# DEFINITIVELY KEPPEL







REPORT TO STAKEHOLDERS 2011

## OUR VISION IS TO BE THE PROVIDER OF CHOICE AND PARTNER FOR SOLUTIONS IN THE GLOBAL OFFSHORE AND MARINE INDUSTRY.

Keppel Offshore & Marine is a global leader in offshore rig design, construction and repair, shiprepair and conversion, and specialised shipbuilding. We harness the synergy of 20 yards worldwide to be near our customers and their markets.



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## **KEY FIGURES 2011**

\$10b

#### **NEW ORDERS SECURED**

The total value of new contracts secured for 2011 hit a record high.

\$9.4b

#### **NET ORDERBOOK**

The balance as at end-2011 in our orderbook with deliveries extending to 2015

41

#### **MAJOR DELIVERIES**

The number of major projects delivered on time and within budget worldwide.

\$160m

#### INVESTMENTS IN PRODUCTIVITY

The amount of investments to improve facilities and capabilities worldwide during the year.

0.24

#### **ACCIDENT FREQUENCY RATE**

The latest accident frequency rate, down from 0.29 in 2010.

74

#### **TRAINING HOURS**

The average number of hours each employee spent on training during the year.

- Harnessing the synergy of its businesses and core competencies in the Offshore, Marine and Specialised Shipbuilding divisions, Keppel 0&M is the provider of choice and partner for solutions in the industry.
- 2. Keppel FELS is focused on excellent execution of its current orderbook which extends to 2015.

## CHAIRMAN'S STATEMENT

"WITH INCREASING COMPETITION IN THE INDUSTRY, KEPPEL OFFSHORE & MARINE IS FOCUSED ON HARNESSING ITS COLLECTIVE STRENGTH SO THAT IT CAN COMPETE EFFECTIVELY AS ONE STRONG TEAM."



## \$992m

#### **ECONOMIC VALUE ADDED**

Grew 5% in 2011 compared to 2010.



2011 saw record new orders of 23 jackups, with the majority for Keppel FELS' proprietary designs.

#### DEAR STAKEHOLDERS,

While 2011 was an eventful year, the fundamentals of the offshore and marine industry remained intact. The global energy sector continued with investments despite macro headwinds like the Eurozone debt crisis, economic uncertainties in the US and concerns of a China with a moderated pace of growth.

The resilience of the offshore and marine industry is due to two key factors. Firstly, the Macondo incident in the Gulf of Mexico in April 2010 continues to cast its influence, sharpening the focus of the oil and gas industry on safety and quality. This has caused owners to relook at their aging fleets of rigs and vessels. Secondly, unrest in the Middle East region and natural disasters around the world sustained an elevated oil price which averaged US\$95 per barrel for the year. As a result, strong interest was ignited in new rigs, most notably in the first half of 2011.

At Keppel Offshore & Marine (Keppel O&M), we benefited from this trend and achieved healthy performance in 2011, with a record \$10 billion worth of contracts secured for 24 jackups, three semisubmersibles, six conversion jobs and 17 specialised

vessels. This surpassed the previous high of \$7.4 billion of new orders achieved in 2007. As at end-2011, our net order book stood at \$9.4 billion, with deliveries extending to 2015.

Financially, Keppel O&M recorded revenues of \$5.7 billion with a net profit of \$1.1 billion, and raised Economic Value Added by 5% to \$992 million.

#### RELIABLE EXECUTION

In 2011, a total of 41 major projects were successfully delivered, backed by enhanced productivity, meticulous project management and the commitment of our project teams.

Of these, the Offshore Division delivered eight newbuild rigs, comprising three jackups, three semisubmersibles, and two drilling tenders, together with one rig completion and one drillship upgrade. Our Marine and Specialised Shipbuilding Divisions converted and upgraded seven FPSO/FSO units and delivered 11 vessels, as well as an outfitting job for a drillship, among other repair jobs.

We are particularly proud of some of the significant projects which were completed and delivered during the year. On 3 June 2011, Brazilian President Dilma Rousseff witnessed the christening of the Floating Production Unit (FPU) P-56, which is the first semisubmersible to be completely built in Brazil by Keppel. Measuring 125m long, 110m wide and 137m high and with a displacement of 50,000 tonnes, P-56 is the world's largest FPU. The project achieved nine million man hours without lost-time incidents. This accomplishment has further fortified the position of our BrasFELS yard as the leading offshore yard in Latin America.

In Singapore, Keppel FELS completed a rig which has been chartered by Petrobras for six years to support exploration and production (E&P) activities in offshore Brazil. Alpha Star, the second of two DSS™38 semisubmersibles, was delivered to Brazilian company Queiroz Galvão Óleo e Gás, four months ahead of schedule and with zero lost time incidents. In recognition of our execution excellence, QGOG awarded Keppel FELS a bonus of US\$8 million.

These two deliveries in 2011 added to our track record for Brazil, and we are poised to deliver and contribute towards Brazil's aggressive E&P programme.

Apart from Brazil, we also strengthened our relationships with our key customers in Vietnam and the Middle East. In the last quarter of 2011, Keppel FELS delivered Vietnam's first semisubmersible drilling tender (SSDT) ahead of schedule, within budget and with a perfect safety record. This marks yet another milestone in the longstanding partnership which Keppel has had with Vietnam over the last 25 years.

Since its opening in November 2010, Nakilat-Keppel Offshore & Marine in Qatar has established itself as the region's premier offshore and marine yard, with over 40 repair projects completed in its first year of operation. A milestone project it has undertaken was the first LNG carrier, Simaisma, to drydock in Qatar. The yard also undertook critical repair, modification and upgrading works on Gulf Drilling International (GDI)'s jackup rig, Al-Doha.

#### **VIGILANCE IN SAFETY**

With safety firmly imbibed as a Keppel core value, we have continued to invest significant resources over the past year to inculcate a robust safety culture across the Group. As Chairman, I am rallying the leadership team to send out a strong message to all our employees that safety is everyone's business, and we must stand firm in our belief that all accidents can be prevented.

Reflecting this firm commitment, we invested around \$16 million in 2011 on safety infrastructure upgrades, process improvements, training and communication, with the aim of promoting safe work behaviour and practices.

Our efforts in this area were recognised by Singapore's Workplace Safety and Health (WSH) Council and the Ministry of Manpower, which accorded the Keppel O&M Group with 20 awards last year.

While we are encouraged by the accolades, 2011 was a challenging year for us. Our accident frequency rate improved from 0.29 reportable cases for every million man hours worked, to 0.24. However, our accident severity rate

jumped to 443 man days lost per million man hours worked, from 139 in 2010. This was due to an increased number of fatalities across the Group, including a serious incident which happened at one of our shipyards in the Philippines. We are greatly saddened by the loss of lives, and have gleaned useful lessons so that we can continue to enhance our safety systems and practices.

Towards this end, we are reinforcing our Keppel Workplace Safety and Health 2018 strategy, and through this, we are putting in place a common set of safeguards, strengthening accountability and promoting safety ownership. The journey to an incident-free workplace demands strong determination and unwavering commitment to stay focused. We will continue to foster open communication, support one another and share best practices.

#### **COMPETITIVE DESIGNS**

Our record new orders secured in 2011 can be attributable to our competitive, innovative and cost-effective solutions for our customers. During the year, we launched a number of enhanced rig designs, including the DSS™38E semisubmersible design for Brazilian drilling contractor Sete Brasil. An enhancement from the DSS™38 semisubmersible design, our proven fifth generation deepwater solution, the DSS™38E is rated to drill to depths of 10,000 metres below the rotary table in 3,000 metres water depth. With improved capability and operability, it is suited to the stringent requirements of the deepwater "Golden Triangle" region, comprising Brazil, Africa and the Gulf of Mexico.

Apart from the DSS™38E, we also introduced the Keppel FELS Super A Class jackup design in 2011. Customers welcomed this new design, with five units ordered by established drilling operators like Ensco and Discovery Offshore. What differentiates this jackup rig from the rest is its versatility. It is able to operate in water depths of 400 ft and drill up to 35,000 ft, and is suitable for various parts of the world like the UK, Danish and Dutch sectors of the North Sea.



Mr Choo Chiau Beng (centre), CEO of Keppel Corporation and Chairman of Keppel 0&M, and senior management during a safety walkabout with consultant company, DuPont.

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With the growing demand for floating accommodation units, we offered a new design, SSAU™4000NG, to Floatel. This new design, capable of operating alongside fixed platforms, floating platforms and FPSOs, meets the stringent UK HSE requirements for work in the UK sector of the North Sea as well as the Gulf of Mexico, Brazil and Western Australia. The unit, called Floatel Victory, is currently being constructed and will be completed by the first quarter of 2014. It has secured a contract from BP for its Clair Ridge Development project in the UK Continental Shelf.

In Brazil, Petrobras has articulated its need for over 100 Brazilian-built offshore support vessels by 2020. To meet this demand, our technology unit Marine Technology Development has a number of new designs which cater to the Brazilian Continental Shelf. They are the MTD9045-DE, a 4,500 deadweight tonne Platform Supply Vessel (PSV), and MTD80210A, an 18,000 horsepower Anchor Handling Tug Supply (AHTS) vessel, capable of bollard pull in excess of 210 tonnes. Keppel Singmarine Brasil, our new 7.6-ha yard in Santa Catarina, is currently building two PSVs for our ship owning arm Guanabara Navegacao. These vessels will be

offered for bareboat charter or sale when completed.

We will continue to drive our R&D efforts to bring innovative and cost-effective designs to the market. Over the past year, our proprietary products have been gaining market acceptance. The three KFELS N Class jackups, designed specifically for the harsh environment in the North Sea, have commenced drilling operations. The first multi-purpose self-elevating platform secured a charter for wind farm foundation work in the North Sea. The KFELS Super A Class jackup for Ensco and a semisubmersible drilling tender for Seadrill, both ordered in 2011, have already been awarded charters.

Moving ahead, we are confident that our proprietary designs will continue to meet the evolving needs of the industry.

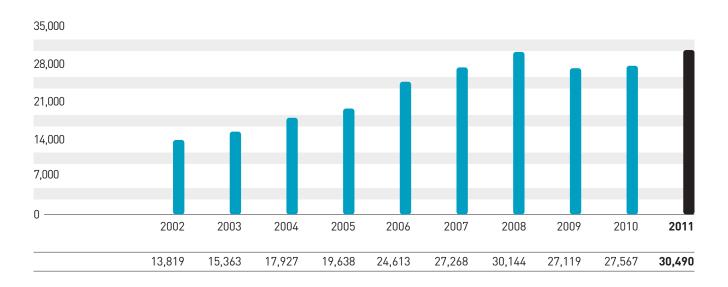
#### INVESTING IN THE FUTURE

According to research reports, global demand for oil is projected to continue to rise. Major oil companies have announced increased budgets for exploration and production to address the decline in production capacity and replace depleting reserves. Dayrates are strengthening for both jackups and semisubmersibles. The prospects for

Chairman's Statement

#### 10-Year Growth in Revenue and Net Profit (\$ million) 10,000 1,100 8,000 880 6,000 660 4,000 440 2,000 220 0 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 7,258 5,706 Revenue 1,889 1,442 2,394 4,068 5,743 8,569 8,273 5,577 - Net Profit 110 192 180 232 464 542 688 862 1,062 1,144

#### 10-Year Growth of our Global Workforce



our deepwater solutions will continue to improve as offshore drilling moves towards deeper waters.

Keppel 0&M is focusing on executing the orders that have been secured, maintaining our track record for on time, on budget deliveries and extracting maximum value from each project. With increasing competition in the industry, it is of paramount importance to harness the collective strengths of the Group so that we can compete effectively as one strong team.

Looking into the near term, the next few years will be busy for us as we deliver our orderbook of close to \$10 billion. In 2013 alone, we expect to complete 20 jackup rigs. Meeting this demanding workload will require us to raise our productivity. We have therefore set up a productivity improvement taskforce to look into ways to improve our operational efficiencies and skills training for our workforce. In all, \$160 million was invested in 2011 to expand our global yard facilities and boost capabilities. These investments will position us strongly to capture more opportunities as we continue to respond to market demand and deliver on our promises.

Aiming to equip ourselves to better serve our customers, we continued to invest in adjacent businesses. Our 27.8% stake in SGX-listed topside module fabricator, Dyna-Mac, is strengthening Keppel O&M's capabilities as a core solutions provider in floating production systems such as FPSOs.

Early this year, we also expanded our suite of solutions for offshore wind farm installation with the acquisition of a 49.9% stake in leading offshore wind turbine jacket foundation designer OWEC Tower. To-date, OWEC Tower is the only company with a track record of having its proprietary jacket foundation design installed for offshore wind farms. Besides getting a slice of the offshore wind foundation business, this investment will allow us to tap OWEC Tower's expertise to provide further value-added solutions to our customers in the offshore wind market, in addition to the design and construction of

offshore wind turbine installation and support vessels.

These strategic moves into niche areas are expected to translate into steady and recurring earnings for the Group in the years ahead.

#### **BOOSTING BENCH STRENGTH**

As part of the continual efforts by the Group to build up our next generation of leaders, several key appointments were made during the year.

Chow Yew Yuen, who was instrumental in establishing and growing Keppel 0&M as a credible solutions provider in the Americas, has been appointed Chief Operating Officer of Keppel 0&M. In this new role, he supports CEO Tong Chong Heong in driving the growth and development of Keppel 0&M's businesses.

Following the completion of his secondment as CEO of our N-KOM yard in Qatar, Yong Chee Min has returned to Singapore to assume the position of General Manager (Projects). Chee Min is also resuming his previous portfolio as General Manager (Health, Safety & Environment), taking over from Chandru Sirumal Rajwani, who is posted to Azerbaijan to head Caspian Shipyard. There are also changes at our technology R&D arm, KOMtech. Aziz Amirali Merchant, Executive Director (Engineering) of Keppel FELS and Executive Director of Deepwater Technology Group, will co-head KOMtech with Dr Foo Kok Seng. Aziz will be Executive Director, Deepwater Technology, while Kok Seng will be Executive Director, Shallow Water Technology.

#### **ACKNOWLEDGEMENTS**

During the year, Mr Bjarne Hansen and Professor Neo Boon Siong stepped down from the Board of Keppel O&M.

I would like to thank them for their invaluable contributions and wise counsel to the Board during their tenure.

I would also like to record my sincere appreciation to Sit Peng Sang, Executive Director of Keppel O&M, who has retired after 40 years of dedicated service to

the Group. We are pleased that Peng Sang has agreed to remain on the Board of Keppel O&M, to help us mentor the younger leaders within the Group.

Lastly, I would like to thank our Board of Directors, all our valued customers, business associates, class societies, vendors, suppliers, contractors and union leaders for their continuous support and confidence in Keppel O&M. I also wish to acknowledge the assistance and support of all local, state and federal authorities in the host countries where we operate.

2012 marks the 10th anniversary of the formation of Keppel O&M. We have much to celebrate as we have enjoyed healthy growth over the last 10 years. Our net profit in 2002 was \$180 million, generated by a workforce of around 14,000. As at end 2011, our net profit has reached over \$1 billion and our global workforce has increased to 30,500.

The sterling performance achieved by Keppel 0&M over the years would not have been possible without dedicated and loyal Keppelites with their passion and Can Do! spirit. I am confident that Keppel 0&M is well poised to grow further and deliver sustained value to all our stakeholders.

Choo Chiantseng

Yours sincerely,

CHOO CHIAU BENG CHAIRMAN

28 March 2012

## INTERVIEW WITH CEO AND COO

CEO MR TONG CHONG HEONG AND COO MR CHOW YEW YUEN ARE FOCUSED ON LEADING AND RALLYING THE GROUP TO STRENGTHEN ITS COMPETITIVE EDGE AND STAY AHEAD IN THE INDUSTRY.



Q WHAT IS KEPPEL
0&M DOING TO STAY
COMPETITIVE IN 2012
AND BEYOND?

Mr Tong: We are pleased with our performance in 2011, but we will not rest on our laurels. Our priority is always to ensure that Keppel O&M is fighting fit and ready to meet the challenges ahead. Our competitive edge is our willingness to go the extra mile, and our versatility in meeting the needs of customers. We will continue to drive such values across the Group. Currently, we are focused on executing our existing orders well, and to deliver them safely and on time.

At the same time, we are mindful of the intensifying competitive landscape. Hence, we are dedicating significant resources to enhance our competitiveness through improving our overall productivity, managing our costs more effectively and honing our technology and R&D competencies. We are also harnessing the synergies of our global network of yards to offer value-added solutions, as well

as investing in and driving adjacent businesses to widen the range of our offerings.

With people as our core asset, we continue to grow our team and groom new talent. We are stepping up efforts to train and develop our people, to equip them not only with the necessary skills, but also to imbue them with the Keppel core values.

Mr Chow: Over the years, we have placed a lot of emphasis on improving our productivity. This has enabled us to deliver an increasing number of projects each year. In 2009, we delivered a record 14 rigs across the Group. In 2013, we will be delivering over 20 rigs. We are currently doubling our efforts in raising our operational efficiencies, so that we continue to be well positioned to meet the growing demand for quality solutions.

To drive our efforts in this area, we formed a Productivity Improvement Taskforce some years ago. This Taskforce is responsible for overseeing the development of strategic productivity improvement plans, and ensuring that productivity improvement initiatives are executed across all the yards in our global network. We reap the largest productivity gains through innovative improvements of our systems and



processes. We are therefore continuing to drive process improvements in all our business units.

In addition, we continue to strengthen our technology leadership to position us ahead of the competition. With the exploration of oil and gas moving into harsher environments and deeper waters, we are working on a number of new designs this year. Among these is our joint project with ConocoPhillips to design a first-of-its-kind ice-worthy jackup rig to operate in one of the world's harshest marine frontiers, the Arctic Sea. We have since received good market response on this design project and are excited about its prospects. We are also working on a series of new harsh environment sixth-generation semisubmersibles, the DSS™51HE and DSS™60HE. These designs are suitable for worldwide operations including the North Sea.

To us, our innovations must add value to our customers. They must be commercially viable, and must help our customers meet their business goals. To strengthen our R&D efforts, Aziz Amirali Merchant is joining Dr Foo Kok Seng to helm the Keppel Offshore & Marine Technology Centre. Aziz will be responsible for our R&D efforts in the deepwater area, while Kok Seng will focus on shallow water technologies.

Q WHAT ARE YOUR VIEWS ON THE OUTLOOK OF THE OFFSHORE AND MARINE INDUSTRY IN THE NEXT FIVE YEARS?

Mr Tong: While the overall global economic outlook is expected to be weak in the next few years, there is returning confidence in the global oil and gas industry. This is driven mainly by the continued growth in energy demand across countries in the Asia Pacific and Latin America.

Many E&P companies are in the catch-up mode on delayed projects, with key focus in the next few years on offshore deepwater. Global deepwater oil and gas production is expected to grow 31% by 2015. With the oil price averaging around US\$95 per barrel and significant exploration finds reported in 2011, the prospects of the offshore market in 2012 and beyond are healthy.

In terms of the specific market segments, the continued influence of the Macondo incident is expected to translate into increasing demand for customised rigs with improved quality and enhanced safety features.

Dayrates will continue to rise, indicating the market's need for more rigs. Although 2013 will see many rigs entering the market, we believe there is still a high level of demand, and the newbuild rigs will be absorbed by the market.

Mr Chow: According to industry estimates, by 2015 more than 50% of the jackup rig fleet will be over 30 years of age. This is five times the number of units at that age today and we expect the replacement cycle to continue. In the North Sea, we are seeing more demand for ultra-premium rigs to work in harsher environments. Also adding multiple jackups to their fleets are Saudi Aramco in the Middle East and PEMEX in Mexico.

In the ultra deepwater market, demand is exceeding supply. According to Pareto, there are not enough available rigs in 2012 and the market is expected to fully absorb the new units arriving in 2013 and 2014. Going into 2016, Douglas-Westwood expects Brazil to be the largest deepwater market, while deepwater activity is resuming in the US Gulf of Mexico. Deepwater capital expenditure in the Asia Pacific is forecast at US\$29 billion over the next five years.

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Interview with CEO and COO

In the Floating Production market, industry experts say that the world will need more than 100 such units. equivalent to a value of US\$45 billion, in the next four years. Barclays Capital expects an FPSO upcycle that could double the current worldwide fleet beginning in late 2012 or 2013. Brazil will require a majority of the vessels in the floating production sector in the coming years. For example, Petrobras expects installation of 54 new production systems over the next 10 years. OGX says it will require 19 FPSOs for their fields.

With the healthy outlook, we are going full steam ahead in all aspects of our business to ensure we leverage our established core competencies to meet and benefit from the upcoming demand for rigs and vessels.

> **PLEASE COMMENT ABOUT** BRAZIL AND WHAT CAN BE EXPECTED OF KEPPEL 0&M IN BRAZIL FOR 2012 AND BEYOND.

Mr Tong: As we all know, Petrobras has revised its capital expenditure upwards for the period from 2011 to 2015 to US\$225 billion. Of the US\$127.5 billion to be spent on E&P, around US\$53 billion will be set aside to develop the pre-salt regions. According to the US Energy Information Administration, the pre-salt area is estimated to potentially hold at least 50 billion barrels of oil and gas reserves.

As a result, Petrobras has announced its requirement for a large number of deepwater rigs, FPSOs and OSVs to work on its pre-salt fields. It has also made known its local content requirements for these rigs and vessels. New players like OGX are also aggressively increasing their assets.



With an established yard and track record



in Brazil, where we have built some of the world's largest floating production platforms, we have since secured a newbuild semisubmersible order from Sete Brasil. We are currently in discussions on potential additional orders.

On the OSV front, our new shipbuilding yard in Santa Catarina is currently being developed. Ahead of its opening, it is building six tugboats as well as two technologically-advanced Platform Supply Vessels (PSV) based on our proprietary designs, for our ship owning arm Guanabara Navegação, When completed, these two PSVs will be offered for bareboat charter or sale.

We are committed to our presence in Brazil, and are working to enhance our capabilities in Brazil to better meet Petrobras' requirements.

Mr Chow: Over the next few years, we will be focused on strengthening our competencies in Brazil. In the 2011-2015 business plan unveiled by Petrobras in November 2011, the national oil company stated that by 2015, they will require 37 deepwater rigs, 479 supply and special vessels, 61 production platforms (both semisubmersibles and FPSOs) and 81 jackets and TLWPs.

So far, Petrobras has confirmed the leasing of 33 deepwater drilling rigs for 15 years from two drilling

contractors, and the rigs are to be built in Brazil with between 55% to 65% local content. An additional 150 OSVs are also required by 2015. a third of which are 4500dwt PSVs.

While there is strong demand in Brazil. we are also mindful of the upcoming new shipyards which will pose competition to us. We are therefore adopting a number of initiatives to boost our competitive edge in Brazil.

Firstly, we are using our knowledge of operating in Brazil over the last 10 years to further enhance the productivity of our operations in our yard in Angra dos Reis. At the same time, we are ensuring we engage well with the Brazilian

unions and workforce so that they continue to be aligned with our interests. Capacity maximisation is another area which we are working on. Our team at our BrasFELS yard is considering various ways to further modernise our vard facilities with the aim of increasing output and optimising utilisation.

Beyond this, we are continually seeking opportunities in Brazil which can support us in expanding our suite of value-added solutions to Petrobras and other customers in Brazil. On the whole, we are positive on the prospects of Brazil and we hope to continue to deepen our relationship with all our customers operating in Brazil.

WHAT ARE THE **NEW AREAS WHICH** KEPPEL 0&M IS LOOKING AT?

eppel Offshore & Marine

With an established vard and workforce in Brazil, Keppel O&M is committed to work with our Brazilian customers to meet the country's requirements for rigs and vessels.

2. As a mark of the long-standing friendship between Keppel and Petrobras, former Petrobras CEO Mr Jose Sergio Gabrielli and team visited Keppel O&M in September 2011

3. Our associated company Dyna-Mac worked on the topside modules of FPSO Okha, which was delivered by Keppel Shipyard to SBM in June 2011.

Mr Tong: A key characteristic of our growth strategy has been to integrate our competencies along the value chain. Over the years, we have selected niche areas where we do not compete with most of our customers.

