug Supply (AHTS) vessels, two are rescue vessels and one is a Floating Storage and Offloading (FSO) unit.

More recent landmark projects by the company includes a rock-dumping vessel, Rockpiper, for the Dutch company Royal Boskalis Westminster N.V. (Boskalis); two derrick pipelay vessels for its US-based customer Global Industries Ltd (Global Industries); and the world's largest pipelaying vessel, Castorone, for its Italian customer Saipem S.p.A (Saipem).

Hoe says, "The company must equip itself with people with engineering competencies and efficient production capabilities, and have strong support from suppliers and subcontractors. Only with these qualities can the company readily meet the requirements of sophisticated and customised projects."

Dynamic positioning

Over the years, Keppel Singmarine has exported its shipbuilding capabilities to China, Brazil and Azerbaijan by supporting the development of its sister yards.



Keppel O&M and its US-based customer Global Industries celebrate their successful collaboration on the derrick pipelay vessel, Global 1201

We have a long-standing relationship with Keppel and are familiar with its quality work. Keppel Singmarine is well-known for its strong expertise in handling sophisticated vessels, especially those equipped with diesel electric drives and dynamic positioning capabilities.

*Theodorus L. Baartmans
Member of the Board of Management, Royal Boskalis Westminster*



Rockpiper is a rock dumping fall pipe vessel built by Keppel Singmarine for the Dutch company Boskalis

“China’s abundant labour and supporting infrastructure makes it a suitable place to construct straightforward vessels cost-effectively. We set ourselves in the country to tap these advantages for our customers. Transferring our knowledge and skills to Keppel Nantong systematically since we acquired the yard in 2005, we ensure that Keppel Nantong’s customers receive safe and high quality services,” Hoe explains.

The group also acquired a shipbuilding yard in Brazil in 2010 to cater to the country’s rising demand for offshore support vessels as well as its local content requirements (see Supporting Brazil below).

Similar opportunities abound in the Caspian region and Keppel O&M formed a joint-venture with State Oil Company

of Azerbaijan Republic (SOCAR) and Azerbaijan Investment Company (AIC) to develop a shipbuilding yard in Baku in 2011.

In step with the changing needs of the industry, such as growing environmental concerns, Keppel Singmarine, MTD and Keppel Offshore & Marine Technology Centre (KOMtech) are developing solutions for greater fuel-efficiency as well as vessels powered by liquefied natural gas (LNG).

Some of Keppel’s vessel designs comprise the more eco-friendly diesel electric propulsion system instead of diesel mechanical propulsion. In addition, a number of these designs meet the Det Norske Veritas (DNV) Clean Design status, which is a standard for vessel air emission and sea pollution.

Keppel Smit Towage, a joint venture between Keppel O&M and SMIT International N.V. (SMIT), is on track to own and operate the first Z-Drive pusher tugs powered by LNG.

Hoe shares, “Our edge over our competitors is two-pronged – we have a rich history of strong deliveries, and offer a range of timely, commercially-viable solutions.”

Not many shipyards can claim a history reaching back 125 years but that is exactly the landmark that Keppel Singmarine is celebrating this year.

Hoe Eng Hock, Executive Director of Keppel Singmarine

Supporting Brazil

Amidst the booming Brazilian offshore market and growing local content requirements from state oil and gas firm Petrobras, in 2010 Keppel O&M acquired a second yard in Brazil, further growing the group’s presence in the South American country.

Named Keppel Singmarine Brasil (KSM Brasil), the yard would be managed by Keppel Singmarine and specialise in the construction of Anchor Handling Tug Supply (AHTS) vessels, Platform Supply Vessels (PSVs), Oil Recovery Support Vessels and harbour/

terminal tugboats.

Located in Navegantes, Santa Catarina, an hour’s flight from Sao Paulo, the 7.6 hectare yard, has a newly upgraded slipway, a wharf, heavy lift gantry cranes and pipe and hull shops fitted with modern machinery and equipment.

