

LNG Unlimited

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Shell Prelude floating LNG project moves to final stage of engineering

French company will take venture in Australia to its operational stage
Our Europe editor

Technip, the French energy and liquefied natural gas engineering company, has received a boost as it puts the finishing touches to its merger with FMC Technologies of the US by being awarded a project management services contract for Royal Dutch Shell's Prelude floating LNG venture for offshore northwest Australia.

The Technip contract from Shell calls for the smooth delivery of engineering scope as the project moves into operations.

Commissioner

Under the contract, Technip will provide a range of services such as management, pre-commissioning, the commissioning itself and hand-over services as well as operational testing and specialist engineering support to supplement Shell's own team in Australia.

JGC Corp., the Japanese engineering company specializing in LNG projects, has also received an order for completion support services for Prelude.

The Prelude and Concerto natural gas fields for the venture are located about 475 kilometres offshore the Western Australian city of Broome.

"After the completion of all work at the shipyard in South Korea, the FLNG facility will be towed to its operating location offshore of Western Australia," said Yokohama-based JGC.

For its part, Technip's operating centre in Perth, Western Australia, will lead and manage its contracted work.



Engineers prepare to work Australian end of FLNG project

Shell Chief Executive Ben van Beurden has said that the Anglo-Dutch company expects commercial status to be achieved in early 2018 and actual production is scheduled to begin before the end of 2017.

The French company was awarded the initial contract for installing the liquefaction and processes equipment and services on the FLNG hull constructed at the Samsung Heavy Industries shipyard in Geoje, South Korea.

Technip's FLNG services is one of the specialties that will underpin its merger with subsea operator FMC Technologies, which formally takes place in early 2017.

A market leader in the FLNG sector, Technip is responsible for the topsides and other aspects of the "PFLNG Satu" which is the first LNG production vessel to enter service offshore Malaysia in a project run by Petronas.

The French company has been chosen by Shell to develop the Prelude FLNG hull as one of several to be deployed worldwide in the future.

"We are delighted to continue Technip's close relationship with Shell on the flagship Prelude FLNG project," said Nello Uccelletti, President of the Onshore Offshore

division of Technip. "Our leadership in FLNG leverages our integrated approach and the combination of our technologies and capabilities in the subsea, offshore and onshore business," he added.

"This award recognizes our long-term relationship with Shell as well as our strong presence in Australia developing local engineering and project management capabilities," stated Uccelletti,

The FLNG is being deployed over the Prelude gas field in the Browse Basin offshore Australia and will produce 3.6 million tonnes per annum of LNG.

The Concerto gas field was also discovered nearby and their combined resources are around 3 trillion cubic feet.

The Prelude FLNG facility has been designed to withstand the most powerful tropical cyclones. It will remain permanently moored at the Australian location for at least 20 years.

The Prelude joint venture is owned 67.5 percent by Shell and 17.5 percent by Japanese energy and LNG developer Inpex Corp. A further 10 percent is held by LNG buyer Korea Gas Corp. and 5 percent by CPC Corp. of Taiwan.

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Bangladesh floating LNG import project passes key tests to be on track for cargoes in early 2018

Our Asia editor

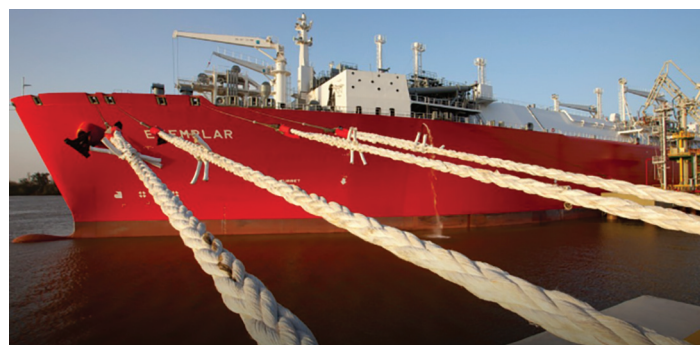
Bangladesh is making progress to become a liquefied natural gas importer by early 2018 after key tests were successfully carried out proving the viability of the plan to provide a floating storage and regasification unit (FSRU) and related infrastructure to operate at Moheshkhali Island in the Bay of Bengal.

Excelerate Energy of the US and the International Finance Corporation (IFC), a lending institution of the World Bank, are setting up the import facility with the Bangladesh Energy Ministry and state oil and gas company PetroBangla.