We have acquired a stake in Dyna-Mac, a topside module fabricator, to strengthen our capabilities as a core solutions provider in floating production systems. We have taken a 47% stake in Floatel International, which owns and operates accommodation vessels that will enable us to better tap growth prospects in quality floating accommodation semisubmersibles. In anticipation of demand for offshore vessels in Brazil, we started a new ship owning company which will offer PSVs for bareboat charter or sale.

Our participation in the offshore wind sector is also progressing well. We are seeking to build more offshore wind installation vessels and have developed

Keppel Offshore & Marine Ltd Interview with CEO and COO 11 10

a new cable-laying vessel design meant for future offshore wind farm projects. We have taken a stake in a Norwegian offshore wind turbine jacket foundation designer, OWEC Tower, and are looking for more similar opportunities.

To further add to our design capabilities, we acquired ownership of Bennett & Associates, a naval architecture, design and consulting firm in Houston. This firm has developed its own series of jackups and semisubmersibles.

Looking ahead, we will continue to seek opportunities in areas which can enhance our value-add to our customers and fortify our position as the provider of choice and partner for solutions for the global offshore and marine industry.

Q WHAT NEW MARKETS
ARE YOU FOCUSING ON IN
2012, AS PART OF YOUR
"NEAR MARKET NEAR
CUSTOMER" STRATEGY?

Mr Chow: Through the years, we have steadily and selectively built up a network of 20 yards and engineering offices in 16 countries, serving our customers

from around the world. Few other offshore and marine companies have the same network as we have, and we intend to continue this geographic expansion in a targeted way.

Currently, our expansion plans are focused on Brazil, the Caspian region and the Middle East. In the Caspian region, E&P activities are picking up. The development of our new shipyard in collaboration with SOCAR, Azerbaijan's national oil company, is progressing. When ready, this Baku yard will be able to construct a variety of vessels ranging from offshore support vessels to tankers, as well as carry out ship repairs and conversions. Our existing Caspian Shipyard in Azerbaijan is in discussions on a potential order to construct a new semisubmersible for SOCAR.

In the Middle East, our Nakilat-Keppel Offshore & Marine (N-KOM) yard has steadily ramped up its operations since opening in November 2010. In its first year of operations, the yard has worked on over 40 repair projects and a number of offshore projects, earning the confidence of the marine and offshore industry in the Middle East region.

Possible future areas which we are considering include West Africa, Russia and Mexico. We will evaluate these countries carefully before making any decisions to ensure we can extract value from operating in these locations.

Q KEPPEL 0&M SUFFERED SOME FATALITIES IN 2011. HOW ARE YOU ENFORCING GOOD SAFETY MEASURES ACROSS THE GROUP?

A Mr Tong: 2011 was indeed a challenging year for us. We deeply regret the loss of lives, and as a result, we are determined to ensure that such incidents do not happen again. We are drawing invaluable lessons from the incidents and stepping up efforts to enhance safety practices across the Group. This is done through pushing ahead with the programmes under the Keppel Workplace Safety & Health [WSH] 2018 strategy introduced across the Keppel Group in October 2010.

The key thrusts of this strategy are to establish an integrated WSH framework, implement an effective safety management system, enhance safety ownership and strengthen safety partnerships.

At Keppel O&M, a key aspect of our safety enhancement strategy includes structured training and development of safety leaders. Our Keppel Safety Training Centre





- Our Nakilat-Keppel Offshore & Marine (N-KOM) yard in Qatar has done well in its first year of operations, with the successful completion of over 40 repair projects and a number of offshore projects.
- At all our yards around the world, we are enforcing the importance of adopting safe work habits through the "Plus 5 for Safety" initiative.
- We are committed to inculcate a vigilant safety culture through teamwork, open communication and proactive initiatives.

offers a complete range of safety training and certification courses for our workforce across all areas and levels. We are also actively training a pool of safety assessors whose main role is to promote safety leadership and inculcate safe habits.

We also have the "Plus 5 for Safety" initiative where our workers are encouraged to report near misses. Under this initiative, supervisors are expected to promote better communications within the workforce regarding safety practices.

**Mr Chow:** In our opinion, the fundamentals of safety training should start from the very top and cascade down to the workers. Training and effective communication are therefore two important pillars for us in inculcating a safety culture.

To ensure more effective communication, we introduced an e-Safety Portal in late 2011 to encourage active sharing of safety best practices across business units and work places. With 20 yards

around the world, this Portal is useful in connecting our global and diverse workforce. We are actively encouraging all our employees to make full use of this Portal.

We have also institutionalised a cross-pollination programme, where employees in key positions are seconded to other business units for short stints to learn and share safety practices.

Another ongoing programme which we are reinforcing is the comprehensive review of our Safety Journey. This is part of a three-year exercise benchmarked against the Singapore operations of global company DuPont. Through this Safety Self Assessment Programme, we hope our safety processes and culture will emerge stronger.

Changing mindsets and behaviour will continue to be a main focus for Keppel O&M. To us, upholding good safety standards requires constant vigilance, open communication and active implementation.



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## GROUP FINANCIAL HIGHLIGHTS

	2011 S\$'000	2010 S\$'000
Consolidated Balance Sheet	34 000	34 000
as at 31 December 2011		
Share capital	339,716	339,716
Reserves	1,543,002	1,532,669
Shareholders' funds	1,882,718	1,872,385
Non-Controlling interests	207,291	180,642
Capital employed	2,090,009	2,053,027
Represented by:		
Fixed assets	1,227,407	1,247,443
Associates	386,013	171,500
Loans receivable	47,677	40,864
Goodwill	36,363	50,042
Investments	173,682	171,425
	1,871,142	1,681,274
Current assets		
Stocks	273,663	118,241
Work-in-progress (cost > billings)	1,081,491	552,241
Related companies & associates	212,297	137,321
Other assets	308,594	195,061
Debtors	610,145	731,638
Bank balances, deposits & cash	2,343,971	2,805,602
	4,830,161	4,540,104
Current liabilities		
Creditors	2,351,840	2,189,323
Work-in-progress (billings > cost)	1,575,152	1,389,554
Other liabilities	81,043	8,240
Short term loans	32,762	20,683
Taxation	292,851	243,252
	4,333,648	3,851,052
Net current assets	496,513	689,052
Non-current liabilities		
Long term loans	171,388	213,559
Deferred taxation	80,313	85,734
Deferred liabilities	25,945	18,006
	277,646	317,299
Net assets	2,090,009	2,053,027

	2011 S\$'000	2010 S\$'000	Change %
Consolidated Profit & Loss Account			
for the financial year ended 31 December 2011			
Revenue	5,705,966	5,577,010	+2
Operating profit	1,397,759	1,195,047	+17
Net Interest/investment income	54,564	72,542	-25
Share of results of associates	44,266	48,773	-9
Profit before tax	1,496,589	1,316,362	+14
Taxation	(309,521)	(242,059)	+28
Profit after tax	1,187,068	1,074,303	+11
Non-Controlling interests	(43,381)	(12,606)	+244
Profit before exceptional items	1,143,687	1,061,697	+8
Exceptional items	(44,994)	(24,762)	+82
Net profit	1,098,693	1,036,935	+6
Economic Value Added (before exceptional items)	992,467	947,112	+5

Keppel Offshore & Marine achieved another outstanding set of results in 2011. Revenue increased by 2% to \$5.7 billion due to higher workload, as revenue recognition commenced on some of the orders secured since the last quarter of 2010. The completion of jobs secured prior to 2010 with higher margins and greater operating efficiencies contributed to a higher operating profit of \$1,398 million, 17% above that of 2010. Net interest income was lower at \$51.5 million. Contributions from associates of \$44.3 million was 9% lower. Profit after tax was up 10% to \$1,187.1 million, while profit before exceptional items increased by 8% to \$1,143.7 million. Exceptional items of \$45.0 million were related to impairment of assets.

The Group's return on equity (before exceptional items) was slightly lower at 61%, while Economic Value Added of \$992.5 million was \$45.4 million higher than that of the previous year.

The Group delivered 8 rigs, 7 FPSO/FSO conversions, 11 specialised vessels and 25 other major projects in 2011. The total value of contracts secured for the year was \$10.0 billion, and the Group ended the year with a net orderbook of \$9.4 billion, with deliveries extending to 2015.

## **GROUP AT A GLANCE**

#### **KEPPEL OFFSHORE & MARINE**

Global leader in offshore rig design, construction and repair, ship repair and conversion, and specialised shipbuilding.



Headquartered in Singapore, Keppel 0&M integrates and harnesses the experience and expertise of 20 yards worldwide to optimise deployment of resources and effectively execute our *Near Market*, *Near Customer* strategy.

The head office serves two central functions, providing Operational Services including technology, design and development, engineering and procurement, as well as Corporate Services covering finance, legal, human resources, information services and corporate development.

Driven by innovation and a workforce with the *Can Do!* spirit, we strive to become the provider of choice and partner for solutions for the offshore and marine industry.

## **GROUP FOCUS FOR 2012/2013**FORTIFY CORE COMPETENCIES

 Build on operational excellence and raise productivity levels to deliver projects safely, on time and within budget.

#### LEVERAGE GROWTH PLATFORMS

 Extend expertise to offer a wider range of products, solutions and services for the offshore and marine industry through R&D.

#### HARNESS GLOBAL SYNERGIES

 Develop and draw on the collective strength of global yards and offices to reinforce Near Market, Near Customer strategy and deliver value to customers.

#### **INCREASE BUSINESS ROBUSTNESS**

 Seek opportunities to strategically acquire or co-invest with partners in new capabilities and facilities, and enter into new markets.

#### **OFFSHORE**

Leading designer, builder and repairer of high-performance mobile offshore drilling rigs.



The Offshore Division, helmed by Keppel FELS, is a leading designer, builder and repairer of high-performance mobile offshore drilling rigs.

The Division's portfolio of proprietary designs and floating production solutions meets a broad spectrum of operating requirements including deep waters and harsh environments.

With technology innovation and competent design and engineering capabilities, this Division offers viable, cost-effective and highly adaptable solutions for newbuilds and upgraded offshore units.

#### **MARINE**

Trusted industry partner for the repair, conversion and upgrade of a diverse range of vessels.



The Marine Division is represented by Keppel Shipyard, trusted for the repair, conversion and upgrade of a diverse range of vessels.

Keppel Shipyard is a leader in the conversion of Floating Production Storage and Offloading; Floating Storage and Offloading; and Floating Storage Re-gasification Units. Its competencies include topside and turret fabrication.

With strong commitment to Health, Safety and Environment and an established reputation of reliability, flexibility and quality for complex projects with quick turnaround, the Division continues to deliver high value to its customers.

## SPECIALISED SHIPBUILDING

Designer and builder of a wide spectrum of highly specialised ships for a global clientele.



The Specialised Shipbuilding Division led by Keppel Singmarine has a track record of some 400 newbuild vessels of diverse functions and sophistication.

Its portfolio of customised vessels spans Anchor Handling Tug/Supply vessels, multi-purpose Offshore Support Vessels and tugboats to highly advanced solutions such as ice-capable vessels.

Harnessing its suite of design and engineering solutions, strong logistics and infrastructure support in Singapore, this Division provides customers with one-stop value-added services.

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## **BOARD OF DIRECTORS**

#### **CHOO CHIAU BENG**

#### **CHAIRMAN**

Keppel Offshore & Marine Ltd Keppel FELS Limited Keppel Shipyard Limited Keppel Land Limited Keppel Energy Pte Ltd

#### **CHIEF EXECUTIVE OFFICER**

Keppel Corporation Limited

#### **TONG CHONG HEONG**

#### CHIEF EXECUTIVE OFFICER

Keppel Offshore & Marine Ltd Keppel FELS Limited Keppel Shipyard Limited

#### **CHAIRMAN**

Keppel Integrated Engineering Limited

#### SENIOR EXECUTIVE DIRECTOR

Keppel Corporation Limited

#### **CHOW YEW YUEN**

#### **CHIEF OPERATING OFFICER**

Keppel Offshore & Marine Ltd

#### **CHAIRMAN**

Keppel AmFELS, Inc

#### **DEPUTY CHAIRMAN**

Keppel FELS Brasil SA

#### **PRESIDENT**

Keppel Offshore & Marine USA, Inc







#### **STEPHEN PAN YUE KUO**

## **CHAIRMAN**World-Wide Shipping Agency Limited, Hong Kong

#### **PROF MINOO HOMI PATEL**

PROFESSOR OF MECHANICAL ENGINEERING AND DIRECTOR OF DEVELOPMENT School of Engineering, Cranfield University, UK

#### **DR MALCOLM SHARPLES**

PRESIDENT
Offshore Risk & Technology
Consulting Inc, USA







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#### PO'AD BIN SHAIK ABU BAKAR MATTAR

INDEPENDENT DIRECTOR Hong Leong Finance Limited Tiger Airways Holdings Limited

#### **TAN EK KIA**

**CHAIRMAN**City Gas Pte Ltd

INDEPENDENT AND
NON-EXECUTIVE DIRECTOR
Keppel Corporation Limited

#### **LIM CHIN LEONG**

**FORMER CHAIRMAN OF ASIA** Schlumberger







**TEO SOON HOE** 

SENIOR EXECUTIVE DIRECTOR
Keppel Corporation Limited

CHAIRMAN
Keppel Telecommunications and
Transportation Ltd
M1 Limited

**SIT PENG SANG** 

**DIRECTOR**Keppel AmFELS, Inc

**LOH CHIN HUA** 

CHIEF FINANCIAL OFFICER
Keppel Corporation Limited

**CHAIRMAN** 

Alpha Investment Partners Limited







Board of Directors 21

## **KEY PERSONNEL**

### **OFFSHORE & MARINE**

- 1. WONG NGIAM JIH
  CHIEF FINANCIAL OFFICER
- 2. CHEE JIN KIONG
  EXECUTIVE DIRECTOR
  (HUMAN RESOURCES)
- 3. CHOW YEW YUEN
  CHIEF OPERATING OFFICER
- 4. CHOO CHIAU BENG CHAIRMAN

- 5. TONG CHONG HEONG
  CHIEF EXECUTIVE OFFICER
- 6. HOE ENG HOCK
  EXECUTIVE DIRECTOR
  (KEPPEL SINGMARINE)
- 7. WONG KOK SENG
  MANAGING DIRECTOR
  (KEPPEL FELS)
- 8. NELSON YEO

  MANAGING DIRECTOR
  (MARINE)

- 9. LAI CHING CHUAN SENIOR GENERAL MANAGER (CORPORATE DEVELOPMENT)
- 10. MICHAEL CHIA MANAGING DIRECTOR (OFFSHORE)



1. YONG CHEE MIN GENERAL MANAGER (PROJECTS)

> GENERAL MANAGER (HEALTH, SAFETY & ENVIRONMENT)

- 2. EDMUND MAH GENERAL MANAGER (FINANCE)
- 3. **JEFFERY CHOW**GENERAL MANAGER
  (LEGAL)

- 4. DR LEE CHAY HOON
  GENERAL MANAGER
  (ORGANISATION DEVELOPMENT)
- 5. FONG SWEE THENG
  GROUP FACILITIES MANAGER
- 6. ANTHONY TOH GROUP SECURITY MANAGER
- 7. CHOON YONG BOON
  ASSISTANT GENERAL MANAGER
  (INFORMATION SYSTEMS)
- 8. KENNETH CHONG
  ASSISTANT GENERAL MANAGER
  (LEGAL)

**COMPANY SECRETARY** 



## **KEY PERSONNEL**

### **KEPPEL FELS**

- 1. CHRIS ONG
  GENERAL MANAGER
  (ENGINEERING)
- 2. AZIZ AMIRALI MERCHANT EXECUTIVE DIRECTOR (ENGINEERING)
- 3. DAVID LEE FINANCIAL CONTROLLER
- 4. WONG FOOK SENG
  SENIOR GENERAL MANAGER
  (OPERATIONS)
- 5. KEITH TEO

  GENERAL MANAGER
  (MARKETING)
- 6. WONG KOK SENG
  MANAGING DIRECTOR
- 7. YEO YUE NGIAP
  GENERAL MANAGER
  (COMMERCIAL)



## **KEPPEL SHIPYARD**

- 1. LOUIS CHOW
  SENIOR GENERAL MANAGER
  (COMMERCIAL)
- 2. JIM LIM FINANCIAL CONTROLLER
- 3. NELSON YEO
  MANAGING DIRECTOR
- 4. CHOR HOW JAT EXECUTIVE DIRECTOR

- 5. CHARLES SIM

  GENERAL MANAGER

  (OFFSHORE PRODUCTION)
- 6. BURT LOH
  GENERAL MANAGER
  (OPERATIONS)
- 7. MAH CHAN WAH
  GENERAL MANAGER
  (COMMERCIAL SHIPREPAIR)
- 8. SPENCER LEONG
  GENERAL MANAGER
  (DEVELOPMENT)
- 9. TAN PENG PONG
  GENERAL MANAGER
  (ENGINEERING & SYSTEMS
  DEVELOPMENT)



Key Personnel

## **KEY PERSONNEL**

### **KEPPEL SINGMARINE**

- 1. TOH KO LIN SENIOR GENERAL MANAGER (COMMERCIAL)
- 2. TAN CHENG HUI SENIOR GENERAL MANAGER (ENGINEERING)
- 3. HOE ENG HOCK EXECUTIVE DIRECTOR
- 4. EDMUND LEK
  SENIOR GENERAL MANAGER
  (OPERATIONS)
- 5. CHARLES YAP
  GENERAL MANAGER
  (PURCHASING/WAREHOUSE)
- 6. AU-YEONG KIN HO GENERAL MANAGER (ENGINEERING)
- 7. POON TAI LUM
  GENERAL MANAGER
  (COMMERCIAL/MARKETING)



### **RESEARCH & DEVELOPMENT**

- 1. DR ASBJORN MORTENSEN SENIOR PROGRAMME MANAGER (DRILLING EQUIPMENT), **KOMTECH**
- 2. CHARLES SIM PROJECT DIRECTOR **(FPSO AND OFFSHORE** PRODUCTION), **KOMTECH**
- 3. AZIZ AMIRALI MERCHANT **EXECUTIVE DIRECTOR** (DEEPWATER TECHNOLOGY), **KOMTECH**

EXECUTIVE DIRECTOR. **DEEPWATER TECHNOLOGY GROUP** 

- 4. DR MATTHEW QUAH SENIOR PROGRAMME MANAGER (OFFSHORE STRUCTURES), KOMTECH
- 5. AU-YEONG KIN HO GENERAL MANAGER. MARINE TECHNOLOGY **DEVELOPMENT**
- 6. CHARLES FOO DIRECTOR/ADVISOR, **KOMTECH**
- 7. TAN CHENG HUI **RESEARCH CONSULTANT** (MARINE). **KOMTECH**

SENIOR GENERAL MANAGER. MARINE TECHNOLOGY

- 8. DR FOO KOK SENG **EXECUTIVE DIRECTOR** (SHALLOW WATER TECHNOLOGY), **KOMTECH** 
  - EXECUTIVE DIRECTOR. OFFSHORE TECHNOLOGY **DEVELOPMENT**
- 9. CHONG WEN SIN **SENIOR PROJECT MANAGER** (OFFSHORE LNG DEVELOPMENT/ FPSO/ENVIRONMENTAL ENGINEERING), **KOMTECH**
- 10. ANIS ALTAF HUSSAIN **GENERAL MANAGER, DEEPWATER TECHNOLOGY GROUP**



## **KEY PERSONNEL**

### **OVERSEAS MANAGERS**

- 1. JOHN J. BAJOR

  KEPPEL MARINE AGENCIES

  INTERNATIONAL, LLC

  (NEW JERSEY, USA)
- 2. ROY SLETTEN KEPPEL NORWAY AS
- 3. KWOK KAI CHOONG
  KEPPEL FELS BRASIL GROUP
- 4. HAROLD LINSSEN KEPPEL VEROLME BV
- 5. ABU BAKAR MOHD NOR
  NAKILAT-KEPPEL OFFSHORE
  & MARINE LTD
- 6. MOK KIM WHANG
  KEPPEL PHILIPPINES
  MARINE, INC

KEPPEL SUBIC SHIPYARD, INC



- 1. TAN GEOK SENG KEPPEL AMFELS, LLC
- 2. YICK PING WONG KEPPEL KAZAKHSTAN LLP
- 3. CHANDRU SIRUMAL RAJWANI CASPIAN SHIPYARD COMPANY LTD
- 4. LEE TAI KWEE

  KEPPEL NANTONG SHIPYARD

  CO. LTD
- 5. MICHAEL HOLCOMB

  KEPPEL MARINE AGENCIES
  INTERNATIONAL, LLC
  (TEXAS, USA)
- 6. JIMMY LOH

  ARAB HEAVY INDUSTRIES PJSC



Key Personnel

### **KEY PERSONNEL**

#### **Overseas Operational Centres**

ARAB HEAVY INDUSTRIES PJSC

JIMMY LOH

Managing Director

**CHAN LIM HONG** 

General Manager

PT BINTAN OFFSHORE

**KOK BOON HENG** 

General Manager

**KEPPEL PHILIPPINES MARINE, INC** 

**MOK KIM WHANG** 

President

**STEFAN TONG** 

**Executive Vice President** 

**AGNES BARBARA L. LORENZO** 

Vice President

(Administration & Finance)

KEPPEL BATANGAS SHIPYARD, INC

**POH LEONG KOK** 

Senior Vice President

KEPPEL SUBIC SHIPYARD, INC

**MOK KIM WHANG** 

President & General Manager

LEONG KOK WENG

Senior Vice President

**FROILAN DELA CRUZ** 

Vice President

(Commercial & Marketing)

**KEPPEL OFFSHORE & MARINE USA, INC** 

**TOMMY SAM** 

Vice President

**CHEUNG TAK ON** 

Vice President (Technology)

SIMON LEE

Vice President (Projects)

**KEPPEL AMFELS, LLC** 

**TAN GEOK SENG** 

President & Chief Executive Officer

**GILBERT ELIZONDO** 

Vice President (Human Resources)

**ALBERT GARCIA** 

Financial Controller

**ERIC PHUA** 

Vice President (Commercial)

JUAN CRUZ

Vice President (Operations and Engineering)

**KEPPEL FELS BRASIL GROUP** 

**KWOK KAI CHOONG** 

President & Chief Executive Officer

**TOMMY SAM** 

Vice President

**GILBERTO ISRAEL** 

Commercial Director

JERALD LEE

Chief Financial Officer

**ALCEU MARIANO** 

Institutional Director

**EDMUNDO SANTOS** 

**Operations Director** 

**LOW TIAU TONG** 

Assistant Operations Director

**KEPPEL VEROLME BV** 

**HAROLD LINSSEN** 

Managing Director

Managing Director

**WONG WEI KEI** 

Chief Financial Officer

**KEPPEL KAZAKHSTAN LLP** 

**YICK PING WONG** 

**Executive Director** 

**ANIL KUMAR SULTAN** 

Executive Vice President

LIM AH BENG

Assistant General Director

**CHOW WAI HOONG** 

Chief Financial Officer

CASPIAN SHIPYARD COMPANY LTD

**CHANDRU SIRUMAL RAJWANI** 

President

**LAU KUAT PIN** 

Vice President

**ELSHAN GURBANOV** 

Chief Financial Officer

**KEPPEL NORWAY AS** 

**ROY SLETTEN** 

Acting CEO

**DANNY ANG** 

Chief Financial Officer

KEPPEL NANTONG SHIPYARD

CO. LTD

**LEE TAI KWEE** 

President

**EDMUND LEK** 

Deputy President

**WONG PHUAY CHENG** 

Vice President (Operations)

LI GANG

Vice President (Commercial)

BEN ANG

Vice President (Finance)

**NAKILAT-KEPPEL OFFSHORE** 

& MARINE LTD

**ABU BAKAR MOHD NOR** 

Chief Executive Officer

ALBERT KEE

General Manager (Operations)

**REGENCY STEEL JAPAN LTD** 

**WONG CHUN YU** 

President

SHIGEYUKI HATANO

Chief Operating Officer

**KEPPEL SINGMARINE BRASIL LTDA** 

**HOE ENG HOCK** 

**Executive Director** 

TAN CHONG KEE

General Manager

BAKU SHIPYARD LLC DAVID LOH

General Manager

#### **Engineering/Technology Centres**

## KEPPEL OFFSHORE & MARINE TECHNOLOGY CENTRE PTE LTD

#### DR FOO KOK SENG

Executive Director (Shallow Water Technology)

#### **AZIZ AMIRALI MERCHANT**

Executive Director (Deepwater Technology)

#### **CHARLES FOO**

Director/Advisor

#### **TAN CHENG HUI**

Research Consultant (Marine)

#### **CHARLES SIM**

Project Director (FPSO and Offshore Production)

#### **DR MATTHEW QUAH**

Senior Programme Manager (Offshore Structures)

#### DR ASBJORN MORTENSEN

Senior Programme Manager (Drilling Equipment)

#### **CHONG WEN SIN**

Senior Project Manager (Offshore LNG Development/FPSO/ Environmental Engineering)

## OFFSHORE TECHNOLOGY DEVELOPMENT PTE LTD

#### DR FOO KOK SENG

**Executive Director** 

#### **LIM TENG KIAT**

General Manager

## DEEPWATER TECHNOLOGY GROUP PTE LTD

#### **AZIZ AMIRALI MERCHANT**

**Executive Director** 

#### **ANIS ALTAF HUSSAIN**

General Manager

## MARINE TECHNOLOGY DEVELOPMENT PTE LTD

#### TAN CHENG HUI

Senior General Manager

#### **AU-YEONG KIN HO**

General Manager

#### **BLUE OCEAN SOLUTIONS PTE LTD**

#### DR JERRY NG

Chief Executive Officer

#### **BENNETT & ASSOCIATES, LLC**

#### JOSE VAZQUEZ

President & Chief Executive Officer

#### FLOATEC, LLC

#### **ERICH. NAMTVEDT**

President

#### **KEPPEL FELS BALTECH LTD**

#### LYUDMIL STOEV

General Manager

#### **IVAN PETROV PELOV**

Senior Engineering Manager

## KEPPEL FELS ENGINEERING SHENZHEN CO. LTD

#### **HO JONG HENG**

General Manager

#### KEPPEL FELS OFFSHORE & ENGINEERING SERVICES MUMBAI PTE LTD

#### SYED AHAMED KABEER

General Manager

#### **Representative Offices**

## KEPPEL MARINE AGENCIES INTERNATIONAL, LLC

#### MICHAEL HOLCOMB

President/Director, Texas

#### JOHN J. BAJOR

Director, New Jersey

## KEPPEL PRINCE ENGINEERING PTY LTD

#### **CHARLES CHIAM**

Director

#### Marine Services

#### **ASIAN LIFT PTE LTD**

#### JOHN CHUA

General Manager

#### **KEPPEL SMIT TOWAGE PTE LTD**

#### **BEN CHEW**

General Manager (Regional)

#### **JERRY WONG**

General Manager

#### **Employee Unions**

#### **KEPPEL EMPLOYEES UNION**

#### MOHAMED YUSOP BIN MANSOR

President

#### MOHD YUSOF B MOHD

**General Secretary** 

#### **KEPPEL FELS EMPLOYEES UNION**

#### VINCENT HO MUN CHOONG

President

#### **ATYYAH HASSAN**

General Secretary

## SHIPBUILDING & MARINE ENGINEERING EMPLOYEES UNION

#### WONG WENG ONG

President

#### MAH CHEONG FATT

**Executive Secretary** 

#### **GOH SOR IMM**

Deputy Executive Secretary

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## SAFETY IS EVERYONE'S BUSINESS

Our safety journey is a continuous one. With strong commitment from management and ownership from every Keppelite towards safety, we can achieve our vision of creating an incident-free workplace.