“We establish ourselves in locations where we see viable demand and can support our customers. Brazil is a semi-closed market which has regulations for vessels to be built with up to 70% local content. With Petrobras expected

to need over 100-locally built offshore support vessels by 2020, KSM Brasil stands to benefit from this demand,” shared Hoe Eng Hock, Executive Director of Keppel Singmarine and KSM Brasil.

Currently, KSM Brasil is engaged in the construction of two 4,500 deadweight tonnage (dwt) PSVs for Keppel O&M’s Brazilian shipowning arm, Guanabara Navegacao Ltda (GNL). The PSVs are being built to the MTD 9045-DE design, which has been developed for the Brazilian Continental Shelf by Marine Technology Development (MTD), Keppel O&M’s ship design arm.

The yard is also undertaking the construction of six 45-tonne bollard pull twin-screw Azimuth Stern Drive (ASD) harbour tugboats, for REBRAS - Rebocadores do Brasil S.A. (SMIT Rebras).

The SMIT group has acquired many newbuild units from Keppel O&M’s yards in Singapore and China over the years. These projects for SMIT’s Brazilian arm underscore how Keppel O&M is moving to wherever it is needed by its customers.



Keppel Singmarine Brasil specialises in the construction of offshore support vessels

Over a hundred years of experience

Keppel Singmarine's shipbuilding heritage extends back to the 1880s when Scotsman William Heard and his partners built a slipway at the mouth of Kallang River, an area that was the birthplace of Singapore's shipyard

industry. The slipway was sold to a group of merchants in 1887, and 13 July that year, a company called Singapore Slipway and Engineering (Singapore Slipway) came into being.

Until the late 1960s, Singapore

Slipway built up a strong reputation as a repairer of boats and ships plying regional trades.

In the late 1960s, the yard began a foray into the shipbuilding business. In 1970, the yard built its first vessels, and in 1972, it broke into the offshore market through a contract to build two offshore support vessels (OSVs) for a Norwegian customer.

During the 1970s to 1980s, Singapore Slipway built a wide variety of vessel types, including general cargo ships, bulkers and liquefied petroleum carriers.

In 1987, Singapore Slipway merged with Singmarine Shipyard, a ship repairer and builder acquired by Keppel Shipyard in 1976, to form a listed company Singmarine Industries with a fully-owned subsidiary called Singmarine Dockyard.

Following the major restructuring of Keppel O&M, Singmarine Dockyard was renamed Keppel Singmarine.



The old yard in Tanjong Rhu in the 1980's



Congratulations to Keppel Offshore & Marine on turning 10!

From

Keppel



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Safety Doesn't Hurt...Incidents DO!

Putting safety first

“Safety is one of Keppel’s core values,” shares Yong Chee Min, General Manager (HSE) of Keppel Offshore & Marine (Keppel O&M).

“We are committed to ensure that all at our workplace go home safely at the end of each work day.”

At Keppel O&M, workplace safety awareness is supported by the strong safety competencies of its workforce and its comprehensive safety systems.

Yong explains, “All our employees undergo rigorous safety training so that they are armed with the necessary knowledge and skills to protect themselves and those they work with. We also engage our subcontractors in our safety mission; we frequently conduct courses for our indirect workforce to ensure alignment to our safety standards and competencies.

“In-house and external safety experts regularly review our safety procedures, and safety best practices are readily disseminated and adopted by our facilities worldwide.”

Performance is premium

Keppel O&M has certainly put its mouth where its mouth is - in 2011 alone,



Employees of Keppel O&M undergo rigorous safety training programmes so that they are armed with the necessary knowledge and skills to protect themselves and those around them

the group channelled over S\$16m into safety infrastructure and knowledge and skills development.

Judging by Keppel O&M’s large orderbook, the industry is appreciative of these safety investments. Rig and ship owners and operators place a premium on shipyards which share their stringent HSE

standards. In the selection of yards, strong safety procedures and track records form increasingly critical factors in their decision matrix.

Paul Natarajan, Vice President (Construction) of Bumi Armada Berhad (Bumi Armada), shares, “Good safety practices not only protect lives and limbs but also help to ensure operational excellence. A safe and healthy work environment raises the morale of the workforce, which in turn boosts productivity.