Package

Excelerate will deliver the Bangladesh FSRU on a build-own-operate-transfer basis. The vessel will have storage capacity of 138,000 cubic metres and regasification capacity of 500 million standard cubic feet per day.

Excelerate said it had now completed the required geotech-



Excelerate to provide FSRU for Bay of Bengal

nical and geophysical studies for the implementation of the Moheshkhali floating terminal.

"Completion of these activities allows the project to remain on schedule to receive its first liquid natural gas delivery in early 2018, with financial close targeted for early 2017," said Excelerate.

"The studies performed confirmed the viability of the project site location, the superiority of Excelerate's FSRU and offshore mooring designs, and the overall project cost," the US company stated.

"The geotechnical and geophysical studies are significant components of the project and provide

the technical path forward to final engineering and detailed design," Excelerate explained. "The studies also provide critical data for the Environmental Social Impact Assessment to ensure that a safe and environmentally sound project will be delivered to Bangladesh and will meet IFC's requirements.

"The completion of these studies is a result of the excellent co-operation between Excelerate, IFC, Petrobangla, and local authorities," the US company added.

Bangladesh has said it needs at least two more LNG import terminals in addition to the Excelerate

FSRU to meet its natural gas needs.

The Asian nation, whose neighbours India and Pakistan are both LNG importers, is estimated to need 35 percent more natural gas than it currently consumes just to eliminate shortages.

Bangladesh's huge unmet gas demand is particularly felt in the power generation sector.

"Our dedicated project development, operations, and technical teams are working aggressively to ensure that the project moves forward quickly and efficiently," said Excelerate Chief Executive Rob Bryngelson.

"We stand ready to deliver LNG to Bangladesh and are pleased with the progress we've made and relationships we've developed with Petrobangla and the Government of Bangladesh," added the CEO.

"Excelerate is the only FSRU provider capable of delivering a comprehensive end-to-end floating LNG import solution, and we look forward to a long and productive relationship with Petrobangla in Bangladesh," added Bryngelson.

Bahrain receives project financing to advance with first import and regasification joint venture

The Gulf kingdom of Bahrain said it had received project financing of \$740 million and was proceeding with the development of its first liquefied natural gas import facility, scheduled to come on line in early 2019.

Standard Chartered, Arab Petroleum Investments Corp (API-CORP), and Korea Development Bank were the institutions leading the limited recourse project financing, which was provided by nine international and regional lenders.

A company has been formed called Bahrain LNG to be the developer and owner of the joint venture facility.

The Bahrain terminal design envisages an LNG vessel acting as a storage facility and with output

capacity of 800 million cubic feet per day and with onshore and subsea infrastructure.

The investors in the project include Bahrain's Oil and Gas Holding Company, Teekay LNG Partners, which is a subsidiary of the Canadian shipping company, Gulf Investment Corp. (GIC) and Samsung Construction & Trading Corp. of South Korea.

"The Bahrain LNG Import Terminal is a key component of our plans for the further expansion of the energy and related sectors of the Kingdom," said Oil Minister Mohamed bin Khalifa Al-Khalifa.

"The achievement of financial close is a critical milestone in the continued development of the Bahrain LNG Project and we

congratulate the sponsors, their supporting lenders on their achievement after many months of sustained effort," added al-Khalifa.

The project development was awarded to the Teekay LNG-GIC-Samsung consortium in December 2015 by the National Oil & Gas Authority (NOGA) of Bahrain following an international competitive tendering process.

The project is being developed to supplement local gas production in Bahrain and ensure capacity to meet peak seasonal gas demand and industrial growth. It will also enable Bahrain to procure internationally-traded LNG on a competitive basis.

It will comprise a Floating Storage Unit (FSU), an offshore LNG

receiving jetty and breakwater, an adjacent regasification platform, subsea gas pipelines from the platform to shore, an onshore gas receiving facility and an onshore nitrogen production facility.

Teekay LNG will supply the FSU under a 20-year charter and which will be modified specifically for the project.

"Achieving financial close is an important milestone for the project and we congratulate the project teams on this great achievement. We look forward to continuing this strong partnership, including providing the project with an FSU, and ensuring this strategically important project is completed on schedule."