#### **GROWING OUR SAFETY CULTURE**

For Keppel 0&M, at the heart of workplace safety is a sense of responsibility. As we journey towards an incident-free workplace, we constantly align efforts across our yards worldwide to encourage best safety practices, improve safety management systems as well as to instil the importance of creating a safe workplace.

In 2011, we invested over \$16 million on safety infrastructure as well as skills and knowledge development.

Our safety culture is also rooted in close collaboration with stakeholders including contractors, customers, industry suppliers, partners and regulatory bodies. This is a key element of our strategy to eliminate workplace incidents as we strive to train and empower every single stakeholder to be responsible for his own safety, as well as the well-being of others around him.

We believe that everyone has a role to play in protecting people, property and the environment.

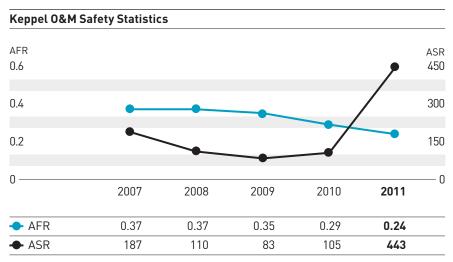
#### **RISING TO THE CHALLENGE**

Over the years, we have maintained a good safety record working and focusing on high-risk sectors. From 2007 to 2010, our accident frequency rate (AFR) and accident severity rate (ASR) were significantly lower.

However, we faced one of our toughest years in our safety journey in 2011.

Despite tremendous efforts to enhance safety, Keppel O&M suffered 11 fatalities in Singapore and overseas. The impact of these cases spiked our ASR from 105 man days lost per million man hours worked in 2010 to 443 in 2011.

We are saddened by the loss of these lives and are determined to draw lessons from them to prevent any recurrence. Independent lead investigators were appointed by the CEO of Keppel Corporation to find the causes of these incidents. At the same time, this helps to facilitate a fresh review of the established safety systems in areas where the incidents happened so that improvements can be made.



- AFR Refers to the number of workplace accidents per million man hours worked. Figures used are incident-based.
- ASR Refers to the number of industrial man days lost to workplace accidents per million man hours worked.

Our experiences in 2011 clearly show that safety is an ongoing journey and we must never be complacent. From the lessons learnt, we will emerge stronger.

#### **ENHANCING SAFETY PERFORMANCES**

For 2012 and beyond, Keppel 0&M has identified four focus areas to further strengthen and improve our safety processes and initiatives.

#### 1. LEADING BY EXAMPLE

We believe that leaders must walk the talk as they play a key role in shaping the Group's safety journey and performance. As leaders often drive learning and sharing platforms such as training programmes and safety campaigns, they need to be in touch with the workforce to better understand the working environment. During the year, Keppel's Board Safety Committee members and our safety leaders conducted several site visits to facilities in Singapore and overseas. These visits are useful input for them in their decision-making process on safety enhancement strategies for the Group.

In addition, we continue to reinforce the training of safety leaders at Keppel. In 2011, selected HSE and operational personnel were trained as safety assessors, whose role is to promote safety leadership and inculcate safe habits. To date, we have trained 11 lead assessors and 20 assessors across Keppel Group.

As an extension of being a responsible leader in the offshore and marine industry, we participate actively in national and industry safety initiatives and events, such as Singapore's Workplace Safety and Health (WSH) Conference and WSH Council (WSHC)'s bizSAFE Convention to share our experiences.

#### 2. DRIVING OWNERSHIP

To foster a culture of safety ownership at the ground level, we introduced the "Plus 5 for Safety" initiative. This initiative aims to enhance the existing safety toolbox meeting process by extending it to focus on supervisory leadership skills and workers' participation.

Supervisors are frontliners of safety. Through this initiative, we hope to enhance ownership in our supervisors, who must take responsibility in ensuring the safety of their charges. It is important that they conduct proper briefings and risk assessments before

any job starts. Workers are also encouraged to voice out potential hazards and report near-misses without fear of penalty.

Driving ownership is also a key focus in the ongoing "Safety Buddy" programme, where employees and subcontract workers are assigned to "Buddy Groups" so that they can look out for one another and encourage each other to adopt safe work habits. Such Buddy Groups are guided by safety mentors who play an important role in influencing and motivating the group members, as well as inculcating our safety values in them.

At the annual Group Safety Innovation Convention, teams from across the yards also have the opportunity to generate creative ideas with the potential to be implemented to improve workplace safety. This in turn serves to instill a sense of ownership towards safety in our workforce.

## 3. ADHERING TO PROCEDURES In managing a global workforce of more than 40,000 employees

and subcontractors, we need to ensure that safety practices are systematically integrated into all work processes, leaving no room for mistakes. To further enhance the safety management system, we encourage all employees to adhere strictly to safety procedures.

In 2011, we embarked on a comprehensive three-year exercise to review our safety journey, benchmarked against that of the Singapore operations of global company DuPont. Following a safety perception survey conducted in January 2011, 18 site safety assessments were subsequently held to validate the findings of this survey.

Over the next two years in 2012 and 2013, Phase Two of this Group-wide exercise will incorporate coaching for safety assessors to hone their skills, as well as development of databases to keep track of follow-up action items. Other potential initiatives under this exercise include the development of personal safety action plans for key safety management.

At Keppel O&M, we are aligned with Keppel Group's efforts to further improve our execution of the four key thrusts of Keppel's WSH 2018 strategy launched in 2010. The reach and efficacy of this strategy was further broadened with the commitment by Keppel's overseas business units at the Keppel Group Safety Convention 2011 to implement the initiatives under the strategy.

The Keppel Safety Training Centre continues to be a strong advocate of the Group's safety excellence, equipping employees and subcontractors with the relevant training and procedures. The Centre employs the latest equipment, simulations and methodologies to conduct its courses. In 2011, 3,088 workers and subcontractors were trained at the Centre and key courses are tied strongly to High Impact Risk Activities awareness.

In 2011, we trained 3,088 workers and subcontractors at the Keppel Safety Training Centre and key courses are tied strongly to High Impact Risk Activities awareness.



#### 4. COMMUNICATING PROACTIVELY

We can have the best safety procedures and initiatives in place but if they are not communicated properly or acted upon, they will not be effective.

To embrace open communication and lend support to each other in sharing best practices, Keppel O&M launched the e-Safety Portal in November 2011. This ensures that senior management and key safety personnel are kept abreast of incidents and, where applicable, immediate corrective measures are taken in the relevant areas. Through a specially set up web portal, sharing of lessons learnt can be done across the Group in different locations and countries in a systematic way.

Our "Cross Pollination Programme" continues to gather momentum

with growing participation. Under the programme, safety officers from Singapore and overseas across the business units in the Keppel Group learn and share best practices with each other, so as to gain a better understanding of the diverse safety practices and challenges faced in the different industries.

In June 2011, two safety officers from Keppel Shipyard and Keppel FELS in Singapore were sent to Keppel FELS Brasil where they shared on HSE initiatives, such as High Impact Risk Activities and how they can be adapted to suit respective yards and countries. The two safety officers also had the opportunity to visit the upcoming Keppel Singmarine Brasil. The experience was enriching with both safety officers returning with good HSE practices shared by their Brazilian counterparts.

We continue to have our regular campaigns and programmes where we constantly communicate and emphasise the fundamental safety rules, and remind workers of their responsibility to stay vigilant as well as look out for one another.

#### PARTNERSHIP WITH STAKEHOLDERS

In our march towards an incident-free workplace, we rally the participation of stakeholders who contribute to the success of our safety initiatives.

In Singapore, we continue to work closely with the Ministry of Manpower (MOM) and WSHC to implement initiatives that help to raise safety standards within our industries.

We helped to equip over 600 subcontractors with competencies to carry out their tasks safely as well as instil in their workers a strong commitment to safety. Our contractors

take ownership of safety by conducting monthly site inspections under the Contractors HSE watch group and Workforce Safety Council.

At Keppel FELS, the Subcontractors Executive Council Safety Committee, which consists of representatives from different trade sections, meet weekly to discuss concerns and initiatives. The contractors' supervisors are also appointed as leaders to help educate workers on proper procedures as well as enforce safety rules.

Another way which Keppel 0&M conveys its commitment to safety is its support for industry-wide safety platforms. In 2011, we hosted delegates from ASEAN at the inaugural Association of Southeast Asian Nations Council on Petroleum (ASCOPE) Safety Workshop. More than 80 participants comprising ASCOPE delegates, industry speakers and Keppel 0&M employees fully

utilised this platform and shared safety policies aimed at strengthening the companies' safety culture and measures, and also raising the bar on safety standards for the region's oil and gas, and offshore and marine industries.

For the fourth consecutive year, Keppel FELS, Keppel Shipyard, Keppel Singmarine and other business units within Keppel 0&M sponsored the annual bizSAFE Convention 2012 organised by WSHC. As bizSAFE partners, we provide incentives to motivate our contractors and vendors to progress through the various levels of the bizSAFE programme.

#### WINNING RECOGNITION

As a testament to our safety efforts, Keppel 0&M clinched a record 20 Workplace Safety and Health Awards from Singapore's WSHC and MOM in July 2011. Among the 20 awards was the WSH Supervisors Award won by Keppel Shipyard's Mr Sivasamy Gopalakrishnan, and a Silver award in the WSH Performance category won by Keppel Singmarine. In October 2011, for the second year running, Keppel FELS won the Lloyd's List Asia Awards for Achievement in Safety.

Our safety innovations were recognised at the Association of Singapore Marine Industries' 14th Convention for Workplace Safety and Health Innovations in Marine Industry in August 2011. Keppel FELS received Silver for its "Smart Intelligent Trolley" project, while Keppel Singmarine took Bronze for its "Safe Puncher" project.

Notwithstanding recognition from the government and the industry, our greatest reward is seeing everyone return home safely from our yards at the end of each work day.

#### **SAFETY SELF-AUDIT**





A keen understanding of attitudes is critical to build cultures and effect change. As such, the Keppel Safety Perception Survey, launched on 5 January 2011, serves a critical role in enhancing Keppel 0&M's safety management system.

This review effort is an extension of the Keppel Workplace Safety and Health (WSH) 2018 initiative, which seeks to significantly reduce Keppel Group's incident rates over the next few years. More than 20,000 employees and subcontractors' workers across the Keppel Group participated in this 24-question survey, which aims to assess our safety culture, systems and performance as well as gather ideas for improvement.

A pool of assessors from across the Group are being trained and equipped with safety competencies to address the gaps between perceived and actual safety levels, and the differences are identified through this Safety Perception Survey and on-the-ground evaluations. The assessors are also developing benchmarking indices and safety roadmaps for each of the business units within Keppel Group.

Chairman of the Keppel Board Safety Committee, Mr Sven Ullring, said, "DuPont, the world's top safety consultant, is assisting us in our self-assessment exercise. Part of DuPont's scope is to impart its know-how to us and subsequently leave us to run by ourselves. This is so that we will not need consultants in the future – just auditors, every second year or so – to make sure that we are in compliance with our own systems and procedures.

"This exercise provides us with the tools to significantly improve and align safety across our business units. We believe we have the systems in place. Now we need to build a pool of key personnel across business units, hierarchies and professions to foster a culture of safety. Passionate and well-trained in safety, their mission is to influence others around them to be safety ambassadors as well."

- 1. 12 safety assessors participated in the inaugural Leadership Development Sailing Programme held on 2 to 4 June 2011.
- Keppelites reinforced their support for the Keppel Workplace Safety and Health 2018 initiative at the Keppel Group Safety Convention 2011.

Report to Stakeholders 2011 Safety is Everyone's Business Special Feature

# DEFINITIVELY KEPPEL

RELIABLE











# OPERATIONS REVIEW & OUTLOOK

Harnessing the Group's collective strength, we are committed to meet our customers' needs through execution excellence and technology-based innovation.



2011 was another year of successful deliveries for the Group. With hard work and dedication, we once again delivered our promises to our customers worldwide with our hallmark of execution excellence.

Our business units across our global network collectively delivered eight rigs, seven FPSO/FSO conversion projects and 11 specialised vessels, among other repair, upgrade and completion projects.

Against a backdrop of returning interest in newbuild rigs, sustained high oil prices and continued bifurcation towards higher quality assets, we secured a record \$10 billion worth of new contracts, culminating in a net order book of \$9.4 billion as at end 2011, with deliveries extending into 2015.

#### OFFSHORE

#### **KEPPEL FELS**

It was a busy year for Keppel FELS. While it secured a record number

of new orders in 2011, the company continued to uphold its commitment to its customers with on time and within budget deliveries, further attesting to its reputation as the global offshore industry's preferred solutions provider.

In 2011, Keppel FELS secured a total of 25 new orders, comprising 23 jackups and two semisubmersibles. Of these new orders, 23 were for Keppel FELS' proprietary designs, which reflects the market's acceptance and industry recognition of our suite of offshore solutions.

On deliveries, a total of six newbuilds were completed, comprising two jackups and four semisubmersibles. Among the deliveries were two KFELS N Class jackups, Rowan Stavanger and Rowan Norway. The pair of rigs has since obtained attractive charters in the North Sea market, successfully following the footsteps of Rowan Viking,

the first of the three N Class jackups built by Keppel FELS.

The fifth newbuild of the ENSCO 8500 series, ENSCO 8504, was delivered on time and secured a charter to drill for TOTAL in Brunei. Alpha Star, the second DSS™38 drilling semisubmersible for Brazilian customer Queiroz Galvão Óleo e Gás (QGOG), was delivered a record four months ahead of schedule. This sterling early delivery was rewarded with a US\$8 million bonus from QGOG. Two semisubmersible drilling tenders, built to the award-winning KFELS SSDT™3600E design, were delivered in 2011. They are West Jaya, which is now Seadrill's seventh SSDT in its lineup, and PV Drilling V, the first-ever SSDT built for PetroVietnam Drilling & Well Services Corp in a successful 25-year partnership.

Meanwhile, Keppel FELS continues to maintain its reputation as the port of call for rigs requiring repairs, upgrades





- It was a busy year for Keppel FELS in 2011, with deliveries of eight rigs and a major completion, as well as the award of 25 newbuild orders comprising mainly our proprietary jackup designs.
- Delivered on time and within budget, ENSCO 8504 is the fifth of seven ultradeepwater drilling rigs Keppel is building exclusively for Ensco.
- 3. Equipped to operate in some of the harshest offshore environments in the world, Rowan Stavanger is the second KFELS N Class jackup rig built for Rowan Companies, Inc.

Operations Review & Outlook

and completion works. The complex installation, commissioning and refurbishment works for Scarabeo 9, a semisubmersible owned by Saipem, was completed in 2011, and the rig is slated to drill in Cuba. Another significant refurbishment work was secured for a KFELS B Class jackup to be delivered to Safin Gulf FZCO. During the year, Keppel FELS' Flying Squad was deployed to Nigeria to assist SeaWolf Oil Services in leg repairs for its jackup, Seawolf Onome.

#### **KEPPEL AMFELS**

Keppel AmFELS fortified its reputation as the yard of choice in the Gulf of Mexico region with the delivery of its fourth EXL jackup rig to Rowan with a perfect safety record, four months ahead of schedule and within budget. The yard also completed a number of repair and fabrication jobs for major customers including Noble, Seadrill, CAL-Dive and Diamond Offshore.

New Orders Secured I	by Keppel FELS in 2011
lackups	

Jackups		
Standard Drilling	6 KFELS B Class	
Asia Offshore Drilling	1 KFELS B Class	
Gulf Drilling International	2 KFELS B Class Bigfoot	
Dynamic Offshore Drilling	1 KFELS B Class Bigfoot	
Japan Drilling Company	1 KFELS Super B Class	
Transocean	3 KFELS Super B Class Bigfoot	
Discovery Offshore	2 KFELS Super A Class	
Ensco	3 KFELS Super A Class	
Maersk Drilling	2 MSC CJ70-X150-MD	
Jasper	1 KFELS B Class	
Safin Gulf	1 KFELS B Class	
Semisubmersibles		
Floatel International	1 KFELS SSAU™4000NG	
Seadrill	1 KFELS SSDT™3600-E unit	

The year 2011 also saw Keppel AmFELS win a contract from Mexico's Perforadora Central SA de CV to build a repeat jackup rig. Slated for delivery in 1Q 2013, this high-specification unit

will be built to the LeTourneau Super 116E design.

Post-Macondo, Keppel AmFELS is well positioned to support customers

#### **BRAZILIAN PRIDE**

In 2011, the consortium of Keppel 0&M and Technip Engenharia S/A delivered the first 100% made-in-Brazil Floating Production Unit (FPU), P-56, to Petrobras Netherlands BV safely, on time and within budget. With a displacement of 50,000 tonnes, the P-56 is one of the world's largest FPUs, and it measures 125m long, 110m wide and 137m high. The project teams for P-56 achieved nine million man hours without lost-time incidents on its construction.

Brazilian President HE Dilma Rousseff, who was present to witness the christening of P-56 by Congresswoman Luiza Erundina on 3 June 2011, said, "We have proved that it is possible to build rigs, platforms and equipment for offshore exploration in Brazil. We shall count on the partnership of companies which come from far away, such as Keppel FELS from Singapore. They know that if they come to Brazil, they will have the guarantee of a demand from Petrobras."

Mr Choo Chiau Beng, Chairman of Keppel O&M and Singapore's nonresident Ambassador to Brazil, commented, "P-56 is a shining example of the technology expertise and execution capabilities built up by our BrasFELS yard and Brazil's offshore and marine industry. This achievement has been built up incrementally through previous projects such as the P-52 and P-51 FPUs. Today, we have turned vision into reality in establishing Brazil as a centre for world-class shipbuilding, with the first rig built entirely in Brazil."

P-56 is capable of processing and treating 170,000 barrels of liquids and 100,000 barrels of 16°API oil, six million cubic metres of natural gas, and can inject some 280,000 barrels of water into the reservoir. It is being deployed at depths of 1,670m, off the Marlim Sul field in the Campos Basin offshore Brazil.



FPU P-56 was christened in the presence of Brazilian President HE Dilma Rouseff (second from right).







- Completed more than two weeks ahead of schedule, within budget and with a perfect safety record, West Jaya is the seventh SSDT delivered to Seadrill by Keppel FELS.
- Keppel AmFELS delivered the Rowan EXL-IV ahead of schedule and with zero lost-time incidents.
- 3. For the Scarabeo 9 semi completion project, we leveraged our in-house engineering expertise, proven project management and execution capabilities to ensure quick turnaround time.

Operations Review & Outlook







- P-56 FPU, one of the largest in the world, is a shining example of the expertise and execution capabilities of our BrasFELS yard.
- 2. Caspian Shipyard is well positioned to capture potential new orders in 2012.
- Thialf, Heerema Marine Contractors' largest crane vessel, arrived at Keppel Verolme in the Netherlands for repair, maintenance and painting works.

in the Gulf of Mexico region seeking to renew or upgrade their rig fleets. The yard started 2012 on a positive note with a contract to construct and upgrade a semisubmersible for Diamond Offshore. Keppel AmFELS will continue to enhance its presence as a trusted solutions provider to the Mexican market.

#### KEPPEL FELS BRASIL

Keppel FELS Brasil's BrasFELS yard achieved several deliveries in 2011. The major highlight was the delivery of P-56 Floating Production Unit (FPU) to Petrobas safely, on time and within budget. This is the first FPU to be built completely in Brazil and is one of the world's largest. This marks a significant milestone for Keppel in Brazil since its BrasFELS yard was set up in 2000, further establishing BrasFELS as the leading yard in Latin America.

The BrasFELS yard also successfully converted the FS-1 mating barge into the biggest floating dock in Latin America, with the ability to dock a vessel weighing up to 22,000 metric tonnes. This has significantly extended the yard's capacity in providing docking services to most of the drilling units operating in the region. Other completed

projects consisted of repairs to semisubmersibles for major customers Ensco, Transocean and Noble.

The yard is currently carrying our works on several significant projects, including the P-61 Tension Leg Wellhead Platform (TLWP) for the Papa Terra Joint Venture comprising Petrobas and Chevron, the integration of two FPSOs and the upgrading of Noble's drillship Noble Roger Eason.

The year ended well for Keppel FELS Brasil with the order of a semisubmersible to be built to Keppel's proprietary DSS™38E design, from Sete Brasil, with a contract value of approximately US\$809 million. The DSS™38E is an enhancement of the DSS™38 semisubmersible, Keppel's proven fifth-generation deepwater solution (Please refer to the chapter on Technology & Innovation on page 58 for more details on the DSS™38E design).

The yard scored well overall in terms of safety. It was awarded safety bonuses from Noble and Transocean for its work on vessels Noble Leo Segerius and Falcon 100 respectively. BrasFELS also attained milestones of one million

man hours worked without LTI on both the P-61 TLWP and MODEC's Cidade de Sao Paulo.