“Bumi Armada has entrusted Keppel Shipyard with a number of major projects over the years, and we have worked closely with the yard to identify and eliminate risks. To us, a successful project is one that has been carried out safely.”

Armada Sterling and Armada Claire are two ongoing Floating Production Storage and Offloading (FPSO) projects between Bumi Armada and Keppel Shipyard. At the various safety milestones of these projects, Bumi Armada has rewarded Keppel Shipyard with safety bonuses, encouraging its commitment and efforts towards safety.



Celebrating a safety record are: (L-R) Wong Kok Seng, Managing Director (Offshore) Keppel O&M, Fredrick Smidth, Vice President & Chief Technical Officer, Maersk Drilling, Chow Yew Yuen, Chief Operating Officer, Keppel O&M, and Lars Ravn Hansen, Site Manager, Maersk Drilling

Yong adds, “Our customers are our partners in ensuring safety at the workplace. With their encouragement and inputs, we develop the best means to meet and where possible surpass industry and national safety standards and requirements as well as achieve our mutual objective of keeping the workplace safe.”

Other Keppel O&M yards also receive similar tokens of appreciation. In the third quarter of this year, Keppel FELS received safety bonuses from their customers for outstanding safety performances on various projects, including from Seadrill and Asia Offshore Drilling (AOD) for three KFELS B Class rigs. Meanwhile, Keppel Batangas Shipyard in the Philippines received safety bonuses from PT Pelayaran Kartika Samudra Adijaya (KSA) its customer for two newbuild crane barge projects.

Yong points out that ensuring timeliness is particularly important for the markets which Keppel O&M serve.

“There are no close substitutes for the drilling units or FPSOs that we have been entrusted to build or convert,” he notes. “Therefore, there is very little room for errors or delays. Our good safety record helps to position us as an attractive partner for offshore and marine projects.”

Setting the benchmark

Government and industry bodies have certainly taken notice of Keppel O&M’s commitment and contributions towards safety. The group has been invited to share and participate in various safety platforms such as the annual Singapore Workplace Safety and Health (WSH) Conference.

On the national and industry-level, Keppel O&M has been noted for setting industry benchmarks for safety. Indeed, the group received a total of 28 safety awards from Singapore’s Workplace Safety and Health Council (WSH Council) and Ministry of Manpower (MOM) at this year’s WSH Awards event. 25 of these awards were for perfect safety records on its newbuild and conversion projects, one was for Keppel Singmarine’s exceptional safety performance, and two went to supervisors at Keppel FELS and Keppel Singmarine for their exemplary safety leadership.

The group’s yards are also often singled out at high-profile industry events such as Seatrade Asia Awards and Lloyd’s List Awards, Asia for their outstanding HSE practices and track records.

The SBM Health, Safety, Security and Environment (HSSE) culture can only exist with our partners having the same high commitment [to the culture] and HSSE objectives. Therefore, having a construction contractor who is willing to not only talk, listen and improve themselves, but also lead the way to improve the standards of HSSE within the industry, is very important.

Charles Brook, Regional HSSE Manager of SBM Offshore



Keppel O&M hosted the first ASEAN Council on Petroleum (ASCOPE) Safety Workshop. The event’s participants include Southeast Asia’s oil majors, rig and ship operators, and safety experts

Factored into designs

One of the few shipyard groups with design capabilities, Keppel Offshore & Marine’s (Keppel O&M) takes its commitment to safety beyond shipyard operations and into the drawing board of its proprietary solutions.

“The Macondo incident has significantly sharpened the industry’s preference for drilling and production units with superior technical and safety capabilities,” explains Aziz Merchant, Executive Director (Engineering) of Keppel FELS and Executive Director (Deepwater Technology) of Keppel

Offshore & Marine Technology Centre (KOMtech).

“Increasingly, in enquiries for newbuild rigs, customers ask for provisions to take on new technologies to improve safety. There is also greater demand for cost-efficient customised rigs,” Merchant reveals. “In line with industry demands, we have developed rig and ship designs with advanced safety features. These designs have been well-received by our customers.”

Indeed, some of its designs have even been highlighted for these

features. The KFELS semisubmersible drilling tender (SSDT) design for example, won the ASEAN Outstanding Engineering Achievement Award in 2009 for its eco-friendly qualities and contribution towards safe and sustainable operations.