Peru and US Sabine Pass ensure Mexico terminal supply

The Mexican liquefied natural gas import terminal at Manzanillo on the Pacific Coast has been attracting its most cargoes ever with shipments arriving recently from the US Sabine Pass plant as well as from Peru and Trinidad.

Shipments from Sabine Pass in Louisiana come via the expanded Panama Canal and from down the coast at the Pampa Melchorita export plant in Peru, the only producer in South America and which has been the longest-standing supplier to the Mexican terminal.

However, the US became the largest LNG exporter to Mexico in November and may continue to supply increasing shipments from Louisiana to the Manzanillo terminal if natural gas shortages persist.

The Manzanillo facility is Mexico's newest and has been in operation since May 2012. It is the only regasification terminal outside of the Asia-Pacific region constructed and owned by Asian companies.

The Mexican terminal is a joint venture involving Samsung of South Korea, Korea Gas Corp. and Japanese trading company Mitsui & Co.

Mexico's Central region, which includes Mexico City, has increasingly relied on imports of LNG at the Manzanillo terminal to meet its growing natural gas demand because of bottlenecks on the pipeline system.

According to the latest regional natural gas report from the US Energy Information Administration, the Los Ramones Phase II South pipeline, commissioned in July 2016, was expected to alleviate natural gas shortages in Mexico's Central region and gradually displace LNG imports at Manzanillo.

Petronas of Malaysia to ship first FLNG commercial cargo in 2017

Our Asia-Pacific editor

Malaysian energy company Petronas said the world's first floating liquefied natural gas production plant has produced its first LNG from feed-gas at the Kanowit field located 180 kilometres offshore Sarawak and the first commercial cargo will be lifted in early 2017.

The Malaysian production hull, named "PFLNG Satu", received its feed-gas from the central processing platform at the field in November, igniting the production vessel's flare tower at the height of 130 metres.

Process

Petronas said the "PFLNG Sat" then produced its first LNG this week from the feed-gas, marking a "decade-long journey for Petronas since conceptualising a floating LNG facility to maximise the potential of remote and stranded gas reserves" to deliver a game-changer in the global LNG business.

The Petronas acting Vice President for LNG Assets, Development & Production, Adnan Zainal Abidin,



'PFLNG Satu' has already produced its first LNG

said the first drop of LNG from the production hull on December 5 had "realized the technological aspirations of the company" to tap hydrocarbons and produce LNG close to the source.

"With 22 modular systems, 'PFLNG Satu' is an engineering marvel that brings together the liquefaction, production, storage and offloading processes of LNG to the offshore gas field," said Abidin.

"We have successfully stretched the limits of our abilities with floating LNG technology to maintain our technical edge as a key LNG supplier," added Abidin.

The "PFLNG Satu" production hull reached its final stages of

commissioning and start-up with the introduction of gas from the KAKG-A central processing platform at the Kanowit gas field on 14 November 2016.

"The gas is treated and liquefied via its Nitrogen-based Liquefaction Unit, the heart of 'PFLNG Satu' and processed into the first drop of LNG," Petronas said.

"With a processing capacity of 1.2 million tonnes per annum, operating at water depths between 70 metres to 200 metres deep, 'PFLNG Satu' is expected to lift its first cargo and achieve commercial operations in the first quarter of 2017," Petronas stated.

NextDecade LNG joins venture with FSRU and cargo marketing plan

Former Royal Dutch Shell LNG executive Kathleen Eisbrenner and her US-based NextDecade LNG project development company and the firm Flex LNG, controlled by Norwegian shipping tycoon John Fredriksen, have signed a cooperation agreement aimed at marketing floating import terminals as well as US LNG volumes to customers.

NextDecade and Flex LNG have signed a heads of agreement to create "a full value chain solution" for customers looking to purchase LNG from NextDecade's Rio Grande LNG export project planned for the port of Brownsville in Texas.

A statement said NextDecade and Flex LNG will develop Floating Storage and Regasification Unit (FSRU) and dockside facilities for international customers of NextDecade's, with the LNG supply also provided by the Eisbrenner company.

Flex LNG's main assets are two 174,000 cubic metres capacity LNG carriers that are under construction at the Daewoo Shipbuilding and Marine Engineering shipyard in South Korea for delivery in 2018.

Flex is controlled by Seatankers Management Co. Ltd., a company of Norwegian shipping magnate Fredriksen.

The agreement will reunite two pioneers of the floating LNG business, NextDecade Chair and Chief Executive Eisbrenner and Jonathan Cook who will become CEO of Flex LNG early in 2017.