#### CASPIAN SHIPYARD COMPANY

2011 was a good year for Caspian Shipyard Company (CSC), with a number of contracts secured during the year. In early 2011, it was awarded a crane installation contract by Bumi Armada and another from oil major BP for the upgrade of the STB-1 launch barge. Both jobs were completed by the end of the year to the satisfaction of the customers. The yard also carried out wheelhouse reinstatement work for BUE's Caspian Provider, an Anchor Handling Tug Supply (AHTS) vessel.

Together with Keppel FELS in Singapore, CSC was involved in the re-installation of the legs of a jackup in Turkey.

CSC is looking forward to another good year in 2012. The yard is in discussions over a potential order for a turnkey construction of a semisubmersible for Azerbaijan's national oil company SOCAR, which is working with other oil and gas companies active in the Caspian region. With CSC's established track record, it is well placed to continue to meet the needs of customers in the region.

#### KEPPEL VEROLME

Keppel Verolme reaffirmed its ability to provide quick turnaround on the repair and upgrade of a wide spectrum of offshore and marine vessels, with projects ranging from jackups to semisubmersibles, pipelay vessels, container carriers and barges. Keppel Verolme's ability to meet market demands and deliver on its promises was reinforced with the safe and timely completion of upgrade and repair jobs for pipelay vessel Lorelay, Saipem's S44 barge, and two Maersk jackups.

The yard also received added certification for Environmental Management (ISO 14001) and Health and Safety (OHSAS 18001) in 2011. Since 1993, Keppel Verolme has been certified by DNV for Quality Management (ISO 9001) and Safety Management (Safety Checklist for Contractors).

#### KEPPEL KAZAKHSTAN

Since its establishment in 2005, Keppel Kazakhstan has completed and delivered about 60,000 tonnes of pipe rack modules, steel structures, barges, pontoons and other prefabrication works to support the Kashagan field development. The yard's key deliveries in 2011 include several outfitted and mechanically completed Pipe Rack Modules, five units of pontoons for Agip and some steel works as part of the Kashagan oil field development.

Keppel Kazakhstan is one of the most modern and well equipped fabrication yard facilities in the region. It enjoys a strong reputation for its reliability and capability to deliver quality products, on time and with the highest HSE standards. As at the end of 2011, the yard has achieved 11 million man hours without any LTI on all projects. This achievement further affirms the yard's continued commitment towards a zero-incident workplace and cements its reputation as the choice yard in the region.

#### MARINE

#### **KEPPEL SHIPYARD**

Despite another challenging year for the shiprepair and conversion industry, Keppel Shipyard continued to perform well.

The company repaired a total of 281 vessels, with the majority being tankers, container ships and gas carriers. Repeat customers, including those with fleet

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- Keppel Shipyard provided a full range of conversion services, including the fabrication of the topsides and turret for FPSO Armada TGT1.
- 2. CMA CGM Kailas was the first container vessel to dock at Nakilat-Keppel Offshore & Marine.

arrangements, contributed more than 80% of Keppel Shipyard's shiprepair turnover. This provided a stable volume of repair work for the company, reflecting the close relationships which Keppel Shipyard has built with its customers, founded on the reliable services it provides.

Beyond shiprepair, Keppel Shipyard completed seven FPSO/FSO conversions/ modifications, one turret fabrication, one livestock carrier conversion, one derrick lay barge completion and two drillship integration/completion projects.

Several new contracts were secured in 2011. These included the conversion and upgrade of six FPSO/FSO/FSUs from repeat customers Bumi Armada and SBM. Rubicon Offshore International also awarded a fast-track fabrication and integration project for an external turret mooring system.

At year-end, the yard had nine FPSO/FSO/LNG FSU projects and one pipelay vessel completion in various stages of work.

In recognition of its business and operational excellence, Keppel Shipyard was conferred the Repair Yard Award and

the Safety Award by Seatrade. The yard also won the Lloyd's List Asia Shipyard of the Year Award and secured 10 Safety and Health Award Recognition for Projects (SHARP) for its major contracts.

#### KEPPEL PHILIPPINES MARINE

In 2011, Keppel Philippines Marine's shipyards in Batangas and Subic maintained high productivity levels and serviced a total of 147 vessels.

Key projects completed by Keppel Batangas included the construction of crane barge Ratu Giok 1 and the conversion of tanker White Cattleya 09. The yard also retrofitted the Philippine Navy's vessel BRP Gregorio Del Pilar, an ex-Hamilton class American naval ship. With the excellent work done on Ratu Giok 1, Keppel Batangas was rewarded with repeat orders for coal barges Ratu Giok 2 and Ratu Giok 3.

The highlight for Keppel Subic Shipyard in 2011 was the delivery of Princess Chloe, a RINA-classed nonpropelled open sea floating crane coal transshipper barge. This is the third special purpose barge delivered.

Over the years, Keppel Batangas and Keppel Subic Shipyard have

#### **VIETNAM'S FIRST TENDER RIG**



Mr Truong Tan Seng, President of the Socialist Republic of Vietnam (first from left), visited Keppel FELS prior to the naming of PV Drilling V in 2011 to mark Vietnam's long standing friendship with Keppel.

Sealing a long-standing relationship with Vietnam, Keppel FELS has delivered the country's first semisubmersible drilling tender (SSDT) to PetroVietnam Drilling & Well Services Corp (PV Drilling).

Built to Keppel's award-winning KFELS SSDT™3600E design, the rig is customised to meet PetroVietnam's requirements for high specification rigs, and is well-suited for offshore Vietnam's harsh environment. The rig is deployed on a multi-year charter to PetroVietnam's Bien Dong Petroleum Operating Company.

In 2009, this SSDT design was recognised by the Institution of Engineers Singapore for its eco-friendly features, which have contributed significantly to sustainable operations, as well as the safety and well-being of the rig crew.

The rig was named PV Drilling V at Keppel FELS on 1 October 2011 in the presence of Mr S Iswaran, Singapore's Minister in Prime Minister's Office and Second Minister for Home Affairs and Trade & Industry, together with Mr Le Duong Quang, Vietnam's Vice Minister of Industry and Trade, as well as Mr Chu Ngoc Anh, Vietnam's Vice Minister of Science and Technology.

Keppel 0&M has been actively involved with Vietnam since the 1980s. In 1988, Keppel FELS delivered Vietnam's first drilling rig, a jackup rig, Tam Dao 1, for Vietsovpetro, a Vietnam-Russian joint venture. More recently in 2007, Keppel FELS built the first modern jackup rig PV Drilling I, based on the KFELS B Class design, for PV Drilling. PV Drilling subsequently awarded Keppel FELS two other similar jackup rigs, which were delivered in 2009.

Keppel Shipyard has also converted several FSO/FPSO vessels which are currently operating in waters off Vietnam. This included one of Vietnam's largest FPSOs delivered in 2011 to PV Keez for the Chim Sao field.

established a good track record in the coal transshipper sector, which led to the award of a number of projects for the newbuilding and conversion of coal barges during the year. Both yards will continue to execute their projects well and work hard to uphold their competitive edge in the Philippine marine industry.

#### ARAB HEAVY INDUSTRIES

Keppel 0&M's associate company Arab Heavy Industries PJSC (AHI) in Ajman, United Arab Emirates, received a consistent stream of shiprepair work from repeat customers in 2011. A total of 186 ships were repaired during the year. Significant projects completed include Regina 250 and Rock 6. AHI also undertook major steel renewal on the legs of Emirates Provider, a jackup barge, and completed extensive repairs on the crane as well as overhaul of five thrusters for tender barge Mermaid Siam.

Amidst the intense competition and reduced volume of shiprepair work due to ship owners' cautious approach, AHI remains committed to deliver value to customers through productivity improvements, stricter cost controls and enhanced communication with customers.

#### NAKILAT-KEPPEL OFFSHORE & MARINE

Nakilat-Keppel Offshore & Marine (N-KOM) is a 43-ha world-class shipyard facility jointly developed by Keppel O&M and Qatar Gas Transport Company (Nakilat) in Qatar's Ras Laffan Industrial City.

2011 was an important year where N-KOM established its track record and reputation with a series of successful deliveries. LNG SIMAISMA, chartered by RASGAS, the second largest LNG producer in the world, was the first LNG carrier drydocked in Qatar and the first vessel to drydock at N-KOM. N-KOM was awarded a bonus by the vessel's manager and operator, MARAN Gas Maritime, for the successful delivery of this project ahead of schedule and without incidents.

Other significant projects clinched by N-KOM during the year include the repair, modification and upgrading works for Gulf Drilling International's offshore jack up rig, Al Doha, and the conversion of Zikreet from a drilling rig to an accommodation rig. The yard also completed 43 repair projects, including 19 LNG vessels, five container vessels, three tankers, five jackups and 10 support vessels. In addition, it undertook major works for Nakilat-Damen Shipyard Qatar by fabricating the 6,000mt hull structure for the Load-Out Recovery Barge Project.

In its first year of operation, N-KOM became compliant with the International Code for the Security of Ships and Port Facilities (ISPS Code). The yard also received certification from the American Society of Mechanical Engineers (ASME) as well as from the National Board "R" Stamp, which qualify N-KOM to secure onshore work as well as marine and offshore pressure vessel fabrication and piping repair work. The yard is in the process of obtaining accreditation from the American Petroleum Institute (API).

## SPECIALISED SHIPBUILDING KEPPEL SINGMARINE

It was a busy year at Keppel Singmarine with 13 vessels under construction. Three of these vessels were delivered in 2011 and the yard achieved a good safety record for the year.

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A significant completion in 2011 was Global 1201, the second newgeneration derrick pipelay vessel, which was delivered to Global Industries safely, on time and within budget. Keppel Singmarine also delivered the coal transshipment barge Straits Venture and AHTS Seaways 20, to Straits Corporation and Seaways International respectively.

During the year, Keppel Singmarine secured 10 newbuild contracts, comprising a multi-purpose diving support construction vessel for SBM, one container ship and three bulkers for OK Tedi Mining, a coal transshipment barge for our repeat customer PT Indo Straits and four tugboats for various owners. The yard is also working on four jackup hulls with living quarters for sister company Keppel FELS.

In view of the need to raise productivity to mitigate the tight labour situation in Singapore, Keppel Singmarine has implemented a number of facilities upgrade initiatives such as the extension of the quay, enhancement of the existing panel line and pipe shop as well as the construction of a new panel line shop complementary to the existing one.

#### **KEPPEL NANTONG**

Keppel Nantong had a productive year with six deliveries of six 65-tonne bollard pull ASD tugs to Keppel Smit Towage and Maju Maritime. As at year-end, ongoing projects in the yard comprised a 5,000-tonne heavy lift crane barge and a 12,000-tonne lifting capacity floating dock.

Keppel Nantong Heavy Industries was incorporated to undertake construction of jackups and other heavy offshore fabrications at the newly acquired land adjacent to Keppel Nantong Shipyard. Civil works for the first phase development has commenced with the construction of a jetty, a 140m x 84m slipway, panel line fabrication shops, electrical substation, foundation for gantry cranes, workers quarters and other related facilities.









#### **KEPPEL SINGMARINE BRASIL**

The Keppel Singmarine Brasil yard in Navegantes, Santa Catarina, allows the Group to offer its ship design and construction expertise to help satisfy demand for support vessels in Brazil. Focusing on the construction of offshore support vessels, Keppel Singmarine Brasil will complement Keppel's BrasFELS yard in offering a suite of solutions for Brazil's offshore oil and gas sector.

2011 was a positive year for Keppel Singmarine Brasil when it secured a steady stream of work ahead of its official opening. The contracts comprised six 45-tonne bollard pull azimuth stern drive harbour tugs for Smit Rebras Rebocadores do Brasil S.A, and one electrically propelled 4500 DWT platform supply vessel (PSV) from Guanabara Navegacao Ltda, the ship owning arm of Keppel O&M. The yard has already started on the construction of the first four tugs and the PSV.

The first phase of the modernisation and upgrading programme of the yard is well underway with new equipment installed and construction of a new 130m x 28m slipway, 90m wharf, heavy lift gantry crane and pipe shop facility. The first phase will be completed in 1Q 2012 and the second phase of the yard development will commence in 2Q 2012. The yard could complete an average of eight newbuild vessels a year when it is fully completed.

- Located at the north-eastern tip of Qatar within the Ras Laffan Industrial City, N-KOM is designed to carry out repair, conversion and construction activities for a range of marine and offshore vessels and structures.
- Seaways 20, an anchor handling tug supply vessel, is the third vessel delivered by Keppel Singmarine to Seaways on schedule and without incidents.
- Keppel Singmarine has delivered ROCKPIPER, a new generation rock dumping fall pipe vessel, safely, on time and within budget to Royal Boskalis Westminster N.V.
- Keppel Nantong is building the 5,000-tonne Asian Hercules III, which will be the world's largest sheerleg crane vessel when completed in 2013.

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#### **BAKU SHIPYARD**

The new 52-ha shipbuilding and shiprepair facility in Baku, Azerbaijan, is a joint venture between Keppel 0&M, State Oil Company of Azerbaijan Republic (SOCAR) and Azerbaijan Investment Company.

Construction of the Baku Shipyard commenced in the middle of 2011 and the yard is expected to be operational in 3Q 2013. The construction of various workshops, buildings and shipbuilding/shiprepair berths are in progress with the relevant facilities including a 300-tonne gantry crane, 25-tonne quay cranes and a ship transfer trolley system. When fully operational, the yard will be able to undertake construction of a variety of vessels ranging from offshore support vessels to tankers, as well as ship repairs and conversions.

Strategically located along the East-West energy corridor of the

Caspian Sea, Baku Shipyard is expected to contribute significantly to meet the growing needs of the oil and gas industry in the Caspian region. Spanning a 1,630-metre waterfront, the yard will be able to undertake 80 to 100 repairs and conversions per year, and is estimated to achieve an average annual steel throughput of 25,000 tonnes when operating at full capacity.

#### OTHER SERVICES

#### **ASIAN LIFT**

Asian Lift provides specialised marine heavy-lift services with its fleet of sheerleg cranes. The company's rich experience and expertise cover various challenging projects including the lifting of FPSOs and offshore platform modules in various parts of the world, such as Canada, Brazil, Europe, the Middle East, Sri Lanka, Hong Kong and China.

In 2011, a key highlight for the company was the award of a contract

to Keppel Nantong to build a heavy lift sheerleg crane vessel, Asian Hercules III, which is scheduled to be completed in 3Q 2013. When completed, this 5,000-tonne floating crane will be the largest and most versatile heavy sheerleg crane vessel of its kind in the world. It will have enough power to lift a weight equal to over 5,000 saloon cars. With the weight of modules and other components increasing, Asian Hercules III will be well placed to meet the needs of the market for greater lifting capacity.

#### KEPPEL SMIT TOWAGE/ MAJU MARITIME

Collectively, Keppel Smit Towage and Maju Maritime manage and operate a fleet of 58 tugs, of which 20 are currently based in Singapore, 13 under time charter and the remaining 25 operating in various foreign ports. The tugs undertake harbour and ship towage

#### FIRST FPSO FOR OSX

Close collaboration between Keppel Shipyard and OSX on the FPSO OSX-1 project paved the way for firm relations between the two companies. At Keppel Shipyard for modification and upgrading works, the FPSO is the first vessel in OSX's fleet. Chartered to OGX, FPSO OSX-1 is deployed in the Waimea field in the Campos Basin, offshore Brazil.

Lady Sponsor Cristina Pinto named the vessel on 13 August 2011 in the presence of Mr Joao Ziccardi Navajas, Minister Counsellor at the Embassy of Brazil in Singapore, and Mr Reinaldo Belotti, Production Director of OGX.

Mr Carlos Bellot, Director of Engineering, Leasing and Operations of OSX, said, "FPSO OSX-1 is our first unit, and was developed to meet OGX's demand. With a strong track record in FPSO projects, Keppel Shipyard is the choice yard for the modification and upgrading of FPSO OSX-1. The unit was

accorded dedicated and professional services, and I am confident that it will be an asset to OGX and Brazil's oil and gas industry."

Keppel Shipyard's work scope on FPSO OSX-1 includes fabricating, modifying and upgrading the topside process modules. The yard had partnered sister company DPS (Bristol) Ltd to undertake detailed engineering and procurement work for the topside modules.

OSX had engaged BW Offshore for project management, engineering services and technical guidance services for this project. Previously named Nexus-1, the FPSO OSX-1 left the yard in 3Q 2011.

Keppel Shipyard was subsequently awarded another contract by OSX to convert FPSO OSX-2.



Keppel Shipyard completed the modification and upgrading of FPSO OSX-1 and was awarded the contract to convert FPSO OSX-2.

activities as well as provide marine support to offshore projects and emergency situations.

Revenue from both harbour towage activities and the spot market sector improved significantly in 2011, owing to the addition of nine new customers, increased orders from major shipping agencies and several offshore projects. The time charter segment remains stable with the addition of three new charters in Indonesia, Vietnam and Australia.

The joint venture in Brunei, Briny Marine Services Sdn Bhd, received a letter of commendation from Brunei Shell Petroleum for achieving one million man hours without LTI for the three tugs on charter to them. Kejora Enam, a tug belonging to our Malaysian joint venture, Kejora Resources Sdn Bhd, was also awarded the Smit Corporate Survey for the best tug in 2011.

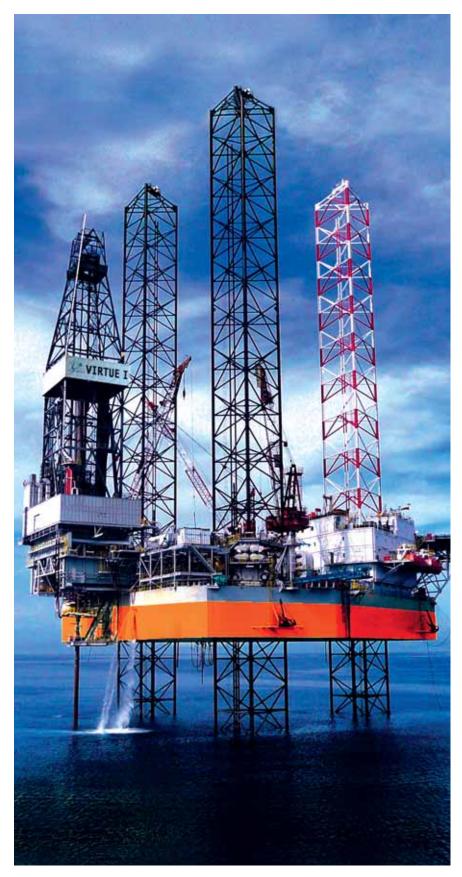
#### **REGENCY STEEL JAPAN**

Regency Steel Japan (RSJ) is a joint venture company between FELS Offshore Pte Ltd, Mitsui & Co. Ltd and Nippon Steel Corp. It specialises in the fabrication of heavy steel structures and is a solutions provider for heat treatment of high-end steel products.

The rack and chord fabrication business continues to contribute significantly to the company's revenue, which is supplemented by a domestic market for steel fabrication.

To meet the surge of jackup orders secured in 2011, RSJ invested in the upgrade of facilities. This includes the replacement of press machines and additions of welding machines, plasmas cutting machines and heavy-duty forklifts. The upgrading of the facilities was completed by the end of 2011 and will place the company in a good position to raise productivity levels and cost competitiveness in 2012.

The record new orders of jackups secured by Keppel FELS in 2011 meant increased demand for high-end steel products from Regency Steel Japan, a joint venture company of Keppel 0&M.



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- Keppel Shipyard partnered sister company DPS (Bristol) to complete the modification and upgrading of FPSO OSX-1, which is deployed in the Waimea field in Campos Basin offshore Brazil.
- Keppel Norway contributed to the successful delivery of Alpha Star, the second of two DSS™38 semisubmersibles built by Keppel FELS for Brazil's Queiroz Galvão Óleo e Gás.

#### **KEPPEL NORWAY**

Over the years, Keppel Norway supported the construction activities within the Keppel O&M group. In 2011, the company contributed to the successful deliveries of the automation and drive systems of Alpha Star, Rowan Stavanger and Rowan Norway.

Moving forward, the company will be pursuing opportunities in electrical and mechanical products, systems and services in the Norwegian Continental Shelf as it aims to become a full-fledged service yard.

#### DPS (BRISTOL)

DPS (Bristol) Ltd (DPS) is a UK-based engineering design consultant and integrator of process technologies and production topsides. A subsidiary of Keppel O&M, DPS provides the basic and detailed engineering design and project management services necessary for executing upstream oil and gas projects in both offshore and onshore environments.

DPS remains one of the leading engineering companies in the design of FPSO topsides, having completed more than 400 man years of engineering during 2011. The company completes

topside design and supply for both conversion and new build FPSOs, and has built up a track record in FPSO upgrades with the completion of engineering for the upgrades of the FPSO OSX-1, Berantai and BW Athena projects within 2011.

In addition to the detailed engineering of topsides, DPS also completes field development planning, concept screening and Front End Engineering Design (FEED) work for oil companies and FPSO operators. DPS operates from its main engineering centres in the UK, Singapore and India, and has generated a portfolio of more than 200 patents from its R&D centres in the UK and USA.

Major Projects Delivered in 20	11			
	Quarter	Туре	Customer	Shipyard
OFFSHORE				
Newbuild jackups	10	LAZZI C. N. O.	D 0 .	
Rowan Stavanger	1Q	KFELS N Class	Rowan Companies	Keppel FELS
Rowan Norway	3Q	KFELS N Class	Rowan Companies	Keppel FELS
Rowan EXL IV	3Q	LeTourneau Super 116E	Rowan Companies	Keppel AmFELS
Newbuild semisubmersibles		000771/0/007	<u> </u>	
West Jaya	1Q	SSDT™3600E	Seadrill	Keppel FELS
Alpha Star	1Q	DSS™38	QGOG	Keppel FELS
P-56	3Q	Production semisubmersible	Petrobras _	Keppel FELS Brasil
ENSCO 8504	3Q	ENSCO 8500 Series	Ensco	Keppel FELS
PV Drilling V	4Q	SSDT™3600E	PetroVietnam	Keppel FELS
MARINE				
FPSO/FSO conversions and up				
FPS0 Okha	2Q	FPS0	SBM	Keppel Shipyard
FPS0 Lewek Emas	2Q	FPS0	Emas/PV Keez	Keppel Shipyard
FPSO Armada TGT1	3Q	FPS0	Bumi Armada	Keppel Shipyard
FPSO P58	3Q	FPS0	Petrobras	Keppel Shipyard
FS0 Sepat	3Q	FS0	Bumi Armada	Keppel Shipyard
FPS0 Aseng	3Q	FPS0	SBM	Keppel Shipyard
FPS0 0SX-1	4Q	FPS0	OSX	Keppel Shipyard
SPECIALISED SHIPBUILDING				
Newbuild vessels				
Princess Chloe	1Q	Barge	P.T. Mitra	Keppel Subic Shipyard
Ratu Giok 1	1Q	Barge	P.T. Pelayaran Kartika	Keppel Batangas
Straits Venture	2Q	Barge	PT Indo Straits	Keppel Singmarine
KST 57	2Q	Tug	Keppel Smit Towage	Keppel Nantong
KST 58	2Q	Tug	Keppel Smit Towage	Keppel Nantong
KST 59	3Q	Tug	Keppel Smit Towage	Keppel Nantong
Maju 510	3Q	Tug	Maju Maritime	Keppel Nantong
GLOBAL 1201	4Q	Derrick pipelay vessel	Global Industries	Keppel Singmarine
Seaways 20	4Q	AHTS	Seaways	Keppel Singmarine
Maju 511	4Q	Tug	Keppel Smit Towage	Keppel Nantong
Maju 512	4Q	Tug	Keppel Smit Towage	Keppel Nantong
MAJOR UPGRADES/REPAIRS/	OUTFITT	TINGS		
BGL-1	1Q	Derrick barge upgrade	Petrobras	Keppel FELS Brasil
Atlantic Star	1Q	Semisubmersible repair	QGOG	Keppel FELS Brasil
Falcon	2Q	Semisubmersible repair	Transocean	Keppel FELS Brasil
Ensco 7500	2Q	Semisubmersible repair	Ensco	Keppel FELS
Noble Bully 1	3Q	Drillship outfitting	Noble	Keppel Shipyard
Scarabeo 9	3Q	Semisubmersible completion	Saipem	Keppel FELS
Magellan	3Q	Jackup repair	Transocean	Keppel Verolme
Jack Bates	3Q	Semisubmersible repair	Transocean	Keppel FELS
Ben Loyal	3Q	Semisubmersible repair	KCA Deutag	Keppel AmFELS
Pride Rio de Janeiro	3Q	Semisubmersible repair	Ensco	Keppel FELS Brasil
Maersk Resilient	3Q	Jackup repair	Maersk	Keppel Verolme
Maersk Reacher	3Q	Jackup repair	Maersk	Keppel Verolme
Noble Leo Segerius	4Q	Drillship upgrade	Noble	Keppel FELS Brasil
Ocean Yorktown	4Q	Jackup repair	Diamond Offshore	Keppel AmFELS

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- With record new orders in 2011, Keppel FELS' focus in 2012 is on executing the orders well with optimal productivity and innovation.
- Keppel Shipyard had a good year in 2011 and it will continue to work closely with long standing customers based on its established track record.
- Our BrasFELS yard in Brazil is seeking ways to enhance its operational efficiencies to meet the demand for locally-built rigs in Brazil.