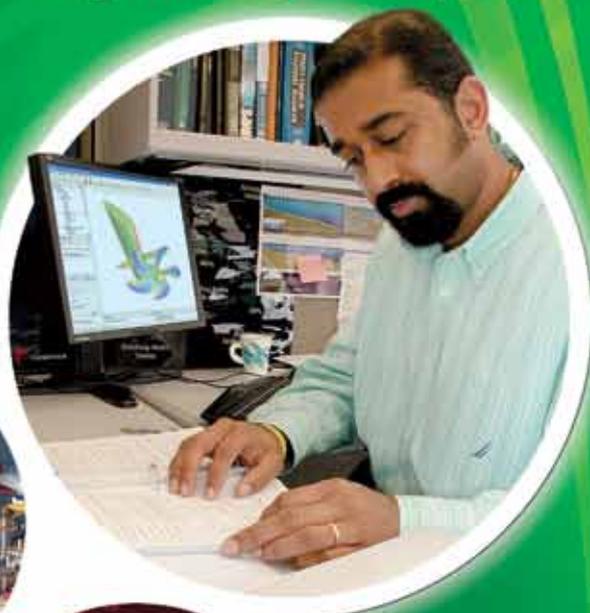
As sustainable operations increasingly become the focus of the industry, Keppel O&M’s thorough approach to safety – from product design to construction – will further notch up its lead as the choice partner for discerning owners and operators.

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Designs on deepwaters

The highly successful KFELS B Class rig has positioned Keppel Offshore & Marine (Keppel O&M) as the king of jackups. In recent years, the group has also been rapidly gaining ground in the deepwater segment. This momentum has been driven by its twin strengths of strong proprietary designs and execution capabilities.

The Deepwater Technology Group (DTG) – which looks into design

engineering for semisubmersibles (semis) and other floating structures – was one of the first investments made by Keppel O&M after its integration in 2002. Prior to this, the development of semi designs was carried out by Keppel FELS' Engineering Department.

“International oil and gas companies have indicated that deepwater exploration and production (E&P) would increasingly form a key element of their growth strategy,” shares Michael Chia, Managing Director

of Keppel O&M's Marine and Technology divisions. “The setting up of DTG stemmed from our determination to ready ourselves with the necessary competencies and solutions to support them.”

DSS™ Series

The group's successful DSS™ Series of semi designs have been developed with its design partner GustoMSC. The first of this series was the DSS™20 rig, Maersk Explorer, which was delivered to Maersk in 2003. It is a four column, twin pontoon unit suitable for operations in the Caspian Sea.

The next version of the DSS™ Series was the DSS™21 design, which was optimised for operations in West Africa, Brazil, Gulf of Mexico and the Asia Pacific region.

“In developing DSS™21, we sought extensive customer input. We reviewed Maersk's experience with the DSS™20 rig, and worked to build on the strengths of that early design,” explains Aziz Merchant, Executive Director of DTG, Keppel FELS (Engineering) and Keppel Offshore & Marine Technology Centre (Deepwater Technology).

“Involving our customers actively in the design process continues to be fundamental to our approach for developing market-relevant, commercially-viable solutions.”

Keppel O&M's keen ear to its customers' needs earned it the repeated support of Maersk, which ordered three DSS™21 rigs from the group. These units were able to operate in 3,000 metres (m), had dynamically positioning capabilities and accommodation for 180 men.

The DSS™ series was given an added boost in 2006, when another leading rig owner and operator Global Santa Fe, known as Transocean today, ordered a DSS™51 rig.

Today, the DSS™ series enjoys wide market-acceptance with seven drilling units built out in the market. The high specification semis have been customised



The inputs of customers such as Maersk Drilling have been critical to the development of Keppel O&M's proprietary designs. Claus V. Hemmingsen (centre) Chief Executive Officer of Maersk Drilling, on a visit to Keppel FELS with Choo Chiau Beng (left), Chairman of Keppel O&M, and Tong Chong Heong (right) Chief Executive Officer of Keppel O&M



Two DSS™38 rigs - Gold Star (pictured) and Alpha Star - have been operating efficiently without disruption for Petrobras offshore Brazil

Engineered for robust operations

Rigs of the DSS™ series boast a number of unique safety and productivity features.