In 2003, Eisbrenner founded Excelerate Energy where she originated and brought to market the first FSRUs, dramatically altering the LNG industry landscape by opening up new markets with fast-track import terminals.

Cook was Eisbrenner's Chief Operating Officer at Excelerate and helped lead the development, construction and operation of the FSRU fleet.

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NEWS NUDGES

Spanish expand in LNG fuel

Gas Natural Fenosa, the Spanish natural gas and LNG company with global utility assets, said it opened its second LNG public re-fuelling station in the western French city of Poitiers as it builds up a European network. Over the next few months, the Spanish company also plans to open three more stations in the French cities of Bordeaux, Compiègne and in the Channel port of Dunkirk, where France's fourth and newest LNG import terminal is located. The latest facility in Poitiers also offers compressed natural gas to cars, trucks and buses. Gas Natural Fenosa opened its first French LNG station in southwest France at Castets, near Bayonne, two years ago.

Shell appoints American CFO

Royal Dutch Shell has appointed Jessica Uhl to be its new Chief Financial Officer with effect from 9 March 2017. Uhl will be a member of Shell's executive committee and a director based in the Netherlands. She is an American citizen, grew up in California and holds a BA in Political Economy from the University of California at Berkeley. She joined Shell in 2004 after working for Enron in Houston and Panama from 1997 to 2003. She has held financial roles for Shell in Europe and the US. She is replacing Simon Henry who will remain on the board and as CFO until Uhl takes over and with the company until 30 June 2017.

Centrica raises profit forecast

Centrica, the UK-based utility, energy company and LNG buyer, said it continued to make good progress on its strategic priorities and now expects to exceed its original 2016 financial targets. It said adjusted operating cash flow is expected to be in the range of 2.4-2.6 billion pounds (\$3.00Bn-3.25Bn).

UK energy and utility company Centrica signs Jera LNG accord

Our Europe editor

Centrica, the UK energy and utility company, has signed another Japanese LNG agreement, this time a firmer purchase and cooperation accord with Jera Co. Inc., a joint venture between the largest Japanese utilities, Tokyo Electric Power and Chubu Electric.

This follows an agreement signed recently to cooperate with another Japanese utility, Tokyo Gas, on swapping and sharing cargoes in the Pacific and Atlantic Basins.

Shipments

Centrica said the Jera sales and purchase agreement begins in April 2019 when six cargoes per annum will be supplied by Jera and imported into the Isle of Grain LNG import terminal, located 45 miles southeast of London.

Grain LNG is owned by National Grid, and Centrica holds regasification capacity at the facility for its imports from Qatar.

Jera was formed by TEPCO and Chubu under the Japanese deregulation of its utility industry. Together they have an annual LNG requirement of more than 40 million tonnes, currently made up by long-term contracts volumes,



Centrica shipment turning at Medway River terminal

medium-term supplies and spot cargoes.

In addition to building up its LNG supplies and Asian relationships, Centrica continues to be active in exploration and production, while also owning five UK gas-fired power plants and with a portfolio of millions of UK utility customers under its British Gas brand.

The SPA with the Japanese joint venture formalises a memorandum of understanding signed earlier in 2016 between Centrica and Jera to collaborate.

"This agreement further develops our presence in the global LNG market," said Jonathan Westby, Centrica's Co-Managing Director of Energy, Marketing & Trading.

"The alliance we have devel-

oped with Jera complements both businesses and this relationship will support the growth of our LNG activities, particularly in the Asian market," Westby stated.

Yuji Kakimi, President of Jera, said it was "a great pleasure" to have concluded this binding agreement with Centrica.

"Going forward, collaborating with European companies is very important for our LNG procurement and we will pursue expansion of such activities," added Kakimi.

Centrica signed its deal with Tokyo Gas in November 2016, also in the form of a memorandum of understanding which established "an alliance" between the two in their LNG activities.

Nordic operator Skangas signs supply deal with industrial firm

Skangas, the Nordic liquefied natural gas supplier and facility operator, has signed an agreement to sell volumes to the Finnish chemicals company Kemira Oy.

Skangas, a subsidiary of Finland's natural gas company Gasum, will supply the LNG to Kemira for use in production processes for water treatment chemicals.

The regasified LNG will be delivered to the chemical plant from Finland's first import terminal at the nearby port of Pori, operated by Skangas.