#### INDUSTRY OUTLOOK

#### MARKET REVIEW

2011 was a year of uncertainties. The global economy was impacted by the European debt crisis, the credit rating downgrades for major countries including the US, the social unrest in the Middle East and the tsunami in Japan. Notwithstanding the macro headwinds, capital spending in the oil and gas industry continued to increase in 2011. The sustained investments were driven mainly by strong oil prices averaging US\$95 per barrel in 2011, and the increased demand for high quality assets post-Macondo. The aging global fleet of jackups, with around 68% over 25 years old, coupled with improving dayrates and utilisation rates, provided impetus for rig owners to embark on rig replacement programmes for older drilling units in the market.

2012 is expected to be another challenging year. According to the United Nations, world economic growth is projected to slow further. In their 2012 World Economic Situation and Prospect report, global growth for 2012 is forecast at 2.6%, lower than the 2.8% recorded for 2011. Persistent high unemployment and low wage

growth are holding back recovery in the US. The Eurozone economy, weighed down by the debt crisis, will see a mild recession in 2012, based on the forecast by the International Monetary Fund (IMF). Emerging and developing economies will also be affected due to the worsening external environment and a weakening of internal demand.

Despite the muted economic outlook. there is returning confidence in the global oil and gas industry. A survey of some 350 oil and gas companies by Barclays Capital indicates that exploration and production (E&P) spending is expected to increase 10% from US\$544 billion in 2011 to US\$598 billion in 2012, marking a record year for the industry. It is forecast that E&P spending will grow in double digits annually from 2013 to 2015, potentially crossing the US\$800 billion mark in 2015. This would be double the level of E&P spending in 2009.

World oil consumption grew by an estimated 1.0 million bbl/d in 2011 to 88.1 million bbl/d. The US Energy Information Administration (EIA) expects this growth to accelerate over the next two years, with consumption

reaching 89.4 million bbl/d in 2012 and 90.9 million bbl/d in 2013, driven by population and economic growth from developing countries across the Asia Pacific and Latin America.

Although the International Energy Agency (IEA) has projected lower oil products demand growth in 2012, it nonetheless anticipates global energy demand to increase by 40% between 2009 and 2035. Oil will continue to be the leading fuel in the energy mix, while demand for natural gas is expected to experience the fastest growth at 1.7% a year on average from 2009 to 2035.

With the longer-term fundamentals of the offshore and marine industry remaining sound amidst the continuing uncertainties in the global economy, Keppel O&M stands ready to ride on its established track record and leverage its core competencies to meet the growing demand for quality offshore and marine solutions.

#### Offshore Shallow Water Prospects

The pickup in enquiries for newbuild jackups began in the last quarter of 2010. Since then, some 60 jackups have been ordered globally. Barclays

Capital estimates that half of the world's jackup fleet will be over 30 years old by 2015, even with the addition of 150 new jackups. The Macondo incident has contributed to the bifurcation in the utilisation and dayrates between premium and commodity jackups. This will result in a sustainable replacement cycle over the mid-term horizon.

With new discoveries being made in Northern Europe, specifically in UK and Norway, an increased level of exploration activity is expected in this region in the coming years. The Avaldsnes/Aldous Major South discovery is estimated to contain gross contingent reserves of between 1.7 billion and 3.3 billion barrels of recoverable oil. This makes the discovery one of the five largest ever made in the Norwegian Continental Shelf and the largest exploration find in the world in 2011.

#### Offshore Deepwater Prospects

While demand for new jackups picked up momentum, orders for semisubmersibles have been lacklustre in recent years, compared to the period between 2004 and 2008. This is despite the age profile of the global fleet of semisubmersibles being similar to that of jackups. According to industry

statistics, about 60% of the world's semisubmersibles are aged over 25 years. Spurred by the increasing E&P expenditure of oil companies and the need to resume investments in deepwater drilling, recent dayrates of semisubmersibles have reached over US\$500,000 per day, with current utilisation rate at around 90%. The impending return to normalcy of drilling activities in the Gulf of Mexico will further tighten the demand for deepwater rigs.

Spillover demand from Petrobras' massive newbuilding programme is expected to drive the offshore deepwater market in the medium term. Additionally, the emergence of more ultra-deepwater drilling programmes in new frontiers such as West Africa, Australia and Southeast Asia will further support demand growth for deepwater rigs.

The deepwater segment, as a whole, is buttressed by the sound long-term fundamentals. Half of the discoveries made in the last decade have been offshore and primarily in the deepwater regions. Oil service companies continue to shift their E&P spending and activities towards deepwater projects,

Keppel Offshore & Marine Ltd Operations Review & Outlook
Report to Stakeholders 2011





- SEAFOX 5, the KFELS MPSEP offshore wind turbine installation vessel, has secured a contract to be deployed in the German Sector of the North Sea.
- Keppel 0&M invested in OWEC Tower, a leader in the design and engineering of offshore wind turbine jacket foundations.

which offer greater potential in terms of reserve volumes, productivity and profitability. Barclays Capital foresees that deepwater CAPEX spending could double within five years.

Looking ahead, the far-reaching implications of the Macondo incident are expected to further alter the regulatory and operating climate of the global offshore and marine industry. The stricter regulatory environment has resulted in a strong focus on newer drilling units with superior technical and safety capabilities, which Keppel  $0\&\mbox{M}$  is well-poised to deliver. The order of a semisubmersible, built to Keppel FELS' proprietary DSS™38E design, by Sete Brasil towards the end of 2011 was a strong vote of confidence in Keppel's design, product capability and the key role of semisubmersibles in the deepwater segment.

#### **Production Units**

Production vessels could form the next wave of orders following the drilling rig replacement cycle.

Based on projections by the International Maritime Associates (IMA), orders for production floaters could average between 25 and

35 units annually over the next five years. 80% of these units are expected to be FPSOs, of which half will be converted units. The FPSO market is therefore expected to remain healthy, with FPSOs continuing to be the preferred solution for production in deepwater fields. Just as the large offshore discoveries have resulted in a rig construction boom, Barclays Capital expects that an FPSO upcycle is on the horizon, and this could double the current worldwide fleet. The cycle is expected to kick in towards late 2012 or 2013. According to IMA, the current global FPSO fleet stands at around 160, with another 40 already on order.

Looking ahead, strength in this sector will largely be driven by Latin America, due to the developments in offshore Brazil and its pre-salt regions. Petrobras' updated business plan for 2011–2015 highlighted the requirement for another 50 production platforms (both semisubmersibles and FPSOs). Other regions such as South East Asia and West Africa also have significant potential production floater projects.

#### Specialised Ships

Overbuilding in the specialised shipbuilding sector has caused

#### **ROCK SOLID PERFORMANCE**



Keppel Singmarine delivered ROCKPIPER, a new generation rock dumping fall pipe vessel safely and within budget to Royal Boskalis Westminster N.V.

Keppel Singmarine celebrated the completion of its first new-generation rock dumping fall pipe vessel, ROCKPIPER, for Dutch dredging and marine contractor Royal Boskalis Westminster N.V. (Boskalis).

A christening ceremony for ROCKPIPER was held on 28 January 2012 at Keppel Singmarine, and the vessel was named by Lady Sponsor, Mrs Else Buijs, Company Secretary of Boskalis.

Mr Theo Baartmans, member of the Board of Management, Boskalis, commented at the christening ceremony, "We have a long-standing relationship with Keppel and are familiar with its quality of 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. The ROCKPIPER is an important addition to our fleet as we expand our foothold in the dredging,

maritime infrastructure and maritime services sectors."

Rock dumping fall pipe vessels are capable of depositing large amounts of rocks in deep waters with great precision to protect and stabilise cables, and oil and gas pipelines on the seabed. ROCKPIPER has a carrying capacity for 24,000 tonnes of rock and is equipped to carry out precise rock depositing works at water depths of more than 1,000m. Equipped with dynamic control, the vessel is able to navigate a specific path while lowering rocks through a fall pipe at a controlled rate.

Keppel Singmarine was awarded a \$\$25,000 bonus from Boskalis for achieving zero incidents in the construction of the 159 metre-long double-hull vessel. Keppel's relationship with Boskalis dates back more than a decade, with the successful deliveries of various shiprepair, jumboisation and upgrading projects.

downward pressure on charter rates over the past two years. However, with the growing global rig fleet requiring more support services, and replacement demand from an aging offshore support vessel (OSV) fleet, the sector could improve in the near future. Changing customer requirements, stricter operating environments and regulatory frameworks are further driving demand for OSV innovations to improve operational efficiency and safety.

Significant demand for newbuild OSVs should arise from the Prorefam programme where Petrobras seeks to increase its supply and specialised vessels to 568 units by 2020, from the current 287 units. This includes the requirement of another 88 supply vessels by 2014.

#### **NEW GROWTH AREA**

Offshore wind continues to gain momentum in the global arena as a renewable source of energy, providing healthy market potential for new designs and solutions for offshore wind farms.

Europe is currently the world leader in offshore wind energy. The European Wind Energy Association has set a target of 40 GW to be installed by 2020 and 150 GW by 2030 for offshore wind power, up from the 2.9 GW as at end 2010. Investments in offshore wind farms in Europe alone are projected at €209 billion from 2010 to 2020.

The offshore wind industry in Europe is set to get a further boost from the £3 billion Green Investment Bank set up by the UK Government. The bank is expected to place a major focus on offshore wind. With this latest development, the offshore wind power industry in Europe may grow at an accelerated pace.

Keppel O&M started to offer solutions to the offshore wind industry in 2010. Currently, Keppel FELS is building a multi-purpose self-elevating platform (MPSEP) offshore wind turbine installation vessel. known as SEAFOX 5. for the German sector of the North Sea. Owned and managed with the Seafox Group, the vessel is on track to be completed in the second half of 2012. Keppel Verolme, our yard in the Netherlands, is constructing a 400 MW transformer platform for the German offshore wind sector. With the aim of getting a slice of the offshore wind foundation business, Keppel recently

took a stake in OWEC Tower, a Norwegian company which is a leader in the design and engineering of offshore wind turbine jacket foundations.

In the longer run, Keppel O&M aims to broaden the value chain of services that it offers to the offshore wind industry, particularly in Europe.

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# TECHNOLOGY & INNOVATION

Our technological innovations aim to address the longer-term needs of our customers as well as the more immediate enhancement of prevailing offshore and marine solutions.



As the exploration of oil and gas reserves moves to less hospitable terrains and becomes more complex, technological capability is a key differentiator in the ability to stay ahead. Harvesting hydrocarbons in these harsh environments is neither easy nor cheap. Operators and oil services companies are looking for providers to deliver innovative solutions with quality, on time, within budget and safely.

As a global leader in our chosen business segments, Keppel Offshore & Marine (Keppel O&M) constantly seeks to adapt and innovate to address these needs and challenges. Our aim is to conceive and bring viable solutions to the market promptly.

Our innovations include our KFELS B Class jackups, KFELS N Class harsh environment jackups, DSS $^{\text{TM}}$  series of deepwater rigs, KFELS SSDT $^{\text{TM}}$  semisubmersible drilling tenders,

MTD 3265T tugboat and MTD 13028 FSO-IC ice-class Floating Storage and Offloading vessel, among others.

We have the in-house expertise and flexibility to further adapt these designs to incorporate advancements in technology, as well as to suit the various operating environments. In response to the industry's diverse needs, we are tapping deep into our core competencies and harnessing the synergy of our four technology arms to create value-added solutions for new offshore frontiers.

To continually strengthen our design capabilities, we also listen closely and carefully to our customers and work with their needs. The Macondo oil spill incident in the US Gulf of Mexico has significantly sharpened the industry's focus on newer drilling units with superior technical and safety capabilities. This has resulted in increased demand for customised rigs which will improve cost efficiencies.

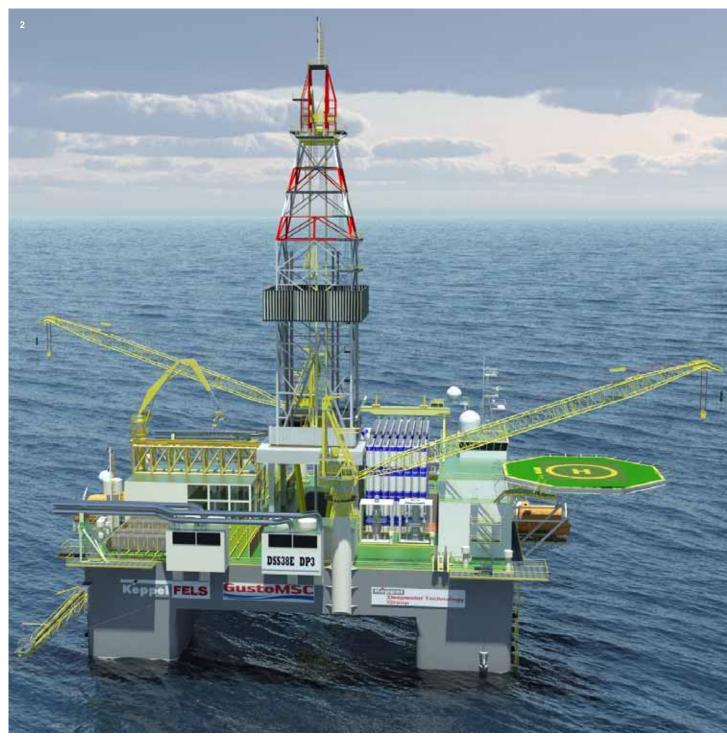
We continue to work closely with our customers on their requirements and to deliver to them solutions which are designed for safe and sustainable operations.

#### **ULTRA-DEEP FRONTIERS**

The drawdown of global oil and gas reserves has driven the search for hydrocarbons further into the ultradeep realms of Brazil, Gulf of Mexico, West Africa and North Sea.

# UPCOMING INDUSTRY WORKHORSE: DSS™38E SEMI

In December 2011, the order of a semisubmersible rig built to Keppel FELS' proven sixth generation deepwater DSS™38E design by Sete Brasil was a strong vote of confidence in Keppel's design and product capability, as well as the strength of the semisubmersible in the deepwater segment. With improved capability and operability, the rig is suited to the stringent requirements of the deepwater





- Keppel 0&M pushes technology frontiers by developing cutting-edge technologies to meet future market needs.
- Well suited for offshore Brazil, the DSS™38E
  is an enhancement of the design of Keppel's
  first two drilling rigs built for Brazil,
  Gold Star and Alpha Star, which are
  successfully operating in offshore Brazil.
- 3. Named Floatel Victory, this innovative SSAU™4000NG floatel design features the latest technology such as Dynamic Positioning (DP) 3 capability and enhanced station-keeping.

"Golden Triangle" region, comprising Brazil, Africa and the Gulf of Mexico.

An innovative and cost-effective design, the DSS™38E is rated to drill to depths of 10,000 metres below the rotary table in 3,000 metres water depth. Scheduled for delivery in 4Q 2015, the rig is intended to support the exploration of Brazil's estimated 50 billion barrels of deep-sea oil and gas reserves.

## HARSH ENVIRONMENT SEMISUBMERSIBLES

The need for high-specification harsh environment semisubmersibles to support exploration and production work in the North Sea deepwater region gave our Deepwater Technology Group (DTG) and its partner, Marine Structure Consultants (MSC), strong impetus to develop the sixth generation DSS™51HE and DSS™60HE semisubmersibles for worldwide operations, in particular the North Sea environment.

These two designs were developed based on the successful DSS™20, DSS™21, DSS™38 and DSS™51 semisubmersible designs, and benefited from the wealth of data gathered from various model test verifications.

DSS™51HE has an operational displacement of 52,000 metric tonnes and a high variable deck load of 6.000 metric tonnes, while DSS™60HE has an operational displacement of around 61,000 metric tonnes and a higher variable deck load of 7,500 metric tonnes. The two new rigs have superior motion characteristics and are designed with drilling equipment suitable for well work-over intervention, exploration drilling and development drilling. They are capable of operating in water depth of up to 7,500 feet and can drill up to 30,000 feet from the rotary table, for year-round operations. The rigs are also provided with self-contained mooring of up to 500 metres water depth for the North Sea.

Equipped with Dynamic Positioning (DP) 3 capability with operating conditions up to Beaufort10, these two harsh environment semisubmersibles have winterised features such as derrick cladding and machinery space heating and have accommodation facilities to house 200 men. With enhanced safety and environmental features, they aim to provide maximised uptime and drilling efficiency and optimum working conditions.

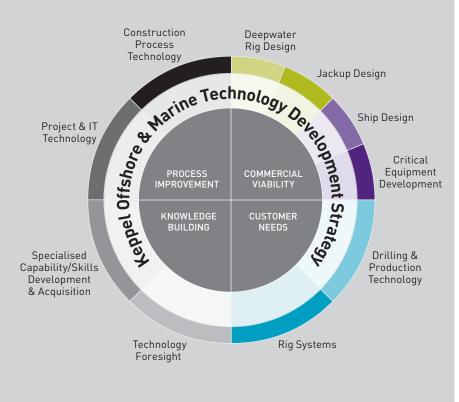
## ACCOMMODATION SOLUTIONS FOR HARSH WATERS

Apart from drilling rigs, DTG has also developed an enhanced harsh environment accommodation semisubmersible to support exploration and production work in the North Sea deepwater region. This innovative SSAU™4000NG design features the latest technology such as DP3 capability and enhanced station-keeping. It is capable of operating alongside fixed

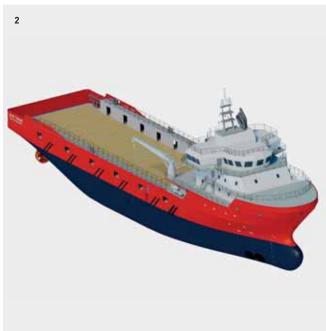
#### TECHNOLOGY DEVELOPMENT STRATEGY

Our technology innovation efforts are spearheaded by four divisions, namely:

- Keppel Offshore & Marine Technology Centre (KOMtech) focuses on developing offshore and marine competencies and conducting R&D into new technologies and processes
- Offshore Technology Development (OTD) specialises in jackup rigs and their critical components
- Deepwater Technology Group (DTG) specialises in semisubmersibles and other floating structures
- Marine Technology Development (MTD) specialises in Offshore Support Vessels and tugboats







- With enhanced safety and environmental features, the sixth generation DSS<sup>TM</sup>51HE semisubmersible aims to provide maximised uptime and drilling efficiency and optimum working conditions for the North Sea environments.
- 2. MTD has developed a 4,500 dwt PSV to cater to the Brazilian Continental Shelf.

platforms, floating platforms and Floating Production Storage and Offloading (FPSO) vessels, with a full complement of deck cranes and firefighting capabilities.

The design has secured a contract from Floatel International (Floatel). Named Floatel Victory, it has been chartered by BP Exploration Operating Company Limited for work in offshore UK. Scheduled to be delivered in February 2014, Floatel Victory marks Keppel FELS' third accommodation semisubmersible project with Floatel, after the delivery of Floatel Reliance and Floatel Superior in 2010.

Equipped with state-of-the-art accommodation and recreational facilities, the SSAU™4000NG provides increased comfort for the 500 persons it can accommodate in one-man and two-man cabins. It meets the stringent UK HSE requirements to work in the UK sector of the North Sea as well as the Gulf of Mexico, Brazil and Western Australia.

#### POWERFUL OFFSHORE SUPPORT

As the Brazilian offshore energy market grows, it will require an increasing number of offshore support vessels.

Brazil's national oil company, Petrobras, has unveiled a strategic plan where it will require 100 Brazilian-built offshore support vessels by 2020. This is to facilitate the exploration and development of the deepwater pre-salt fields in the Santos Basin.

To meet this demand, our Marine Technology Development (MTD) has developed designs for offshore support vessels catering to the Brazilian Continental Shelf. The designs are MTD 9045-DE, a 4,500-deadweight tonne PSV, and MTD 80210A, an 18,000-horsepower Anchor Handling Tug & Supply (AHTS) Vessel capable of bollard pull in excess of 210 tonnes.

Equipped with a diesel-electric propulsion system and DP 2, MTD 9045-DE PSV is well-suited to operate in a variety of offshore conditions. Its internal tanks arrangement and systems are designed to function as a fluid carrier (Fluideer) – suited for carrying oil-based and water-based mud, N-Paraffin brine, drilling brine and dry bulk – or diesel oil carrier (Oileer).

As for the MTD 80210A, it is a largesized AHTS vessel with a deadweight

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- The first-of-class ice-worthy jackup development drilling unit, jointly designed by Keppel and ConocoPhillips, will operate in one of the harshest marine frontiers, the Arctic Seas.
- Technology Review is a journal published annually by KOMtech as a record and sharing of its research efforts.

capacity of 3,500 metric tonnes. Its tanks are designed to carry drilling brine and marine gas oil.

This vessel design is distinct for its large array of deck machineries, including double drums main towing/ anchor handling winch, double drums secondary towing winch and four large storage reels. They have been arranged for operational efficiency and to meet stringent deepwater anchor handling and towing requirements.

#### INNOVATIVE WIND SOLUTIONS

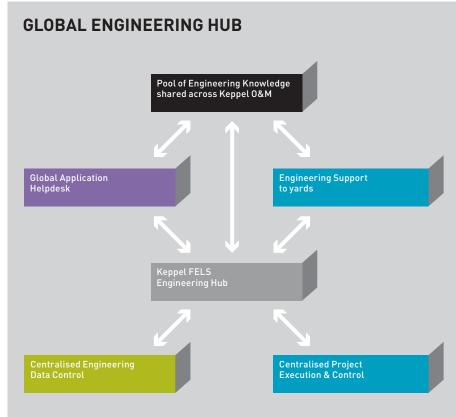
Offshore wind farms are fast gaining momentum in the global arena as a renewable source of energy in terms of turbine size and capacity. As wind farms move into deeper waters, there is demand for larger scale and more complex networks of subsea power cables to generate electricity for delivery to land-based substations.

Currently, there are issues about existing cable laying vessels not being able to lay underwater communication cable networks properly and efficiently. This is because offshore power cable laying operations involve multi-functional tasks, which include route planning, cable laying, seabed trenching and

post-laid cable inspection. Therefore, it is not possible for a single cable laying vessel to perform all of the abovementioned tasks, and they are usually supported by other vessels to perform their cable laying jobs. These have in turn resulted in longer delays and higher costs incurred for companies.

To address this issue, Keppel Offshore & Marine Technology Centre, or KOMtech in short, is developing two types of dedicated cable laying vessels (CLV) designs – in-field CLV and export CLV for future offshore wind farm projects. An in-field CLV lays cables between the wind turbines and substations whereas an export CLV lays cables between substations and shore facilities.

The hull and marine equipment of KOMtech's CLVs are specially designed for cable laying capabilities. Their key features include better manoeuvrability and stability to work in specified environmental conditions, a bigger deck space to accommodate all the necessary cable laying equipment and a larger cable carousel to carry subsea power cables required for a wind farm project.



The activities of our engineering offices in Singapore, Bulgaria, Mumbai and Shenzhen are seamlessly integrated through an advanced web-based environment offering 3D design tools and data management functions.

The state-of-the-art Smartmarine 3D technology allows our engineers in Singapore to review designs and drawings carried out by the other offices and vice-versa. Drawings are automatically extracted after the engineers have reviewed and made changes. This enhances design accuracy, speeds up communication and prevents expensive and unnecessary revisions.