The rigs have “double-skin” columns, which help to protect critical equipment from external impacts. This greatly minimises the risk of rig downtime in the case of hurricanes or strong climatic pressures. The layout of the two engine rooms are also arranged to prevent both being shut down during emergencies.

Vertical riser storage and handling systems are trademarks of DSS™ rigs. Such an arrangement frees up deck space; they require about 40% less

space than conventional systems.

Aziz Merchant, Executive Director of DTG, Keppel FELS (Engineering) and Keppel Offshore & Marine Technology Centre (Deepwater Technology), elaborates, “The compact footprint of the risers helps to keep the overall sizes of our semis within practical limits. In addition, the simplicity of the riser handling systems increases efficiency, and boosts overall productivity of the drilling campaign.”

Following the Macondo incident, the latest DSS™ designs have also been customised to meet the calls for greater redundancy and automation.

to operate in various parts of the world, including offshore Brazil and the North Sea, two regions with rapidly growing E&P activities.

Big in Brazil

The DSS™38E design was thrown into the spotlight in late 2011 when high-profile Sete Brasil Participações S.A (Sete Brasil), which specialises in chartering drilling rigs and other assets for Brazil’s pre-salt expansion, placed an order for one unit. It gained further prominence when Sete Brasil ordered five additional units in 2012. The combined value of these contracts is in excess of US\$4.9bn.

Joao Carlos Ferraz, Chief Executive Officer of Sete Brasil, explains, “Keppel designed rigs have an established track record of operating efficiently in their respective fields and we are confident that the DSS™38E rig will be well-suited for offshore Brazil.

“As we grow our fleet of drilling rigs to meet the demands of our customers, partnering reliable shipyards which can deliver quality rigs on time and within budget is an imperative for us.”

DSS™38E is an enhancement of DSS™38, which has been successfully commercialised in the last few years. Two such units, Gold Star and Alpha Star, were delivered to Brazilian rig contractor Queiroz Galvão Óleo e Gás (QGOG) in 2010 and 2011 and have been operating efficiently without disruptions for Petrobras offshore Brazil.

An innovative and cost-effective design, the DSS™38E is rated to drill to depths of 10,000 m below the rotary table in 3,000 m water-depth. Its operational displacement is approximately 45,000 tonnes and it has accommodation facilities for 160 men.

Compared to DSS™38, the enhanced design has Dynamic Positioning 3 (DP-3) instead of DP-2 capability, and variable load deck of 7,000 tonnes instead of 5,500 tonnes. It also has twice the capacity to handle 1,300 tonnes of drill pipes, potentially translating to a 5% jump in productivity.

In terms of safety features, DSS™38 has six-ram blowout preventers (BOPs) and additional flow meters to better monitor

the flow rates from subsea wells.

Clad for the North Sea

To suit the harsh climate of the North Sea region, DTG came up with the DSS™51HE and DSS™60HE semi designs. Equipped with winterised features such as derrick cladding and machinery space heating, the rigs are capable of year-round operations.

Most of the semis active in the North Sea are third and fourth generation rigs with four-ram BOPs. The DSS™51HE and DSS™60HE comprise six-ram BOPs, which can be upgraded to contain seven-ram units.

The two designs are capable of operating in water depth of up to 7,500 feet (ft) and can drill up to 30,000 ft from the rotary table. With Dynamic DP-3 capability and engineered to withstand Beaufort 10 sea conditions, the semis have superior motion characteristics and are also suitable for self-contained mooring for up to 500m water depth. Both designs contain accommodation facilities for up to 200 men.

The DSS™60HE has an operational displacement of 61,000 metric tonnes (MT) and a variable deck load of 7,500MT compared to the DSS™51HE's operational displacement of 51,000MT and variable deck load of 6,000MT.