Kemira's plant produces water treatment chemicals for the purification of drinking water as well as wastewater.

"The heat required in the manufacturing process of the product mainly made for export has been generated using propane gas, which will now be replaced by LNG," Skangas explained.

The companies said the fuel switch will "improve safety in fuel distribution" while at the same time reducing the plant's annual carbon dioxide emissions from pro-

cess fuels by around 15 percent.

"It's great to see Kemira start using LNG," said Skangas. "We offer low-emissions LNG for diverse industrial needs as well as for use as a shipping and heavy-duty road transport fuel," it added.

Apart from the Pori import terminal, Skangas has LNG production plants in Risavika, Norway and Porvoo, Finland, as well as LNG reception terminals in the Norwegian town of Ora, at Lysekil in Sweden.

RasGas advocates suitability of LNG to lead India's push for clean and reliable energy supplies

Qatari liquefied natural gas producer RasGas Co. has proposed that India concentrates on building up its LNG supplies and infrastructure as the leading edge of a clean energy policy.

RasGas Chief Executive Hamad Mubarak Al Muhannadi highlighted the role of LNG as a cleaner alternative to coal that would result in both immediate and long-term benefits for public health and the environment.

Awareness

Al Muhannadi was speaking at the 12th International Oil and Gas Conference and Exhibition in the Indian capital New Delhi.

"Those native to New Delhi are aware of the impact of coal and diesel particulates in the air, and while it is true that coal is cheap, the price paid in terms of pollution and health is unacceptable," said the RasGas CEO.

He welcomed the Indian government's recognition that gas needs to grow in India and under-



RasGas CEO Al Muhannadi speaks at Delhi conference

lined the suitability of LNG, which is affordable, efficient and environmentally sustainable for the world's fastest-growing economy.

"In 2016, India will become the second-largest buyer of spot and short-term LNG cargoes in addition to being the world's fourth largest importer overall," noted Al Muhannadi.

"This is the result of a clear choice by both the consumers

and the government of India," he stated.

RasGas has a strong and established history of supporting gas growth within India, with the Qatari LNG company first signing a joint LNG Sales and Purchase Agreement with Petronet in 1999 for the delivery of 7.5 million tonnes per annum over 25 years.

At the time, the Petronet supply agreement was the largest SPA ever signed.

Since then, RasGas's presence in India has extended beyond its relationship with Petronet to include Gas Authority of India Limited, Gujarat State Petroleum Corp. and Reliance Industries.

"RasGas is proud to support India's transformation into a land powered by clean, reliable, gas-based energy," Al Muhannadi concluded.

That's as Qatar has entered a 12-month process to merge its two production companies, Qatargas and RasGas, and consolidate all activities under the Qatargas banner.

Qatargas and RasGas have 14 liquefaction Trains in operation at the Ras Laffan production complex, including six of the world's largest Trains, enabling Qatar to produce 77 million tonnes per annum of LNG.

Of this total, Qatargas has 43 MTPA of deliveries to make and RasGas produces around 37 MTPA for its customers.

Fluxys advances operations of Zeebrugge import terminal with full-sized carrier at second jetty

Fluxys Belgium, the operator of the Zeebrugge import and regasification terminal on the Channel coast, has successfully received a full-sized vessel at its second jetty as part of operational testing for the new facility.

The 145,000 cubic metres capacity ship, "Milaha Qatar", unloaded a cargo from RasGas Co., the Qatari production company, at the new jetty.

The second jetty at Zeebrugge LNG has been designed for receiving the smallest LNG carriers with capacities from 2,000 cubic metres up to 7,500 cubic metres and can also handle bigger vessels up to the size of the Qatari Q-Flex ships of around 210,000 cubic metres capacity.

Zeebrugge terminal has had its facilities expanded over the last couple of years to offer new services.

In addition to constructing the new jetty to receive more small-scale vessels to enable wider distribution to users in northwest Europe, Fluxys has also been building up its truck-loading activities to boost income.

The Zeebrugge import facility has long term terminalling contracts with Qatar Petroleum-ExxonMobil and subsidiaries of the French energy company Engie.

These contracts represent a jointly booked annual throughput of 9 billion cubic metres of natural gas.

"Upon testing of loading oper-

ations for small LNG carriers at the second jetty in recent weeks, the reception of RasGas's 'Milaha Qatar' has allowed performance testing of unloading operations for large LNG vessels," a statement said.