This system enables our engineering centres operating in different time zones to work on projects with high efficiency, round-the-clock. The lessons learnt can also be shared almost instantaneously across borders.



KOMtech's CLVs are also equipped with bollard pull capacity to tow a cable laying device as well as conveyor belts for smooth running of cable and to prevent cable damage. In addition, the unique arrangements for cable load-out of these two vessels also ensure the smooth laying of power cables in a simple and safe way.

#### **ICE-WORTHY ARCTIC DRILLING UNIT**

In a concrete step forward, KOMtech is collaborating with ConocoPhillips to design a first-of-class ice-worthy jackup development drilling unit to operate in one of the harshest marine frontiers, the Arctic Seas.

This jackup unit will have dual cantilevers to maximise drilling operations within specific time windows. The rig is capable of operating in a self-sustained manner for 14 days and is equipped with a hull that is designed for towing in ice. It is also able to resist impacts from multi-year ice floes and ridges as well as withstand level of ice sheds impinging up to its design thickness. This joint design project is expected to be completed by end-2013.

The features of this jackup unit make it a cost-effective and promising drilling solution for the Arctic Offshore.

In leveraging the combined expertise, resources and research findings of Keppel O&M and ConocoPhillips, both parties aim to achieve significant breakthroughs in this joint project for Arctic development drilling.

#### **TECHNOLOGY REVIEW 2012**

Since its inception in 2007, KOMtech has been providing technology foresight into alternative energy applications as well as developing designs, systems and critical equipment for rigs and ships.

Each year, a good sampling of the vast research work by KOMtech is showcased in its Technology Review publication. For the 2012 edition, the journal focuses on the trends of jacket substructures for offshore wind turbines, hose transfer handling system for Liquefied Natural Gas (LNG) offloading and the wet scrubbing process for marine emission control.

Prior issues of the Review have received substantial interest from the offshore and marine industry, which includes our customers, professional institutions and academia. Several of KOMtech's papers have also been presented at major offshore and marine conferences and seminars.

Technology & Innovation 63



1 Varandey & Toboy



2 Raissa



3 Yuri Korchargin



4 KST 59



5 Kogalym





#### 1 lcebreaker

- A support vessel that forges passages through icy waters for oil tankers
- 2 Submersible (<30 ft)
  - A mobile unit which sits entirely on the seabed during operation
- 3 Ice-class Floating Storage and Offloading (FSO) Vessel (<100 ft)

3 Ice-class FSO (<100 ft)

- An ice-resistant vessel that receives crude oil from a fixed platform and offloads it to shuttle tankers

#### 4 Harbour Tug

- A small and powerful boat which assists ships when docking, tying up to the piers and during departure
- 5 Anchor Handling Tug/ Supply Vessel (AHTS)
  - An offshore support vessel equipped for emergency stand-by/rescue, oil recovery and fire fighting

# 6 Jackup Rig

- (up to 500 ft)
- A self-elevating mobile drilling unit that stands on its legs on the seabed during operation
- KFELS MOD VI
- KFELS A Class
- KFELS Super A Class
- KFELS B Class
- KFELS Super B Class
- KFELS C Class
- KFELS G Class
- KFELS N Class

### 7 Fixed Platform

- (100 1,300 ft)
- A platform that provides accommodation facilities

#### 8 Floating Production Storage and Offloading (FPSO) Facility (>4,000 ft)

- A ship-shaped production facility used for the processing and storage of oil or gas

#### **Extended Tension** Leg Platform (ETLP) (up to 6,000 ft)

- A vertically moored floating structure which is used for the offshore production of oil or gas



8 FPSO Armada Perdana



9 Magnolia



11 PV Drilling V



12 Floatel Superior



13 Gold Star



14 P-56



10 SPAR (up to 8,000 ft)





2 Semisubmersible Accommodation Unit (up to 8,000 ft)



13 Semisubmersible Drilling Rig (up to 10,000 ft)



Semisubmersible FPU (up to 10,000 ft)



15 Drillship (up to 12,000 ft)

#### 10 SPAR (up to 8,000 ft)

- A large cylindrical unit which supports a rig platform, and anchors it to the seafloor using cables and chains

#### 11 Semisubmersible Drilling Tender (SSDT) (up to 8,000 ft)

 A floater that operates alongside SPARs and Tension Leg Platforms, and is able to maintain station keeping in water depths of up to 8,000 ft - SSDT™3600E

# 12 Semisubmersible Accommodation

(up to 8,000 ft)

- A floating unit that provides accommodation for crew
- SSAU™3600
- DSS™20NS
- SSAU™4000NG

### Semisubmersible Drilling Rig (up to 10,000 ft)

- A floating unit which can perform drilling operations at water depths of up to 10,000 ft

  - DSS™20

  - DSS™38

  - DSS™51

  - DSS™38E

- DSS™51HE - DSS™60HE

#### Semisubmersible Floating Production Unit (FPU)

- (up to 10,000 ft)

   A floating platform used to produce oil and gas in deepsea - DeepDraft Semi

#### 15 Drillship (up to 12,000 ft)

- A compact and highly efficient unit with equipment suitable for well workover and exploration drilling
  - DrillDeep DS12000



# **Sustaining Growth**

#### PAGE 66-69

Our drive for business excellence is underpinned by an unwavering focus on Safety, Health and Environment, meticulous project management as well as prudent risk management.

Through an ongoing process of optimising resources and increasing productivity, we continue to deliver innovative projects with strong value offerings and hallmark quality to create value for customers worldwide.

## **Empowering Lives**

#### **PAGE 70-77**

People are the cornerstone of our business. As an employer of choice, we are committed to grow and nurture our talent pool through continuous training and development to help our people reach their full potential.

We seek to develop a formidable and results-driven workforce with strong leaders imbued with our core values to take the company into the future.

# **Nurturing Communities**

#### **PAGE 78-85**

As a global citizen, we aim to give back to communities wherever we operate in a variety of areas spanning knowledge building and education, social development and environmental protection.

We engage employees in contributing actively as change agents to effect improvement in their surroundings and in the lives of those around them.

#### Sustaining Growth

# Productivity, Quality and Ecoconsciousness

Through productivity, quality improvements and eco-friendly measures, we sustain our competitiveness.



Keppel 0&M garnered double accolades at Lloyd's List Awards, Asia 2011 – Keppel Shipyard received the Shipyard of the Year Award while Keppel FELS received the Safety Award.

Keppel Offshore & Marine (Keppel O&M) continues to set itself apart from its competition by ensuring high levels of efficiency and quality in all its operations.

#### **MEETING QUALITY BENCHMARKS**

The Group's management systems and processes meet industry and global standards for high performing companies.

During 2011, SPRING Singapore, Singapore's national body for enterprise development, renewed Keppel FELS' Singapore Quality Class (SQC) STAR Certification and Keppel Shipyard's SQC Certification – these certificates indicate overall business excellence.

In addition, for providing customers with prompt and high-quality services consistently, Keppel Shipyard was lauded with the Shipyard of the Year Award at the Lloyd's List Awards, Asia 2011, and the Repair Yard Award at Seatrade Asia Awards 2011.

Keppel Shipyard's high quality standards are underpinned by a range of quality-enhancing initiatives which it undertakes throughout the year. The yard conducts quality walkthroughs regularly to monitor and assess its workers' workmanship. Rewards are given to exemplary workers. Moreover, workers who consistently produce quality work are recognised at Keppel Shipyard's annual Quality Plus Day ceremony.

Applying manufacturing methodology to its rigbuilding operations, in 2008 Keppel FELS became the first Singaporean company to receive the Manufacturing Excellence Award (MAXA), which is accorded to Singaporebased companies that have achieved world-class manufacturing standards. Sustaining operational excellence, Keppel FELS continues to be engaged by the MAXA community to share its lean manufacturing processes and project management capabilities. Indeed, in 2011, the company was invited to host a tour of its facilities for MAXA participants for the third consecutive year.

To further enhance its quality assurance and control practices, Keppel FELS engaged in knowledge-sharing and benchmarking activities with Abbott Manufacturing Singapore and Defence Science and Technology Agency (DSTA) in 2011.

#### **RAISING PRODUCTIVITY**

Keppel O&M's Productivity Improvement Steering Committee (PISC) reviews and evaluates the Group's operations as well as synergises its productivity efforts.

Chaired by Mr Chow Yew Yuen, COO of Keppel O&M, PISC has stimulated improvements to processes and the dissemination of these practices across the Keppel O&M yards worldwide.

At the business unit-level, Keppel FELS' Quality and Productivity Improvement Teams (QPIT), meet monthly with Mr Wong Kok Seng, Managing Director of Keppel FELS, to review each department's Key Performance Indicators (KPI) and discuss areas for improvement. QPITs comprise Executive Directors, General Managers and Sections Heads.

QPITs seek to help Keppel FELS achieve the next leap in productivity levels. The teams focus on areas such as work redesign and skills upgrading as well as infrastructure, systems and equipment enhancements.

For example, greater automation has been introduced for the fabrication of steel panels and pipes. In addition, QPITs have spearheaded upgrades in the Group's software systems and enhancements to supply chain management systems; all these help to improve work flow and reduce wastage.

Similarly, Keppel Shipyard's semiautomated pipe shops have helped to improve productivity and ensure quality in pipe fabrication. Keppel Shipyard continued to install new equipment at these pipe shops over the last year, further increasing productivity. Indeed, as a result of these enhancements, one of its pipe shops was able to cut production man hours by 17% more than it had targeted at the start of 2011.

Over at Keppel Singmarine, it has implemented a number of facility upgrade initiatives to increase productivity, such as the extension of the quay, enhancement of the existing panel line and pipe shop as well as the construction of a new panel line shop to complement the existing one.

Meanwhile, employees at all levels are empowered with the knowledge and skills to ensure that all operations and processes are streamlined and efficient. A Lean Practice Workshop was conducted in 2011. The workshop addressed topics such as how to identify and minimise wastage, analyse processes as well as design solutions for improvements.

Widely-recognised for its productivity enhancement measures, Keppel has often been invited to share them at industry and business platforms. Mr Choo Chiau Beng, CEO of Keppel Corporation and Chairman of Keppel O&M, provided details on the tenets of what productivity entails at Keppel Group at the Building and Construction Authority's (BCA) annual staff conference.

#### **IGNITING INNOVATION**

Innovation is a crucial means by which Keppel 0&M drives improvements in productivity and quality.

Keppel FELS, Keppel Shipyard and Keppel Singmarine all hold annual in-house Innovation and Quality Circles (iQC) competitions where teams share their ideas for reducing construction time and costs or improving quality. Teams with exceptional ideas are then shortlisted to showcase their solutions at the National iQC Convention.

At the 2011 convention, Keppel FELS garnered four Star Awards and eight Gold Awards.

Keppel 0&M also actively participates in knowledge exchange platforms to stimulate ideas for innovation.

Keppel FELS was asked to play host to the participants of the International Exposition on Team Excellence (IETEX) Convention, which was held at Resorts World Sentosa in June 2011. Keppel FELS discussed with the IETEX delegates the challenges and solutions for developing a strong innovation culture.

For its efforts and achievements in sustaining innovation, Keppel FELS also received the Innovation Class (I-Class) certification from SPRING Singapore.

#### PROTECTING THE ENVIRONMENT

We continue to look for ways to generate energy savings through investment in equipment and infrastructure. Through investments in energy saving equipment and infrastructure, Keppel O&M sees the total estimated energy saving of some 19,200 gigajoules (GJ) annually.

We retrofitted energy-efficient lightings in the yards, plants and offices, and installed motion sensors along corridors, toilets and areas with less human traffic. In 2011, we also consumed about 61 million cubic metres of potable water and about 720,000 cubic metres of NEWater. Potable water is used for drinking, general washing and supplying to vessels. NEWater on the other hand is used for testing purposes as well as cleaning and hydro jetting marine vessels and machinery.

NEWater is reclaimed water produced by and purchased from Singapore's Public Utilities Board. Specifically, it is treated wastewater that has been purified through advanced technologies such that it is potable and fit for industry use.

During the year, we recycled about 626,000 tonnes of waste comprising ferrous scrap metals and grit, while disposing and incinerating about 116,000 tonnes of non-recyclable waste. At Keppel Shipyard, ferrous scrap metals are separated from general waste and sold to licensed recycling companies.

Our yards continue to explore engineering solutions and energy-efficient processes to reduce emissions while increasing productivity and quality. We are also cultivating behavioural changes through education and training to increase awareness and encourage the conservation of resources.

With the exception of NEWater, all the figures provided above include Keppel 0&M's Singapore and overseas subsidiaries.

# **Business Continuity**

Robust risk and business continuity management equip us to meet the challenges in our dynamic global environment.

#### **ENTERPRISE RISK MANAGEMENT**

Keppel Offshore & Marine's (Keppel O&M) Enterprise Risk Management (ERM) framework provides a holistic and systematic process for identifying, analysing and managing risks to better prepare the Group to respond to uncertainties and leverage new business opportunities to maintain its competitive edge. The Board of Directors, assisted by the Keppel O&M Audit Committee, is responsible for overseeing the risk management of the Group, where key risks and the progress of significant projects are reviewed, monitored and discussed with the management.

As part of the Group's risk management processes, significant risks associated with value drivers to achieve corporate strategies are identified. Risks are assessed with regards to their impact on the Group's operations, financial performance and reputation. Mitigating actions are established and closely monitored.

All investment proposals need to include an assessment of key factors which could carry potential risks, such as alignment with strategic objectives, operational controls, financial viability, potential contingent liabilities, specific country laws and regulations, technical competency and available resources, for the approving authority's deliberation.

Risk-related policies and risk limits are subject to periodic reviews to ensure that they continue to support business objectives, address business risks effectively and take into consideration the prevailing business climate, opportunity and risk appetite within Keppel O&M.

The types of risks which the Group actively monitors include customer default, fluctuations of foreign currencies, potential credit tightening, cash flow management, unfavourable regulatory changes, labour shortages, cost escalation, non-performance of suppliers and subcontractors,



Prudent business continuity management prepares us to meet the challenges and succeed in our dynamic global environment.

disruptions to supply chain and natural disasters, among others. An occurrence of any of these risks may potentially result in project delays and cost over-runs.

Strong management commitment in driving Group-wide ERM systems and processes over the years has enabled the Group to be better equipped in managing risks in the dynamic business environment, both locally and internationally. Risk management is integrated into the day-to-day business operations to enable early risk detection for proactive risk management.

#### **MANAGING PROJECT RISKS**

For Keppel O&M, projects executed over an extended period of time form a large part of the Group's operations. To help manage the risks throughout the duration of the projects, the Group adopts a standardised risk assessment and monitoring process, with adaptations to suit local environments.

During the tendering stage, the tender team, comprising experts of different functions, identifies and evaluates key risks concerning the customer's expectations, technical challenges, contractual liabilities, cost estimation, project cash flow, and resource availability. Potential risks are addressed extensively for solutions to establish mitigating actions. The evaluation takes into consideration whether the project risks are manageable within feasible means to meet the business objectives.

At the execution stage, key risk areas involving costing, scheduling, planning, engineering design, procurement, quality control, health, safety and environment management are closely monitored to ensure that pre-emptive measures are taken and appropriately implemented. The aim is to ensure that projects are executed and completed on time, within budget, with standards of safety and quality that meet or exceed contractual specifications.

The Group spares no effort in inculcating safety awareness among all stakeholders, in particular employees

and subcontractors. This is achieved through training and enforcement of safety standards at the work sites. With guidance from the Board Safety Committee of Keppel Corporation, Keppel O&M Group Safety Committee exercises oversight of the effectiveness of its safety management system.

#### CULTIVATING A RISK CENTRIC-CULTURE

The Group continues to strengthen its risk-centric culture through various initiatives. These include continuous education and regular communication through various forums and in-house publication on risk management-related topics to raise awareness. Workshops are organised to share good practices in project risk management and project post-mortem analysis, and regular discussion forums are held on country risk issues.

The Group's orientation programme serves as a platform to communicate the ERM methodology and practices to new employees. In addition, ERM workshops are conducted to help all business units implement a systematic process in identifying key risks and mitigating plans.

Risk management is one of the KPIs incorporated into the annual performance appraisal of management and senior staff to enhance risk ownership and accountability. Periodic country risk updates are circulated to keep senior management informed of the changes in the political and economic situations of the countries where the Group operates in so that appropriate mitigating actions can be taken.

#### **BUSINESS CONTINUITY MANAGEMENT**

Business Continuity Management (BCM) is part of the Group's ERM initiatives to address and manage potential threats and disruptions to operations arising from events such as an epidemic outbreak, act of terrorism, natural calamities and damage to critical facilities.

The BCM Committee oversees the implementation of the Group's BCM programme and develops action plans

to mitigate threats with the aim of resuming key business operations within a pre-established targeted time frame. Business units in Singapore and overseas have established specific business continuity and crisis response plans, which are continually reviewed and tested, to ensure effective response to unforeseen events while minimising operational disruptions.

To bolster crisis management competency within Keppel O&M, crisis communications training for key spokespersons is conducted to prepare them to communicate effectively with the media and stakeholders, and to familiarise them with possible scenarios that may play out during a crisis.

In addition, during the year, oil pollution simulation drills were conducted at our yards' coastal line to test the response and readiness of the yards' personnel to manage an oil spill. Evacuation drills at buildings were carried out. Joint exercises were also conducted with the Singapore Civil Defence Force to test the readiness in the event of a fire, as part of the annual Company Emergency Response Audit.

The different yards within the Group regularly conduct fire and evacuation drills on board rigs and vessels, together with the owners' representatives and our staff. Drills are also held to test critical enterprise systems and applications, and to enable disaster recovery plans to be tested and reviewed to ensure that IT systems and applications can be restored and resumed within the stipulated time-frame.

Post-mortem analyses are performed to refine action plans with the gaps identified from the drills. All Business Continuity Plans are reviewed, tested and refined periodically to enhance the Group's overall operational resilience.

#### **Empowering Lives**

# People Development

By developing and empowering our people, we have an effective workforce that delivers value to our customers worldwide.



Keppel 0&M takes a holistic approach in promoting the safety, health and well-being of employees, and regularly rolls out activities that strengthen bonding and work-life balance.

At Keppel Offshore & Marine (Keppel O&M), all employees are guided by our eight core values of Can Do, Customer Focus, Commitment to Health, Safety and Environment (HSE), Accountability, Integrity, Innovation and Learning, Global Mindset, People and Teamwork.

The overarching principle which binds our people together and makes us definitively Keppel is our pursuit of excellence in everything we do. We believe that a firm commitment to nurture and develop our people propels them to perform at their best in achieving high standards and quality in our products and services. This is what drives our holistic approach in fortifying our human capital.

As a testimony to our strong commitment towards people development, our CEO Mr Tong Chong Heong was conferred the "Champion of HR" award at the Singapore HRM Awards 2012. This award is a recognition of the focus and emphasis of the leadership at Keppel O&M in growing our people resources.

In addition, for the second time, Keppel FELS received the People Developer certification by Spring Singapore, which recognises the company's excellence in the area of human capital. This certification is given to organisations which excel in five people-related categories, namely, Leadership, Planning, Information, People and Results.

#### **NURTURING PEOPLE**

Every year, Keppel 0&M makes significant investments in the training and development of its employees. In 2011, a total of \$17.8 million was spent on the training of our global workforce of 30,500.

Apart from skills upgrading, we also dedicate considerable resources on continuous safety training for our workforce. The Keppel 0&M Group Training Centre offers a comprehensive range of safety training programmes, including the Safety Core Competency Training, Safety Promoter Training and Safety Leadership Training, among others.

In 2011, as part of Keppel Corporation's continuous effort to improve its overall performance in the area of HSE, Det Norske Veritas (DNV) was engaged to conduct a professional investigation and analysis technique course, which aims to equip participants with the

practical investigation skills necessary to conduct thorough and credible investigations of incidents.

Striving for continuous improvement gives us an edge in an increasingly competitive landscape. To increase productivity and encourage innovation at the workplace, employees are encouraged to attend the workshops which are conducted regularly.

In 2011, we organised a key workshop to inculcate the benefits of "Lean Practice". Participants were introduced to the five lean practices and were taught to identify the types of wastage, how to minimise wastage, the use of value stream map in analysing processes and identifying potential areas of improvement.

Many current members of Keppel 0&M's management team were groomed through the management trainee scheme. Now into its 26th year, the scheme continues to be an effective way to develop a pipeline of young and talented new recruits with the potential to take on various management positions within the Group. Targeted at fresh graduates, the scheme provides comprehensive and

all-rounded training for participants. In 2011, a total of 125 Management Trainees were selected for the programme, which saw them undergo modules comprising classroom training, experiential sharing, on-the-job attachment and workshop skills training.

The rigorous training provided in this two-year programme enables the Management Trainees to better understand and appreciate Keppel 0&M's operational procedures and processes, and provides them with exposure to the different functions within the Group, thereby giving them a good head start in their careers with us.

#### **GROOMING LEADERS**

As part of effective succession planning to support the growth of Keppel 0&M, we continue to actively identify high-potential employees and offer them opportunities to hone their skills to prepare them for future leadership roles. We adopt a structured approach which gives us a ready pool of talent, and ensures that these young leaders get the necessary development opportunities to be exposed and tested.

As part of this approach, a new programme known as "Leadership Excellence for New Managers" was launched in 2011 to hone the leadership skills of new managers.

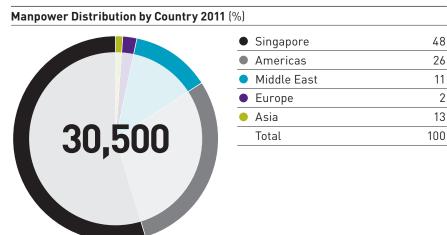
This programme, specifically tailored to meet the needs of Keppel O&M, comprises four courses conducted over a year, with coaching and review sessions done after each course to ensure the optimal transfer of knowledge to their work.

The participants' supervisors are involved during the coaching sessions to show their full support for the programme. Through this programme, the new managers acquire knowledge on team management and problem solving skills, among others, which enable them to become more effective managers.

Keppel O&M employees also continue to benefit from the training and development at the Keppel Group level. Keppel College is Keppel Group's flagship educational initiative for leadership and executive development, and its key programmes include the Keppel Young Leaders Programme, Outward Bound School and Financial Acumen for Non-Finance Managers. These programmes are designed to develop the management skills of our future leaders.

In an effort to be always prepared for the unexpected, Keppel O&M's senior management attended a one-day crisis communications workshop organised by Group Corporate  Our eight core values are represented by icons symbolising productivity, unity and strength.





#### **Empowering Lives People Development**

Communications. A total of three workshops were conducted in 2011 by experienced external consultants. This series of workshops aimed to impart and reinforce the appropriate skills so that participants can effectively communicate with the media in the event of a crisis.

#### **RETAINING EXPERIENCE**

We believe that the wealth of experience of our long-serving and older employees is an invaluable resource to the company. As such, we take a proactive stance in managing the needs of our older employees and workers to ensure that we preserve this pool of experience and knowledge within Keppel O&M.

Every year, Long Service Awards are presented to our long-serving employees in recognition of their contributions. In 2011, a total of 396 employees in Singapore received their awards.

Recognising the reservoir of knowledge and experience embodied by our older employees, we have been actively re-hiring those who have reached retirement age, even prior to the implementation of the Retirement and Re-employment Act by the Singapore Government in January 2012. In Singapore, we rehired a total of 85 employees who had reached retirement age in 2011. Employees are usually re-hired on a contractual basis, with no change to their existing roles.

If any of the older employees are not able to continue in their current roles due to health reasons, we will re-deploy them to other more suitable roles. In the re-deployment of these older workers, we endeavour to balance the employees' interests with the requirements of the company.

We are also keenly aware that older employees serve the crucial role of

mentors to new employees. Besides helping them to assimilate into the Keppel culture, older employees quide new employees in all aspects of their career and personal development such as communication and people management skills. By tapping on the knowledge and experience of these older colleagues, our younger employees can learn in a more effective way. At Keppel O&M, we ensure that the more experienced employees are equipped with the right mentoring skills. Employees who are earmarked as mentors are given ample opportunities to attend workshops to hone their coaching and mentoring skills.