DTG also had a hand in designing accommodation semis for the North Sea. DSS™20NS has DP-3 capability, and



Equipped with winterised features such as derrick cladding and machinery space heating, DSS™51HE and DSS™60HE (pictured) semis are capable of year-round operations

a large payload and deck area and dual cranes. It is ideal to support construction and maintenance activities or the decommissioning of offshore oil and gas installations.

The first accommodation semi built to this design, Floatel Superior, has DP-3 capability, and is presently in operations.

Another similar rig, Floatel Victory, is currently under construction for delivery in 2015.

Trending with the market

“We are fortunate to have had so many experienced operators support the development of our design capabilities over the years,” shares Chia.

“The industry is rapidly expanding into deepwaters and harsh environments. We must keep up with this development by evolving our designs, enhancing our suite of solutions with the latest requirements and preferences.”

Semisubmersible drilling tenders

Keppel O&M has worked with customers such as Seadrill Limited (Seadrill) to develop a niche market. The semisubmersible drilling tender (SSDT) series designed by DTG has revolutionised the way tender drilling rigs operate – it can be deployed next to deepwater floating platforms.

The first drilling tender rig, West Palaut, was built to the KFELS SSDT800 design and delivered to Seadrill in 1994. The unit went on to win Shell's Platform Rig of the Year Award in 2004, 2006 and 2008.

One of the group's latest SSDT models, KFELS SSDT 3600E, design was awarded the ASEAN Outstanding Engineering Achievement Award in December 2009 for its eco-friendly features and sustainable operations.

To-date, Keppel O&M has completed a total of seven tender drilling rigs for Seadrill and one for PV Drilling. Originally designed to operate in Southeast Asian waters the tender drilling rig has also been deployed in deepwaters, including in offshore West Africa.



West Jaya is the seventh semisubmersible drilling tender completed by Keppel FELS for Seadrill

Bringing out the best in the brightest

The global race for talent is particularly keen in the offshore and marine field. Having the right people with the right skills and qualities to drive strategies, innovation and technology will be the key differentiator for the industry's leading companies.

For Keppel Offshore & Marine (Keppel O&M), taking in promising recruits is just the beginning of bringing out the best in the brightest. Even more critical are its efforts to develop and retain its talent. It wants to ensure that the promising young people of today are nurtured and cultivated to become its leaders of tomorrow. In this way, the offshore and marine giant is installing a robust succession plan.

Tong Chong Heong, Chief Executive Officer of Keppel O&M, says, "Hiring the brightest is just the first step. We continue

to stretch and grow our people with challenging assignments, global projects and classroom training. With up-to-date know-how and skills and a Can-Do attitude, our workforce is able to understand the market to meet tough demands of customers and enter new frontiers."

Investing in people

Keppel O&M offers a host of avenues for the development for all employees. In 2011 alone, its people received an average of 74 hours of training for both technical and people skills.

Within Keppel O&M's arsenal of development programmes are the Project Management Programme (PMP), Global Young Leaders Programme (GYLP) and Financial Acumen for Non-Finance

Managers course, all of which seek to help young managers, superintendents and engineers develop a multi-faceted understanding of the group's businesses.

"We select young and motivated employees for these programmes," Tong says, "We assess their knowledge, experience, and how well they work with their peers and interact with customers."

These programmes coupled with high-impact projects and overseas assignments have certainly helped to groom key managers in leadership positions across the group.

Making a difference

Talented young Keppelites are often posted abroad to contribute to the group's overseas facilities as well as widen their horizons and develop a global mindset.

Poh Leong Kok, 39, President of Keppel Batangas Shipyard – one of Keppel O&M's two yards in the Philippines – joined the Keppel O&M group in 1996 as an Assistant Hull Engineer at Keppel Shipyard. Throughout his career, he says, the group has invested in his growth and development.

"Hiring the brightest is just the first step. We continue to stretch and grow our people with challenging assignments, global projects and classroom training. With up-to-date know-how and skills and a Can-Do attitude, our workforce is able to understand the market to meet tough demands of customers and enter new frontiers."