The new facility will also enable the terminal to respond flexibly to simultaneous or more intense service demands using both jetties for two LNG carriers to be unloaded or loaded at the same time.

"Fluxys Belgium is particularly satisfied with the smooth delivery of the RasGas cargo, allowing us to enter the final stages of operational testing," said Pascal De Buck, Chief Executive of Fluxys Belgium.

"RasGas's responsiveness to fa-

cilitate the start-up of the new facility once again attests to the very fruitful cooperation we have been building since the long-term contracts we signed in 2004 for the reception of LNG from Qatar," added De Buck.

Khalid Sultan R. Al-Kuwari, the RasGas Chief Marketing & Shipping Officer, said the second jetty marks a landmark for the role of the Zeebrugge LNG terminal and Fluxys Belgium in northwest Europe.

"RasGas is proud to facilitate its start-up operations through the delivery of this cargo and we congratulate Fluxys Belgium on the successful unloading of the 'Milaha Qatar' at the second jetty," added Al-Kuwari.

Japanese spot LNG prices are up and down

Japan said the average price of liquefied natural gas spot cargoes contracted in November for delivery to the country was \$7 per million British thermal units, a rise of \$0.90 per MMBtu from the previous month but lower than a year ago.

The average contracted price in October 2016 was \$6.10 per MMBtu. The latest price for cargoes that arrived in November averaged \$5.90 per MMBtu compared with \$5.70 per MMBtu in October.

However, the spot prices for Japan are down compared with the same month a year ago when they were \$7.40 per MMBtu for contracted cargoes and \$7.50 per MMBtu on a delivered basis in November 2015.

The spot cargo numbers come from the commerce division of the Japanese Ministry of Economy, Trade and Industry and are only issued if a minimum number of two trades are recorded.

The ministry emphasizes that "spot LNG" refers to fuel traded on a cargo-to-cargo basis and does not mean shipments under contracts on a short-term, medium-term or long-term basis. The statistical accounting of the spot prices started in March 2014.

Overall Japanese LNG imports rose in October as did shipments of thermal coal for power generation as LNG cargoes from new production in Australia offset falls in volumes from the Middle East and Asia.

The shipments to Japan's network of 34 terminals amounted to 6.28 million tonnes compared with 6.05MT in the same month of 2015, a rise of just over 3.7 percent.

Thermal coal imports rose by 7.4 percent to 10 million tonnes, double the amount of the rise for LNG shipments.

Russians buy stake in world-class Egyptian gas field in East Med

Our Middle East editor

Italian energy company Eni has agreed to sell a 30 percent stake in Egypt's East Mediterranean offshore Shourouk block containing its world-class Zohr natural gas field that is expected to impact the regional LNG market when it comes on stream in late 2017.

The Eni sale to Rosneft, majority owned by the Russian government, follows its recent sale of 10 percent of the block to BP of the UK, leaving the Italians with 60 percent of the licence.

The agreed conditions include \$1.125 billion in cash and the pro quota reimbursement of past expenditures, which amounts so far to around \$450 million.

Option

In addition, Rosneft has an option to buy a further 5 percent stake under the same terms.

Eni has agreed in November 2016 to sell to BP a 10 percent stake for up to \$500M. The Italian company also gave BP an option to purchase a further 5 percent stake.



Rosneft has joined BP of UK in taking stake in Zohr assets

BP has links with Rosneft and is a shareholder in the Russian oil company.

Rosneft has also just sold a further 19.50 percent of its own shares for \$10.8Bln to global oil trader Glencore and Qatar's sovereign wealth fund.

Once the sale is complete, the Russian government will still retain a controlling stake in Rosneft in which BP also has a 19.75 percent stake.

The Egyptian Zohr field when it comes on stream as early as the end of 2017 will affect regional LNG markets, especially for main

player Egypt which was once an exporter and now imports LNG cargoes.

The Zohr field was discovered by Milan-based Eni in August 2015 and is the largest offshore natural gas field in the East Med, with minimum resources in place of 30 trillion cubic feet and potentially much more.

In February 2016, the Egyptian authorization process for the development of the Zohr field was completed and first gas is expected in about a year's time under a fast-track development plan.