#### PROMOTING WORKPLACE WELLNESS

Keppel 0&M believes that a fit and healthy workforce is important to the productivity of our business in the long run. As part of our growth strategy, we make substantial investments in the health and well-being of our workforce.

#### **BONDING ALUMNI**

The saying "Once a Keppelite, always a Keppelite" proved itself well when retired Keppelites as well as Keppelites who have ventured to other pastures convened at the inaugural Keppel O&M Alumni dinner at the Reflections at Keppel Bay show gallery on 26 July 2011.

Mr David Chin, Chairman of the Pro-Tem Committee of the Keppel 0&M Alumni and former Marketing Manager of Keppel Shipyard, said, "There has been an intention to set up the Keppel 0&M Alumni for some time now. Keppel has given me many fantastic years, and I think it is very important that we give back. Tonight, we mark the beginning of our combined efforts to capture and share our experience with a new generation of Keppelites."

Mr Choo Chiau Beng, CEO of Keppel Corporation and Chairman of Keppel 0&M, also shared his career and personal development in Keppel and how the Group has evolved and grown over the last 40 years.

"Our retirees and former Keppelites are not forgotten, and we intend to preserve our rich tradition and heritage. We hope you will help us impart the Keppel spirit to the new generation of Keppelites through sharing your experiences and mentoring them, and building on our solid foundation. They have much to learn and gain from your experience," he said in his address to the Alumni members.

Apart from this Alumni gathering, Keppel 0&M organised a get-together dinner for 71 retirees with senior management, HR managers and union representatives at the Singapore Recreation Club, where the retirees had a good time reminiscing about the past.



Keppelites, retired Keppelites and those who have ventured to other pastures, gathered at the inaugural Keppel 0&M Alumni dinner to reminisce and share their rich experiences.



- Keppel O&M offers a variety of opportunities for high potential employees to hone their skills and be developed for leadership positions.
- The annual Keppel FELS HSE promotion campaign is a key part of the yard's efforts to create a healthy workforce committed to safety.



#### **Empowering Lives People Development**

We employ a combination of tools such as company policies, environmental intervention, and imparting lifestyle and personal health skills to ensure our employees stay healthy.

"Commitment to Health, Safety & Environment" is one of our core values, and we encourage our employees to take responsibility for their own health and well-being. One way which we aim to achieve this is through the promotion of our HSE policy to constantly remind employees to place health and safety as a priority. Keppel O&M also adheres to the Health Charter, which commits the company to take active steps in promoting HSE among our workforce.

At a more operational level, we started the Workplace Health Programmes, or WHP in short, and Keppel 0&M's management team plays an active role in supporting the implementation of this programme, which is spearheaded by a WHP Committee. With the full support of the leadership team, the various business units within Keppel 0&M actively plan and implement initiatives under WHP and ensure that the programmes have active participation from all levels of the workforce.

An active participant of WHP, Keppel FELS has named every December as the Health Month, where a series of programmes are lined up to promote healthy living. The theme for 2011's Health Month was "Eat Well. Live Well. Stay Healthy." Some of the activities held include bazaars selling healthy food and fruits, health screening at the workplace, and lunchtime exercise classes such as fun aerobics and street jazz. The grand finale of the Health Month was ACTIVE DAY 2011, where over 2,000 Keppelites came together to exercise though an energetic workout led by fitness instructors. Senior management of Keppel O&M also joined in.

More than 2,000 Keppelites worked up a hearty sweat at the annual Keppel FELS ACTIVE Day campaign to promote better health and wellness amongst employees.

At the Keppel O&M level, regular health talks are organised. In addition, we rolled out the Workplace Smoking Control Programme in May 2011. This is an initiative started by Singapore's Health Promotion Board, targeted at employees of companies, which aims to discourage smoking at the workplace. Keppel FELS and Keppel Shipyard participated in this programme as part of their efforts to ensure a healthy workforce and to increase work productivity. The programme comprises roadshows, exhibitions, workshops and counselling sessions for employees.

Our workplace health programmes extend beyond the shores of Singapore. Keppel Batangas Shipyard in the Philippines conducts regular health talks, and a free eye checkup for all its employees. In 2011, the shipyard also organised a dengue fever awareness campaign.

In the US, Keppel AmFELS, our yard in Brownsville, Texas, has a Wellness Programme which includes a monthly newsletter to all its employees, providing them with information on ways to live healthily. The yard also has a well-equipped fitness centre, comprising a gymnasium with sauna, indoor racquetball court, weight room, outdoor basketball court and exercise videos available to all employees who sign up as members. In conjunction with a city-wide promotion, Keppel AmFELS organised a weight loss programme and gave out prizes to the top three employees who lost the most weight.

Keppel O&M organises events regularly as part of employee welfare. Activities in 2011 include a family day held at the Singapore Discovery Centre on 23 October 2011, with Madam Halimah Yacob, Minister of State, Ministry of Community Development, Youth and Sports, as the Guest of Honour. Around 18,000 employees and their families had a fun outing and over \$27,000 was raised for the Association for Persons with Special Needs (APSN) and the Singapore Association of the Visually Handicapped (SAVH). At our overseas yards, Keppel Batangas Shipyard organised a picnic for all employees and their families, which provided a good opportunity for bonding outside of work.

#### **PARTNERING OUR UNIONS**

A key priority for Keppel O&M in ensuring a motivated and productive workforce is the active engagement with our unions. In 2011, we continued to maintain good relations with our unions through regular dialogue sessions on a range of topics concerning the welfare of employees.

A new dialogue session entitled "Productivity Roadmap for the

#### **LENDING A LISTENING EAR**



Posters were put up at all dormitories to inform workers about the 24-hour counselling hotline service, as part of Keppel Housing's new welfare initiatives to ensure residents' mental and emotional health are taken care of.

Keppel O&M constantly seeks to improve the welfare of its foreign workers and cares not just for the physical needs but also their emotional needs.

Mr Steven Lee, General Manager of Keppel Housing, said, "The safety and welfare of our foreign workers are paramount. This includes their mental well-being, which we understand includes having to adjust to a foreign country and being away from their loved ones."

In line with this, Keppel Housing launched a counselling programme for the residents of its dormitories in October 2011. The workers can now turn to three full-time welfare officers – a Bangladeshi, a Chinese and an Indian national – when they need a listening ear. There is also a 24-hour counselling hotline.

One of the welfare officers, Dr Rezwana Islam, is a general practitioner who received training in counselling as part of her degree. She said, "Being of the same nationality is a big help in building rapport and connecting with them, because for most Bangladeshis, counselling is still a foreign concept."

Another welfare officer, Yang Kun, a psychology graduate from Hunan Province in China, explained that language barriers are key challenges for mainland Chinese working in Singapore. He said, "A lot of them are from different provinces in China, each with their own dialect. Sometimes they have difficulty communicating among themselves, let alone in English."

By providing support and encouragement, the welfare officers ease the minds of the foreign workers, enabling them to better concentrate on their work.

## **Empowering Lives People Development**

Marine Industry" was held during the year, which helped to collate useful feedback on the training needs and concerns of Singapore's marine industry. The dialogue session was jointly organised by the Shipbuilding and Marine Engineering Employees' Union (SMEEU), Singapore's Workforce Development Agency (WDA), NTUC LearningHub and the Employment & Employability Institute (e2i).

Apart from dialogue sessions, our unions are actively involved in our employee welfare activities. This is best demonstrated by the close involvement of union representatives in the planning and organisation of the Keppel O&M Family Day 2011.

Our overseas business units are also focused on maintaining good industrial relations. Keppel Verolme, our yard in the Netherlands, renewed its collective agreement with its unions for another two years, while Caspian Shipyard continues to actively support its union in the organisation of events and activities for its workforce.

## INTEGRATING OUR FOREIGN WORKERS

As foreign workers form a sizable part of our workforce in Singapore, we are committed to support their smooth assimilation into their new living environment in Singapore. Keppel 0&M was the first company in Singapore to provide highlysubsidised dormitories for our foreign workers, and we continue to improve the facilities in our dormitories to better meet the needs of our foreign workers. To date, we have developed and are managing five dormitories -Acacia Lodge, Juniper Lodge, Lantana Lodge, Kian Teck Dormitory and Cassia@Penjuru.

Cassia@Penjuru, the fifth dormitory, opened its doors in 2011 to cater to the needs of our foreign workers. Our five dedicated dormitories offer modern amenities such as canteens, minimarts, barber shops and wet markets that cater to the daily needs and well-being of the residents. The dormitories are also equipped





with a wide range of recreational amenities such as multi-purpose halls, gymnasiums, basketball courts and computer facilities.

Various recreational activities are organised regularly at these dormitories to encourage harmonious living and team bonding. These include bazaars and safety roadshows which adopt a fun, interactive and engaging format. To improve the mental and emotional health of our foreign workers, Keppel Housing introduced a counselling programme in October 2011.

Our management and Human Resources departments visit the various dormitories regularly to gather feedback on ways to continually improve the living conditions of the residents.





- Besides bonding over food and games with families, Keppelites also showcased their talents at the Keppel O&M Family Day at the Singapore Discovery Centre on 23 October 2011.
- 2, 3, 4. Keppel 0&M is committed to improve the facilities at its subsidised dormitories for foreign workers, to enable them to assimilate smoothly into their living environment in Singapore.

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Keppel Offshore & Marine Ltd Empowering Lives
Report to Stakeholders 2011 People Development

# Community Development

We take active interest and ownership in sustaining the development of our industry as well as the communities in which we operate. In 2011, Keppel Offshore & Marine's (Keppel O&M) global network of yards and offices actively contributed to causes spanning knowledge building and skills upgrading, social development, disaster relief and environmental protection.

Recognising that everyone has a part to play in helping to build a better tomorrow, we encourage Keppelites to organise and participate in a wide array of volunteer initiatives, nurturing communities where Keppel is present.

## **FORTIFYING OUR INDUSTRY**

Keppel 0&M continues to share our insights and experiences at regional and international platforms, stimulating ideas and innovation for better services and solutions.

We also take an active interest in cultivating talents for the industry. Through talks at schools, educational tours of our facilities and internship programmes, we open the eyes of the young to the opportunities and challenges of our sector.

## GROWING THE KNOWLEDGE RESERVOIR

We continue to support various academic events which inspire research into and discussions on issues relating to the offshore and marine industry.

Through our long-term initiatives such as Keppel Professorship at the National University of Singapore (NUS), we help to jump-start research programmes and encourage the development of new offshore technologies.

The Keppel Professorship also organises the Keppel Offshore & Marine Lecture series, which brings academics and industry professionals together to share their insights and experiences. Professor Mark Randolph, a senior researcher at the Centre for Offshore Foundation Systems at the University of Western Australia, spoke on pipeline geotechnics at the first of two public lectures held last year.



We encourage our employees to help build a better tomorrow by contributing their time and energy to meaningful causes.



The guest speaker of the second lecture was Mr Seow Tiang Keng, Senior Manager (Electrical and Instrumentation), Keppel FELS. Drawing on more than 40 years of experience in the industry, Mr Seow shared his observations and insights of the offshore and marine sector.

Besides academic events, Keppel 0&M's global network of yards also actively supported trade and industry conventions and exhibitions, by learning and sharing best practices and the latest industry trends and development.

Keppel O&M had a strong presence at the 25th Offshore Technology Conference (OTC) held in Houston, Texas, as well as the first OTC held in Rio, Brazil. We showcased our global yards, technologies and capabilities alongside international oil and gas companies and service providers.

In addition, we were profiled strongly at Sea Asia 2011, which covers a range of topics including ship finance, technical rules and regulations and recent industry developments.

At Norwegian events, Pareto Oil & Offshore Conference and Nor-Shipping,

both held in Oslo, Keppel O&M outlined the synergies between its network of yards worldwide as well as its extensive capabilities and solutions.

Meanwhile, through platforms such as the Brunei Energy Expo, Hanoi Oil and Gas in Vietnam and Marine Science & Technology Conference (MARSTEC) in Malaysia, Keppel 0&M helped to raise awareness of country-specific oil and gas and offshore and marine opportunities. Furthermore, the Group gave strong support to the Latin Asia Business Forum and Turkmenistan-Asia Oil and Gas; both events sought to promote inter-regional trade.

Keppel 0&M also helped to champion practices and measures to achieve effective operations through its endorsement of events such as SmartShipping, which had been convened by ShipServ, an e-solutions provider for marine and offshore companies.

In addition, throughout the year, our yards facilitated knowledge exchange by welcoming government, industry and business delegates from far and wide who were keen to learn more about our operations.

Mr Seow Tiang Keng (third from left), Senior Manager (Electrical and Instrumentation), Keppel FELS, shares insights from his 40 years as an engineer in the offshore and marine industry with young minds at the 8th Keppel Offshore & Marine Lecture.

## **Nurturing Communities Community Development**



## **DEVELOPING THE TALENT POOL**

Recognising that people underpin the Group's successes, Keppel O&M takes a keen interest in developing the talent pool for the offshore and marine industry, ensuring sustained growth of the sector into the future.

Besides scholarships, Keppel 0&M inspires entrants and grooms talents for the industry by contributing to awards and book prizes as well as providing internship opportunities, conducting industry and career talks and hosting visits to its facilities.

In 2011, Keppel O&M sponsored awards for top students at the Royal Institute of Naval Architects, Ngee Ann Polytechnic and Institute of Technical Education (ITE).

In addition, the Group partnered Keppel Credit Union (KCU) to encourage its employees and their children to engage in lifelong learning and achieve academic excellence. Last year, KCU gave out 33 book prizes. Twenty of these prizes, totalling \$10,400, were given out to the children of Keppel 0&M's employees.

Meanwhile, 203 students from local and overseas institutions gained work

and industry experience through fruitful internships at various companies in Keppel 0&M.

Keppel 0&M also introduced the young to the vibrant offshore and marine industry through school talks and yard tours. In 2011, Keppel 0&M extended these educational activities beyond tertiary institutes to secondary schools.

## **ENRICHING OUR COMMUNITIES**

We strongly believe in sharing the fruits of our successes, giving back to the community, benefiting people from all walks of life economically, socially and culturally.

## SUPPORTING THE LESS FORTUNATE

In 2011, Keppel O&M gave monetary support and donations in kind to a wide range of social development and disaster relief programmes. In addition, Keppelites also embarked on various initiatives, which helped to raise awareness for these causes and brightened the lives of the less fortunate.

Collaborating with the Singapore Red Cross Society, Keppel O&M conducted a donation drive in Singapore, raising \$21,000 for those affected by the tsunami in Japan in March. The Group's affiliated companies Regency Steel Japan and Nakilat-Keppel Offshore & Marine (N-KOM) initiated donation drives for this cause as well.

Furthermore, Keppel 0&M participated in the annual fundraising activity organised by the Singapore Children's Society to nurture children and youths, and co-sponsored \$100,000 for the KOM/KIE-Metta Charity Golf 2011.

As a partner of the Community Chest of Singapore's (ComChest) Heartstrings Walk 2011, Keppel 0&M contributed \$50,000, which goes towards benefiting children with special needs, persons with disabilities, families in need, etc. Keppelites also helped raise awareness for ComChest causes by participating in this charity walk.

In Brazil, Keppel FELS Brasil donated R\$80,000 to the Pestalozzi Association of Angra dos Reis. The association aims to promote the study, treatment, care, education and social interaction of children, adolescents and adults diagnosed with intellectual disability and developmental delays. Employees of Keppel FELS Brasil also helped to brighten the lives of elderly folks by



- Keppel O&M opens the eyes of the young to the opportunities and challenges of the offshore and marine industry by participating in school talks, conducting educational tour of our yards and providing internship opportunities.
- 2. Singapore's President Mr Tony Tan and Mr Tong Chong Heong, CEO of Keppel Offshore and Marine at the Community Chest Awards Presentation Ceremony, where Keppel FELS was conferred the 5-Year Outstanding SHARE Platinum Award and the SHARE Platinum Award, while Keppel Singmarine garnered the SHARE Platinum Award.
- 3. Keppel 0&M's business units in the US, the Philippines and in Singapore help mobilise employee support for blood donation drives.



## **Nurturing Communities Community Development**

providing a fresh coat of paint to 0 Bem Querer A Casa Do Idoso, an old age home in Japuiba, Angra dos Reis.

Keppel Singmarine Brasil has also been extending help to the community. The yard made contributions to a local school, Escola Municipal Izilda Reiser Mafra, to support its Christmas and New Year parties. The students were also visited by a Keppelite dressed as Santa Claus who brought gifts from colleagues from the yard.

In the US, Keppel AmFELS held its annual charity golf tournament for the seventh year running in November 2011. The event raised US\$50,000 for its adopted charities. Earlier in the year, employees of Keppel AmFELS had participated in Relay for Life, which seeks to raise funds for cancer research as well as honour cancer survivors. Keppel AmFELS also organised three blood donation drives.

More than 70 employees participated in each of these exercises.

In Singapore, Keppel's business units, including Keppel FELS, Keppel Shipyard and Keppel Singmarine, are strong supporters of the annual Keppel Group Blood Donation. More than 450 packets of blood were collected in this initiative last year. In the Philippines, Keppel Subic Shipyard too carried out a blood donation drive, in which 75 employees participated.

Keppel Subic Shipyard provided much support to school-related initiatives in 2011. The yard contributed to the Department of Education's "Brigada Eskwela" programme by purchasing cleaning materials for public elementary schools. In addition, it donated items such as chairs, electric fans and computers to various institutions to improve their learning environment.

The yard also took Cawag Elementary School under its wing through the "Adopt-a-School" Programme.
As part of this initiative, the yard sponsored the allowance and training expenses of one teacher for a year.

Keppel Subic Shipyard is active in supporting disaster relief efforts as well. In August 2011, it carried out a "Feeding Programme" to help more than 60 families affected by a mudslide. The victims received canned goods, bottled water, blankets, mats and medicines from Keppel Subic Shipyard, and clothes and toys from its employees.

Keppel Philippines Marine has been helping to alleviate the plight of disaster victims. It supported the flood victims of Mindanao by donating items such as clothes, food and canned goods.

## CONTINUING CORPORATE VOLUNTEERISM

We encourage our employees to initiate as well as participate in community activities. As such, staff volunteerism is a key feature of our community involvement efforts.

Since 2000, Keppel Volunteers has been spearheading activities that make meaningful contributions to local communities, social institutions and non-profit organisations.

Keppel Volunteers organises fundraisers as well as monthly activities for Keppel's adopted charity, the Association for Persons with Special Needs (APSN).

In 2011, Keppel Volunteers engaged the APSN beneficiaries in activities like mural painting, and organised outings to places and events such as the ArtScience Museum and Singapore National Day Parade rehearsals.

Keppel Volunteers has also helped APSN explore avenues for regular income. Muffins and cookies baked by the beneficiaries of APSN were sold at bake sales held at various Keppel 0&M yards in Singapore.

Another one of Keppel Volunteers' regular programmes is the home maintenance initiative. Once a month, Keppelites gather to assist the elderly with their domestic chores.



Besides assisting senior citizens with cleaning and maintaining their homes, Keppel Volunteers brought a number of them on a visit to the Chinatown Heritage Centre.



Employees of Keppel Batangas Shipyard marched on the streets to urge donations towards putting out-of-school youths back into classrooms.

As for Keppel Batangas Shipyard, it provided prompt support to the firefighters of Batangas Province on 18 January 2011. The yard's Health, Safety and Environment (HSE) team and its fire truck responded immediately to calls for help to put out fires at a row of commercial buildings.

The employees of Keppel Batangas Shipyard also contributed to "Alay Lakad", an annual, nationwide initiative which seeks to put out-of-school youths back into classrooms. Marching on the streets, these Keppelites urged the community to donate to this cause.

Over the last year, Keppel Philippines Marine and Keppel Batangas Shipyard led Keppel Group's collaboration with the charity organisation Gawad Kalinga (GK) to develop Keppel-GK Eco Village (Bauan), a 60-unit housing project for needy families. Keppel Philippines Marine pledged to seed an initial sum of PhP 9 million to support the development of the Eco Village, while employees from Keppel Batangas Shipyard enthusiastically contributed to the building process. The groundbreaking of the Eco Village took place in

April 2011, and all the houses are expected to be completed by mid-2012.

## PROTECTING THE ENVIRONMENT

Doing its part of protect the environment, Keppel 0&M continues to support a number of eco-friendly initiatives and encourage its employees to adopt green behaviour.

In 2011, Keppel Philippines Marine worked with the Department of Environment & Natural Resources (DENR) of the Philippines to carry out mangrove planting. Keppel Subic Shipyard participated in a similar activity.

Meanwhile, Keppel Batangas Shipyard converted used oil drums into garbage bins, which were then donated to the community to help ensure a litter-free environment.

Over in Qatar, Nakilat-Keppel Offshore & Marine (N-KOM) carried out a "N-KOM Go Green" campaign, which culminated in a beach clean-up effort.

In Brazil, Keppel Singmarine Brasil urged its employees to reuse, reduce and recycle by distributing more than 100 eco-friendly bags on World Environment Day.

## **Nurturing Communities Community Development**





- With Keppel O&M's support towards Capoeira Festival in Singapore, Keppelites have a chance to experience Brazilian martial arts through a workshop.
- Keppel 0&M participated in the 8th ASCOPE Games, where the energy agencies and companies from across Southeast Asia promoted goodwill and friendship through sports.

Keppel O&M's yards in Singapore and the Philippines extended their support for the global climate change movement by participating in Earth Hour 2011.

Non-critical lights were switched off at offices and open-air car parks.

Eco-friendly tips were also disseminated to employees.

Keppel 0&M's dormitories for its foreign workers, Acacia, Juniper and Kian Teck also joined in the dimming of lights. Collectively, 504 kilowatts of energy were saved during Earth Hour.

## PROMOTING THE ARTS AND SPORTS

By sponsoring and supporting art performances and sporting activities, Keppel O&M promotes cultural appreciation and active lifestyles. Serving as platforms for social interaction, these events and activities also help us build stronger ties with members of the industry.

Keppel 0&M helped raise the profile of capoeira, a Brazilian art form, by sponsoring \$50,000 for the first women's Capoeira Festival in Singapore. The event brought in high-ranking practitioners from all over the world, who participated in workshops, as well as pitted their skills against each other in competitions.

In addition, Keppel 0&M networked with energy agencies and companies from the Southeast Asia region at the five-day 24th ASCOPE Games, held in Thailand.

Meanwhile, 18 Keppelites from Keppel O&M's yards in Brazil, the Netherlands, Qatar and Singapore traveled to Copenhagen, Denmark, to participate in a friendly football competition with fleet owners and operators as well as key suppliers within the industry at the inaugural Offshore World International Football Tournament.

Over in the Netherlands, employees from Keppel Verolme participated in a sailing competition organised by the Dutch Shipbuilding Association, Scheepsbouw Nederlands. The team helped raise the profile of the sport as its members interacted with the Netherlands' marine and offshore industry.