Tong Chong Heong, Chief Executive Officer of Keppel O&M



Poh Leong Kok (second from right), President of Keppel Batangas Shipyard, and Mok Kim Whang (right), former President of Keppel Philippines Marine, with the Lady Sponsors of two floating crane barges built for PT Pelarayan Kartika Samudra Adijaya (KSA)

Poh shares, “Keppel has always provided its employees with opportunities to upgrade. Personally I am very thankful to have been given two scholarships, one for a Bachelor’s degree and one for a Master’s.” He has also undertaken two advanced management programmes, one at Nanyang Technology University (NTU) and the other at National University of Singapore (NUS).

Poh was posted to the Philippines four years ago to run and upgrade the yard there.

Poh elaborates, “At Keppel Batangas Shipyard, I learnt how to effectively drive change, motivate the workforce, create value for stakeholders and focus on expanding customer network, all the while living up to the Keppel O&M brand.”

It was not always easy to seed change in the Philippines, Poh gives the example of improving safety standards. He says, “How do you convince an employee to adopt safety best practices and make sure that he wears the necessary safety gear when out in the streets, a family of four or five is packed onto one motorcycle without helmets?”

Nonetheless, the yard’s safety culture and competencies have strengthened significantly since he first arrived. Poh and his management team have set the tone for safety by emphasising the importance of proceeding with a safety-first mindset in all work activities, and rolling out initiatives to enhance processes and practices consistently.

Customers of the yard have taken note of the yard’s enhanced operations. Poh shares, “A Danish customer once commended Keppel Batangas Shipyard for its safe and systematic operations. He said entering the yard was like entering a whole new world. The chaotic streets outside contrasted with the orderly yard in here. This shows that we have ramped up our safety level many-fold.

“Going forward, to remain competitive, we will continue to benchmark ourselves against the industry’s best, and raise the quality and productivity of our services.”

Broadening perspectives

Like Poh, Ivan Lim’s overseas stint has been eye-opening. Lim, 34, who is Assistant General Manager (Operations) of

Keppel Shipyard, recently returned from a two-year secondment to Nakilat-Keppel Offshore & Marine (N-KOM) in Qatar.

Lim says, “Our shipyards in Singapore are supported by a very mature and vibrant offshore and marine eco-system. This is not the case at N-KOM in Qatar, where we have the challenge of not only developing the yard’s infrastructure, systems and business model but also building up a strong supporting marine cluster.

“My experience at N-KOM has really reinforced my understanding of the fundamentals of shipyard operations. It has shown me how we can optimise lean resources to deliver world-class services.”

Lim’s path with Keppel merged in 1994 when he scored stellar O-level results and could have applied for scholarships with various oil majors but decided to choose Keppel instead.

“It was the affinity with Keppel’s Can-Do spirit that drew me to be part of this group,” Lim related. “I wanted to part of a team that was willing to push the envelope to be a choice solutions provider and employer in the industry.”

Lim received the Keppel Shipyard Scholarship in 1994 for a Diploma in Marine Engineering at Singapore Polytechnic. In 2002, he received the Keppel Group Scholarship to pursue the marine engineering Bachelor and Master’s degree programmes at University of Newcastle-upon-Tyne.

Besides the scholarships, Lim has also benefited from numerous Keppel College programmes such as the GYLP, where he was given the opportunity to work with his peers across the different business units of Keppel and so tap their insights.

Lim believes that building up human capital is a key issue that the group will have to address in the next 10 years - one that Keppel is well-positioned to tackle.

He elaborates, “The management’s focus on succession planning and staff retention lays a firm foundation for us to strengthen our talent pool. It will be instrumental in helping the group adapt to the changing



Ivan Lim, Assistant General Manager (Operations) of Keppel Shipyard, recently returned from a two-year secondment to Nakilat-Keppel Offshore & Marine (N-KOM) in Qatar where he supported Mr Abu Bakar Mohd Nor, Chief Executive Officer (N-KOM) in the developing the yard’s infrastructure, systems and business model

profiles of our work force and management team. One of the most important tasks would be to redesign job scopes and work processes. I am certain that we have the necessary understanding and know-how to achieve the right mix and balance.”

Turning inspiration into passion

Keppel’s management saw the potential of Keppel FELS’ first female project manager, Adeline Seah, from the very start, offering her a scholarship to pursue a Bachelor’s degree in engineering right after her A-levels. She joined the group upon graduation in 2004.