Leviathan gas project offshore Israel will supply Jordan by end of 2019

Delek Group of Israel and Noble Energy of the US said they had taken a final investment decision to proceed with the Leviathan natural gas project offshore the Israeli coast in the East Mediterranean that will come on stream in 2019 and cut the LNG requirements for neighbour Jordan.

Delek and Houston, Texas-based Noble said they expected to spend up to \$4 billion developing the initial stage of the project to produce 12 billion cubic metres per annum, or 1 billion cubic feet per day, from the field with estimated resources of 22 trillion cubic feet.

Companies with supply agreements signed with the Israeli and US developers include the National

Electric Power Company of Jordan.

Under the terms of that accord, the Leviathan partners will supply around 1.6 Tcf of natural gas from the field on the basis of 300 million cubic feet per day over a 15-year term.

This Leviathan natural gas sales accord with Jordan follows a previously-announced agreement with the Jordan Bromine Company and the Arab Potash Company, which establishes first gas exports to Jordan from Delek and Noble's Tamar field, also in the East Med.

Jordan is an LNG importer and counts companies such as Royal Dutch Shell among its suppliers, having previously received pipeline gas supplies from Egypt.

The Jordanians became the

fourth Arab nation to deploy a Floating Storage and Regasification Unit as an import facility at the port of Aqaba on May 25, 2015. Future Israeli gas supplies will reduce the need for LNG shipments, while Egypt may also resume pipeline deliveries from its new gas projects.

"Approval of the Development Plan, work plan and proposed budget for the development of stage 1A of the Leviathan project, as well as the authorization of the Delek Group Partnerships' management to approve the Leviathan FID, will allow us to meet the group's target of first gas from Leviathan by the end of 2019," stated Asaf Bartfeld, President and Chief Executive of the Delek Group.

Asia-Pacific LNG export player Santos launches A\$1.5 billion financing as part of overhaul

Our Asia-Pacific editor

Santos, the stakeholder in three Asia-Pacific LNG export joint ventures, said it planned to raise A\$1.5 billion (US\$1.12Bn) in a placement and share purchase plan after becoming the second Australian company to announce a break-up involving LNG assets to continue to weather the global slump in energy markets and reduce debt.

The share placement is fully underwritten and will amount to just over A\$1Bn, while the A\$500M share purchased plan is not underwritten.

Revenue

"The proceeds from the Institutional placement and SPP will strengthen the Santos balance sheet and provide Santos with financial flexibility to take advantage of growth opportunities that are aligned to its core business and recently announced new strategic plan," Santos stated.

Santos Chief Executive Kevin Gallagher said the share place-



Santos LNG loading jetty at Curtis Island in Queensland

ment was part of a strategy to transform the company by separating assets into different corporate entities.

The placement comprises 256 million shares priced at A\$4.06 per share and representing 15 percent of the company's share value. Under the share purchase existing stockholders can subscribe for up to A\$15,000 of new shares without incurring brokerage costs.

Santos operates the Gladstone coal-seam-gas-to-LNG plant in Queensland and has stakes in the

ConocoPhillips-operated Darwin plant in the Northern Territory and the ExxonMobil-run Papua New Guinea LNG facility.

"We reiterate our aim to drive sustainable shareholder value by becoming a low cost, reliable and high performance business," said CEO Gallagher.

"This capital raising provides the opportunity for existing and new institutional investors to support a stronger Santos with improved operating performance through the transformation of the

business and the focus on five core long-life natural gas assets," he added.

Another Australian company, Origin Energy, which is a major shareholder in the Australia Pacific LNG plant in Queensland, is also launching a major corporate overhaul that includes floating off its conventional natural gas assets as a separate company while keeping APLNG and related assets.

Origin said it would launch an initial public offering to sell assets as a new upstream business to be listed separately on the Australian Securities Exchange.

Santos will implement a disciplined, three-phase strategy to drive shareholder value.

Gallagher said substantial progress had been made in 2016 on the turnaround for Adelaide-based Santos.

Santos also announced it had appointed Bruce Clement as Vice President to run the new standalone "low-cost business" comprising all non-core assets.

Australia prepares to launch first ferry service from Tasmania to Melbourne using LNG fuel

Australian SeaRoad Shipping is preparing to put into service the country's first roll-on-roll-off ferry with LNG propulsion to operate between Devonport on the island of Tasmania to the city of Melbourne on the Australian mainland.