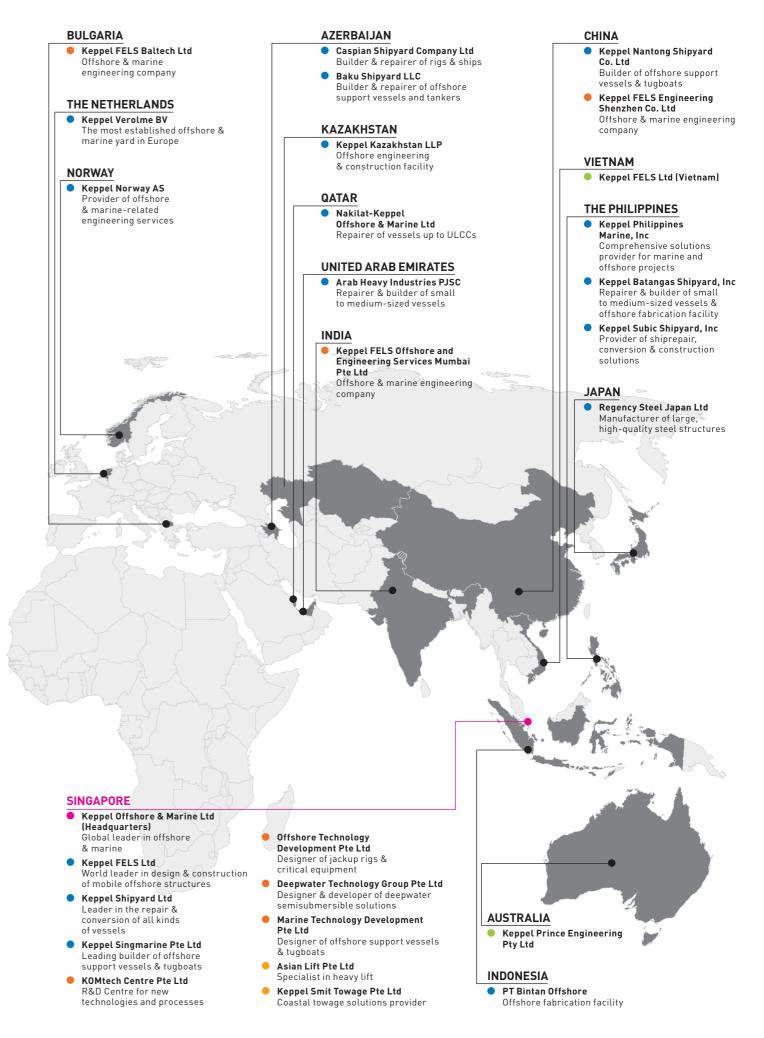
- 1. Eighteen Keppelites from Keppel 0&M's yards in Brazil, the Netherlands, Qatar and Singapore, travelled to Copenhagen, Denmark, to participate in a friendly football competition with fleet owners and operators as well as key suppliers within the industry at the inaugural Offshore World International Football Tournament.
- Keppel O&M's dormitories for its foreign workers Acacia, Juniper and Kian Teck participated in Earth Hour 2011. Collectively, the dormitories saved 504 kilowatts from this activity.



## **GLOBAL NETWORK**

YARDS & OFFICES: Harnessing the synergy of 20 yards worldwide keeps us *Near Market, Near Customer.* 





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Keppel Offshore & Marine Ltd

Report to Stakeholders 2011

Yards & Offices

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## GLOBAL NETWORK **FACILITIES**

	Total land area	Туре	Dock capacity	Ве	erthage		Outfit quay	
	(square metres)		Capacity (dead	Size	Length		Building berth Length	
Singapore			weight tonnes)	(metres)	(metres)	(metres)	(capacity) (metres	J (metres)
Singapore Keppel FELS Ltd (Pioneer)	284,292.3							
Admiral Dock	204,272.0	Drydock	400.000	380 x 80	380	13		
FELS CAN DO		Semisubmersible	30,000 lifting	138 x 78	000	10		
		Barge	3					
		Berthspace					1,400	
Pioneer Yard II	139,073	Berthspace					350	
Shipyard Road	88,289	Berthspace					500	
Crescent Yard	98,919	Berthspace					740	6
Keppel Shipyard Ltd (Tuas)	443,428				2,437			
Tuas Dock		Drydock	360,000	350 x 66		6.6		
Raffles Dock Temasek Dock		Drydock Drydock	330,000 150,000	355 x 60		6.6 7.4		
Temasek Pier East		Berthspace	130,000	301 x 52	280	7.4		
Finger Pier West		Berthspace			350	9		
Finger Pier East		Berthspace			370	8.5		
Raffles Pier West		Berthspace			430	8.5		
Raffles Pier East		Berthspace			230	6.1		
West Quay		Berthspace			380	7.1		
South Quay		Berthspace			177	8		
Raffles Dock Entrance		Berthspace			220	7.1		
Keppel Shipyard Ltd (Benoi)	349,934				1,163			
Drydock No. 1		Drydock	300,000	350 x 60				
Drydock No. 2		Drydock	170,000	300 x 60				
Landing Quay					100	5_		
Quay No. 1					217	7		
Quay No. 2					352 270	10		
Quay No. 3 Quay No. 4					224	7		
Keppel Shipyard Ltd (Gul)	139,073				530			
FD No. 1	137,073	Floating Dock	14,000 lifting	192 x 32	330			
FD No. 2		Floating Dock	5,000 lifting	114 x 27				
FD No. 3		Floating Dock	12,000 lifting	170 x 26				
North Quay 1		Berthspace	<u>y</u>		177.5	5		
North Quay 2		Berthspace			193	6.5		
North Quay 3		Berthspace			160	6.5		
Keppel Singmarine Pte Ltd	146,794							
Drydock in Benoi 5		Drydock	5,000	105 x 18.5				
Building Berth in Benoi 15		Slipway					225 x 70	
Building Berth in Benoi 5		Slipway					120 x 27.5	
Wharf in Benoi 5		Berthspace			60	5		
Azerbaijan Caspian Shipyard Company Ltd	60,000							
Yusif Ibrahimov (Hull 901)	00,000	Floating Dock	15,000	128 x 74		6.5		
Floating Dock (Hull 953)		Floating Dock	5,000	124.8 x 23.3		6.5		
Floating Dock (Hull 806)		Floating Dock	4,500	124.8 x 21		6.5		
Jetty 3		<u>J</u>	•				400	6.5
Jetty 4							100	6.5
Brazil								
Keppel FELS Brasil SA	532,780							
(BrasFELS Yard)				105 50				
Drydock		Graving Dock	25.000	125 x 70				
Slipway No. 1 Slipway No. 2		Slipway Slipway	35,000 150,000	174 x 30 310 x 45				
Slipway No. 3		Slipway	130,000	185 x 70				
Finger Pier East		Outfit Quay		103 X 70	350	12		
Finger Pier West		Outfit Quay			350	11.5		
Outfit Pier East		Outfit Quay			300	6 – 7		
Outfit Pier West		Berthspace			120	7 – 8		
Slipway 2 Pier		Berthspace			80	8 – 9		
Slipway 3 Pier 1		Outfit Quay			160	9 – 10		
Slipway 3 Pier 2		Outfit Quay			160	9 – 10		
Keppel Singmarine Brasil Ltda	74,000							
Keppel Singmarine Brasil Ltda Shipway No. 1 Quay No. 1	74,000	Slipway		130 x 28	89			

	Total land area	Туре	Dock capacity	Berthage			Outfit quay	
	(square metres)		Capacity (dead weight tonnes)	Size	Length (metres)	Draft (metres)	Building berth Length (capacity) (metres)	
China			weight tonnes)	(metres)	(ITICITES)	(ITICIT CS)	(capacity) (metres)	(ITICEI CS)
Keppel Nantong Shipyard Co. Ltd	425,864							
Slipway No. 2		Slipway		84 x 200				
Kazakhstan								
Keppel Kazakhstan LLP	444,058							
North Yard		Launching Way		220 x 100		4.5		
		Load-out Quay Berth space					243 488	4.5 4.5
The Philippines		Bei tii Space					400	4.5
Keppel Subic Shipyard, Inc	663,000							
Pacific Dock		Graving Dock	550,000	550 x 65				
C Quay					279	9		
E1 Quay					351	9		
E2 Quay					312	9		
Keppel Batangas Shipyard, Inc	353,000							
President Dock		Graving Dock	50,000	200 x 38				
Ship Lift System		Lift Platform	20,000	172 x 28				
		Dry Berth: 8 off	Dry Berth: 8 off					
Pier No. K1					100 x 2	9		
Pier No. K2					100 x 2	9		
Alongside FD No. 1					100	8		
Pier Block No. 1					183	9		
Pier Block No. 2					160	9		
Pier Block No. 3					82	8		
Pier Block No. 4					155	9		
The Netherlands								
Keppel Verolme BV	554,000				1,600	9 – 12	400	9 – 12
Dock No. 5		Graving Dock	65,000	230 x 35.5	.,	9.8		
Dock No. 6		Graving Dock	130,000	275 x 41		10.6		
Dock No. 7		Graving Dock	500,000	405 x 90		12.2		
Qatar			,					
Nakilat-Keppel Offshore & Marine Ltd	430,000				2,400			
Dry Dock No. 1		Drydock	350,000	360 x 66				
Dry Dock No. 2		Drydock	450,000	400 x 80				
1 Quay		Diyuuck	430,000	400 X 00	400			11
1 Quay					400			11
Loading Quay					150			11
1 Pier					400			11
1 Pier					400			11
1 Pier					400			11
1 Pier					400			11
					400			- 11
United Arab Emirates	272 000							
Arab Heavy Industries PJSC Al Zora Drydock	273,000	Graving Dock	30,000	175 x 32		7		7
Slipway No. 1		Slipway	*1,500	175 x 32		/		/
Slipway No. 2						5		
		Slipway	*1,500	120 x 16		5		
Slipway No. 3		Slipway	*2,500 *2,000	120 x 16		-		
Slipway No. 4		Slipway	*3,000	120 x 16	050	5		
Al Zora Wharf		Wharf			250			_
East Wharf		Wharf			200			5
West Wharf		Wharf			83			5
USA	FF / 000							
Keppel AmFELS, LLC	554,000			0/				
Floating Drydock (Rig mode)		Floating Drydock	35,054	94 x 111				
Floating Drydock (Ship mode)		Floating Drydock	35,054	37 x 189				
Launching Way					336	9.14		
West Dock Quay					153	9.14	153	9.14
East Dock Quay					297	10.67	297	10.67
Norway								
Manual Manual AC	23,500							
Keppel Norway AS Outfitting Quay	20,000	Outfit Quay					200	15

<sup>\*</sup> Light Displacement Tonnage

## GLOBAL NETWORK CONTACTS

## SINGAPORE

## KEPPEL OFFSHORE & MARINE LTD

(Head Office) 50 Gul Road Singapore 629351 Tel: +65 6863 7200 Fax: +65 6261 7719 www.keppelom.com

## KEPPEL FELS LTD

(Pioneer Yard 1 - Head Office) 50 Gul Road Singapore 629351

(Pioneer Yard 2) 55 Gul Road Singapore 629353

(Shipyard Road) 31 Shipyard Road Singapore 628130

(Crescent Yard) 60 Shipyard Road Singapore 628131

Tel: +65 6863 7200 Fax: +65 6261 7719

www.keppelfels.com Email: marketing@keppelfels.com Contact Persons: Wong Kok Seng, Managing Director Aziz Amirali Merchant, Executive Director (Engineering)
Keith Teo, General Manager (Marketing)

KEPPEL SHIPYARD LTD (Tuas Yard – Head Office) 51 Pioneer Sector 1 Singapore 628437 Tel: +65 6861 4141 Fax: +65 6861 7767

(Benoi Yard) 15 Benoi Road Singapore 629888 Tel: +65 6861 6622 Fax: +65 6861 4393

(Gul Yard) 55 Gul Road Singapore 629353 Tel: +65 6861 3007 Fax: +65 6862 3645/7

www.keppelshipyard.com Email: ks@keppelshipyard.com Contact Persons:
Nelson Yeo, Managing Director
Chow How Jat, Executive Director Louis Chow, Senior General Manager (Commercial) Mah Chan Wah, General Manager (Commercial – Shiprepair)

## **KEPPEL SINGMARINE PTE LTD**

15 Benoi Road Singapore 629888 Tel: +65 6861 6622 Fax: +65 6862 1792

www.keppelsingmarine.com Email: singmarine@keppelsingmarine.com Contact Persons: Hoe Eng Hock, Executive Director Poon Tai Lum, General Manager (Commercial/Marketing)

## KEPPEL OFFSHORE & MARINE TECHNOLOGY CENTRE (KOMTECH) PTE LTD

31 Shipyard Road Singapore 628130 Tel: +65 6591 5450 Fax: +65 6265 9513

Email: KOMtech@keppelom.com Contact Person: Dr Foo Kok Seng, Executive Director (Shallow Water Technology) Aziz Amirali Merchant, Executive Director (Deepwater Technology)

### **OFFSHORE TECHNOLOGY DEVELOPMENT** PTE LTD

55 Gul Road Singapore 629353 Tel: +65 6863 7409 Fax: +65 6862 3465

Email: felsotd@pacific.net.sg Contact Person: Dr Foo Kok Seng, Executive Director

### **DEEPWATER TECHNOLOGY GROUP PTE LTD**

50 Gul Road Singapore 629351 Tel: +65 6863 7291 Fax: +65 6863 1739

Email: aziz.merchant@keppelfels.com Contact Person: Aziz Amirali Merchant, Executive Director Email: anis.hussain@keppelfels.com Contact Person: Anis Altaf Hussain, General Manager

### MARINE TECHNOLOGY DEVELOPMENT PTE LTD

15 Benoi Road Singapore 629888 Tel: +65 6860 2858 Fax: +65 6862 2562

Email: chenghui.tan@keppelsingmarine.com Contact Person: Tan Cheng Hui, Senior General Manager

## ASIAN LIFT PTE LTD 23 Gul Road

Singapore 629356 Tel: +65 6668 4222 Fax: +65 6668 4333

Email: asianlift@asianlift.com.sg Contact Person: John Chua, General Manager

## KEPPEL SMIT TOWAGE PTE LTD 23 Gul Road

Singapore 629356 Tel: +65 6668 4222 Fax: +65 6897 8056

Email: kst@keppelsmit.com.sg Contact Persons: Ben Chew, General Manager (Regional) Jerry Wong, General Manager (Singapore)

## AUSTRALIA

KEPPEL PRINCE ENGINEERING PTY LTD Level 7, 3 Bowen Crescent Melbourne, Victoria 3004, Australia Tel: +61 3 9820 9033 Fax: +61 3 9866 6110

Email: cchiam@ozemail.com.au Contact Person: Charles Chiam, Director

## AZERBAIJAN

## CASPIAN SHIPYARD COMPANY LTD

South Bay, KMNF Basin Baku AZ1023, Azerbaijan Tel: +994 12 449 9930 Fax: +994 12 449 9931

Email: csc@csc.az Contact Person: Chandru Sirumal Rajwani, President

## **KEPPEL FELS BRASIL SA**

Rua da Quitanda nº 86 sala 301, 3º andar, Centro - CEP20091 - 005, Rio de Janeiro, RJ, Brazil Tel: +55 21 2102 9400 Fax: +55 21 2102 9425

**ESTALEIRO BRASFELS LTDA** 

Av. Conde Mauricio de Nassau, S/n - Jacuecanga 23914 - 460 - Angra dos Reis RJ, Brasil Tel: +55 24 3361 6000 Fax: +55 24 3361 6258

www.kfelsbrasil.com.br Email: kaichoong.kwok@keppelfels.com Contact Person: Kwok Kai Choong, President & CEO

### **KEPPEL SINGMARINE BRASIL LTDA**

Rua Prefeito Manoel Evaldo Müller 3388 Bairro Volta Grande, Navegantes Santa Catarina, Brasil CEP: 88.375.000 Tel: +55 47 3342 6460 Fax: +55 47 3405 0170

Email: singmarinebr@keppelsingmarinebr.com Contact Person: Tan Chong Kee, General Manager

## BULGARIA

## **KEPPEL FELS BALTECH LTD**

54 Debar Street Varna 9000, Bulgaria Tel: +359 52 684 250 Fax: +359 52 684 252

Email: office@fels.bg Contact Person: Lyudmil Stoev, General Manager

## CHINA KEPPEL NANTONG SHIPYARD CO. LTD

No. 9 Yan Jiang Road Nantong City, Jiangsu Province P.R. China 226005 Tel: +86 513 8530 0000 Fax: +86 513 8530 0011

Email: Taikwee.lee@keppelnantong.cn Contact Person: Lee Tai Kwee, President

## KEPPEL FELS ENGINEERING SHENZHEN CO. LTD

3rd Floor, Chiwan Petroleum Building Chiwan Road No. 5 P.R. China 518068

Tel: +86 755 26851902/+86 755 26851959 +65 6863 7215 (Singapore Contact)

Fax: +86 755 26851670

Email (China): jongheng.ho@kfelsshenzhen.com Email (Singapore): jongheng.ho@keppelfels.com Contact Person: Ho Jong Heng, General Manager

### KEPPEL FELS OFFSHORE AND ENGINEERING SERVICES MUMBAI PTE LTD

Unit 3&4, 8th Floor Prism Tower-A Mindspace, Link Road Goregaon (West) Mumbai 400 062, India Tel: +91 22 40018888 Fax: +91 22 40018898

E-mail: kabeer.syedahamed@kfelsmumbai.com Contact Person: Syed Ahamed Kabeer, General Manager

INDONESIA PT BINTAN OFFSHORE Jalan Nusantara KM 23 Kecamatan Bintan Timur Kabupaten Bintan Propinsi Kepulauan Riau Indonesia Tel: +62 771 462 800 Fax: +62 771 462 575

Email: boonheng.kok@keppelfels.com Contact Person: Kok Boon Heng, General Manager

## **REGENCY STEEL JAPAN LTD**

46-59 Nakabaru, Tobata-ku Kitakyushu, Fukuoka 804-8505 Japan

Tel: +81 93 861 3103 Fax: +81 93 861 3114

Email: chunyu.wong@r-sj.com Contact Person: Wong Chun Yu, President

## KAZAKHSTAN

KEPPEL KAZAKHSTAN LLP Special Economic Zone "Seaport Aktau" Aktau 130001 Mangystau Region Republic of Kazakhstan Tel: +7 7292 571 100 Fax: +7 7292 571 110

E-mail: pw.yick@kkl.kz Contact Person: Yick Ping Wong, Executive Director

## THE NETHERLANDS KEPPEL VEROLME BV

Prof. Gerbrandyweg 25 3197 KK Rotterdam-Botlek Harbour no. 4550 P 0 Box 1001

3180 AA Rozenburg The Netherlands Tel: +31 181 234300 Fax: +31 181 234346

www.keppelverolme.nl Email: mail@keppelverolme.nl Contact Person Harold Linssen, Managing Director

## NORWAY

## **KEPPEL NORWAY AS**

Strandgaten 147 P 0 Box 425 4304 Sandnes, Norway Tel: +47 5160 2500 Fax: +47 5160 2510

www.keppelnorway.com Email: rosl@keppelnorway.com Contact Person: Roy Sletten, Acting CEO

THE PHILIPPINES
KEPPEL PHILIPPINES MARINE, INC
Unit 3-B Country Space 1 Building Sen. Gil Puyat Avenue, Salcedo Village, 1200 Makati City Philippines Tel: +63 2 892 1816 Fax: +63 2 815 2581

www.keppelphilippinesmarineinc.com Email: mhq@keppelpm.com or commercial@keppelpm.com Contact Persons: Mok Kim Whang, President Stefan Tong, Executive Vice President

### KEPPEL BATANGAS SHIPYARD, INC

Keppel Philippines Marine Special Economic Zone B<sup>'</sup>O. San Miguel 4201 Bauan, Batangas Philippines Tel: +63 43 727 1532 to 36 Fax: +63 43 727 4885 +63 43 727 1453

www.keppelphilippinesmarineinc.com Email: kbs@keppelpm.com Contact Person: Poh Leong Kok, Senior Vice President

KEPPEL SUBIC SHIPYARD, INC Subic Shipyard – Special Economic Zone Cabangaan Point, Cawag 2209 Subic, Zambales Philippines Tel: +63 47 232 2380 Fax: +63 47 232 3883 to 84 or +63 47 232 3350

Email: all@subicship.com or commerical@subicship.com Contact Persons:

Mok Kim Whang, President & General Manager Leong Kok Weng, Senior Vice President

## QATAR NAKILAT-KEPPEL OFFSHORE & MARINE LTD

Erhama Bin Jaber Al Jalahma Shipyard Southern Break Water, Ras Laffan Industrial City (RLIC) PO. Box 28388, Qatar Tel: +974 4419 7300 Fax: +974 4419 7301

Email: commercial@nkom.com.qa Contact Persons: Abu Bakar Mohd Nor, CEO Chin Sze Kiun, Senior Commercial Manager

## UNITED ARAB EMIRATES

## ARAB HEAVY INDUSTRIES PJSC P 0 Box 529

Ajman, UAE Tel: +971 6 526 3232 Fax: +971 6 526 3233

www.ahi-uae.com Email: ahiaeme@emirates.net.ae Contact Person: Jimmy Loh, Managing Director

## **KEPPEL OFFSHORE & MARINE USA, INC**

5177 Richmond Ave, Suite 1065 Houston, TX 77056, USA Tel: +1 713 600 8380 Fax: +1 713 600 8384

Email: tommy.sam@keppelfels.com Tommy Sam, Vice President

### **KEPPEL AMFELS, LLC**

20000 State Highway 48 Brownsville, Texas 78523, USA Tel: +1 956 831 8220 Fax: +1 956 831 6220

Email: g.tan@keppelamfels.com Contact Person: Tan Geok Seng, President & CEO

**FLOATEC, LLC** 14701 St. Mary's Lane, Suite 250 Houston, TX 77079, USA Tel: +1 281 870 5200 Fax: +1 281 870 5210

www.FloaTEC.com Email: ehnamtvedt@floatec.com Contact Person: Eric H. Namtvedt, President

## KEPPEL MARINE AGENCIES INTERNATIONAL, LLC

(Texas Office) 5177 Richmond Ave, Suite 1065 Houston, TX 77056, USA Tel: +1 713 600 8371 Fax: +1 713 600 8374

Email: mike.holcomb@kmaihouston.com Contact Person: Michael Holcomb, President/Director Mobile: +1 713 816 0438 Email: john.bajor@kmaihouston.com Contact Person: John J. Bajor, Marketing Manager Mobile: +1 713 922 3226

(New Jersey Office) 15 Huddy Avenue, PO Box 417 Highlands, New Jersey, USA Tel: +1 732 872 8800 Fax: +1 732 872 8801

Email: keppelnj@comcast.net Contact Person: John J. Bajor, Director

## VIETNAM

KEPPEL FELS LTD PetroVietnam Tower Suite 150M 8 Hoang Dieu Street Ward 1, Vung Tau City S.R. Vietnam Tel: +84 643 850098 Fax: +84 643 850089

Email: john.chin@keppelfels.com Contact Person: John Chin, Country Manager

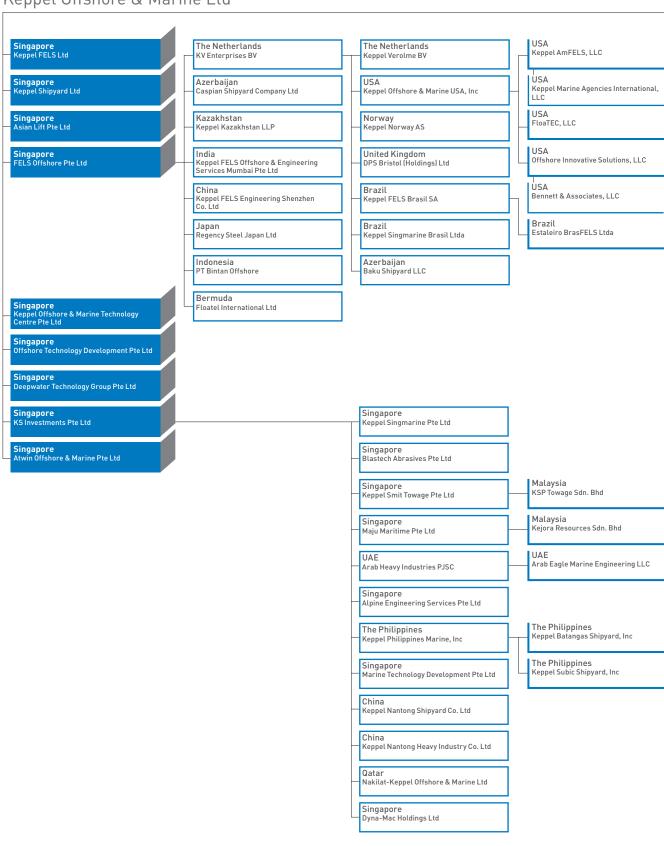
## RUSSIA MARINE & SHELF DEVELOPMENT LTD

129090 Moscow, 12 B. Spasskaya str., Office 101, Russia Tel: +7 495 937 8966 Fax: +7 495 937 8978

Email: marketing@keppelfels.com sergei-vasnin@msn.com Contact Person: Sergei Vasnin, General Director

## **CORPORATE STRUCTURE**

## Keppel Offshore & Marine Ltd



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## **KEPPEL OFFSHORE & MARINE LTD**

(Incorporated in the Republic of Singapore) 50 Gul Road Singapore 629351

Tel: (65) 6863 7200 Fax: (65) 6261 7719 / (65) 6265 1927

www.keppelom.com www.keppelfels.com www.keppelshipyard.com www.keppelsingmarine.com

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