“I was offered a couple of other scholarships but made the Keppel Group my choice as I saw potential in this industry. To me, it was truly inspiring that a local company can design, construct and deliver a vessel of great magnitude, and I wanted to be a part of the process. Now, it is my passion.”

Today, Seah has been responsible for delivering one of the world’s largest offshore wind installers, Seafox 5. The Keppel-designed KFELS Multi-Purpose Self Elevated Platform (MPSEP), is the first such unit in the world and the first offshore wind installer to be completed in



The females behind one of the world's largest offshore wind turbine installers, Seafox 5, are amongst the growing number of women in the industry: Adeline Seah (centre) the first female Project Manager at Keppel FELS, and her colleagues Gooi Ling Huey (left), Project Engineer, and Tan Yan Han, Mechanical Superintendent

Singapore.

Seah shares, "Keppel's management never saw my age or gender as a stumbling block. Instead, they gave me a lot of opportunities to prove my capabilities. My first assignment as Project Manager was to oversee this unique project. This speaks volumes of the management's faith and confidence in me."

Thirty-year-old Seah's journey has not been easy because of the innate challenges of being a female leader in a male-dominated field.

However, Seah adds that with the strong support from management, Keppel has helped her grow both personally and professionally.

Keppel O&M continues to groom Seah for the future. In 2012, Keppel O&M sponsored her for the Master of Science in Project Management degree programme that was offered jointly by NTU and the University of Manchester. Seah also holds a Project Management Professional certification from the Project Management Institute; this is a globally recognised certification for project managers.

Pushing performance

While Seah was supporting Keppel O&M's push to meet the demands of the offshore wind industry, Loh Kee Huat, 31, has been helping to ensure that the group's internal needs are met effectively.

Loh, 31, was appointed General Manager of Prime Steelkit last year, a wholly-owned Keppel O&M subsidiary. He shares, "Over the last year, my team has looked into using existing technologies to optimise materials and resource usage at Prime Steelkit's operations. We recently explored the use of radio-frequency identification (RFID) technologies to track our steel plates which has could potentially lead to improvements to inventory management and manpower usage for various tasks."

Concurrently the Assistant Yard Manager of Keppel Singmarine, Loh is also involved in developing the company's competencies and facilities.

He says of his experience with Prime Steelkit and Keppel Singmarine, "My roles in these two companies have deepened my appreciation of innovations and technologies in ensuring sustainable operations, and given me the experience necessary to spur related initiatives."

Loh first joined the Group in 2006 and he remembers he "liked the idea of building the massive structures we have here. The prospect of working outdoors in a yard also appealed to me then as it still does now."

He underwent several Keppel development programmes and soon rose through the ranks with his strong technical knowledge and skills as well as leadership qualities.

He says, "At each new posting there is bound to be a learning curve. Helping me navigate the new landscapes were my mentors and seniors. They gave me sound advice on technical, project management and people management matters."

Loh is now himself a mentor to the company's management trainees and continues to relish the challenges that his job provides. He says, "The people I work with makes things interesting and challenging. I haven't had a single dull day as each day brings different challenges my way. With teamwork and our Can-Do spirit, things get done."



Loh Kee Huat, Assistant Yard Manager of Keppel Singmarine and General Manager of Prime Steelkit, believes that innovations and technologies are key to sustainable operations

Expanding Horizon

Dynamic Offshore Drilling Ltd(DODPL), Cyprus through its Subsidiary Vision Drilling Pte. Ltd(VDPL), Singapore is Constructing 350 ft KFELS B Class Jack Up Rig "Dynamic Vision" at Prestigious Keppel FELS Shipyard, Singapore.

"Dynamic Vision"

Delivery 1Q, 2013

Deepwater Drilling & Services Pvt. Ltd (DDSPL) has got long term charter with Fortune 500 Indian National Oil Company "Oil & Natural Gas Corporation Ltd."

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Congratulations on your success!

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We are looking forward to many years of good business relationship and wish Keppel Offshore & Marine and it's staff all the best!

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