The vessel, the "Searoad Mersey II", left its German builders in early November and voyaged to Australia via fuel and supplies stopovers in Las Palmas in the Canary Islands, Cape Town in South Africa and Fremantle in Western Australia. The ferry has now arrived in Tasmania.

"This truly represents a new era for Australian shipping and especially for Tasmanian exporters and importers, and it leads the world with its pioneering LNG re-

fuelling system," said the ship's master, Captain Lloyd Cahill.

On arrival at its home port, the "Searoad Mersey II" sailed up its namesake river, Tasmania's Mersey. The ship will be based in Devonport, the main port for Tasmania on the Bass Strait.

"It's a technological marvel that was conceived and championed by Tasmanians, and its environmental credentials fit so well with the image the state is known for worldwide," said Captain Cahill.

The A\$110 million (US\$83M) vessel was built by the Hamburg, Germany-based shipyard, Flensburger-Schiffbau-Gesellschaft.

The newbuild is 181 metres long, 26.6 metres wide and has more than 1,960 lane metres

available for vehicles and has a speed of 20.5 knots.

FSG said the vessel has a particularly flexible cargo carrying capability and will be able to transport containers, trailers, cars and hazardous cargo as well as live animals such as cattle.

"She is the first RoRo ferry in the world able to transport reefer containers ((refrigerated) and other cargo side by side," said FSG Managing Director Peter Sierk.

"This liner shipping service will be of existential importance in supplying Tasmania with its basic essentials," he added.

"That is why SeaRoad decided to commission a shipyard which can deliver quality, high-value vessels which guarantee trouble-free, reliable liner shipping," said Sierk.

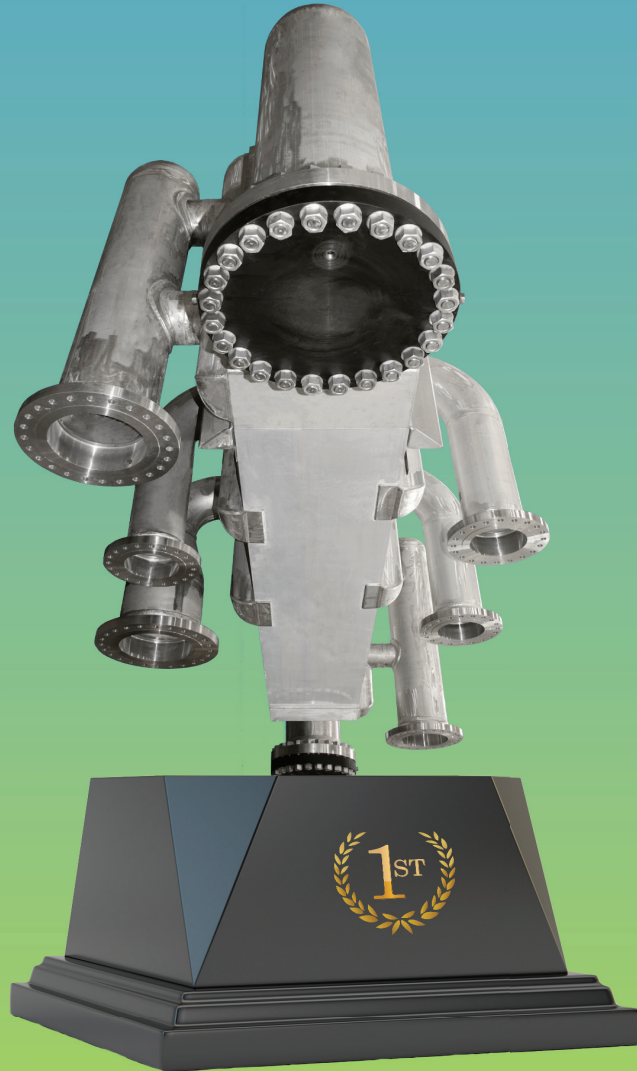
Another German company Bomin Linde LNG was involved in organizing the LNG fuel section of the vessel as part of its dual-fuel capability.

"The tank system of the ferry, equipped with four dual-fuel engines, is specific to the design as it does not have its own LNG tanks, but utilizes LNG trailers that are connected to the drive system after being filled with LNG," said Bomin Linde.

The German company added that the tanker-to-tanker process is an additional option for using LNG for marine propulsion.

For re-fuelling operations, the LNG is taken on board the ship in mobile tanks during regular ship loading and unloading.

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