

LNG Unlimited

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Malaysia delivers feed-gas to first FLNG hull over stranded gas field

Petronas will soon move to storage and then delivery phase for cargoes

Our Asia-Pacific editor

Malaysian energy company Petronas said the world's first floating liquefied natural gas production plant has received its first feed-gas from the Kanowit field it is deployed over in an area 180 kilometres offshore Sarawak and the commissioning process is well underway as the project advances towards start-up.

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

'Long way'

The Petronas acting Vice President for LNG Assets, Development and Production, Adnan Zainal Abidin, said the receipt of first gas signified the beginning of the commissioning and start-up processes.

"We have come a long way with our partners to deliver a game-changer in the global LNG business.

"The shared vision for 'PFLNG Satu' to monetise gas resources, uneconomical to develop via conventional means, is an achievement all can be proud of," said Adnan.

The production hull started its 2,120 nautical mile journey from Okpo, South Korea, to the Kanowit gas field in May 2016 for its off-shore phase of commissioning.

"Fitted with an external turret for water-depths of between 70 metres and 200 metres deep, 'PFLNG Satu' will extract natural



'PFLNG Satu' received feed-gas from Kanowit platform

gas via a flexible subsea pipeline for the liquefaction, production, storage and offloading processes of LNG at the offshore gas field," Petronas explained.

"Designed to last up to 20 years without dry-docking, 'PFLNG Satu' has the flexibility to be re-deployed to multiple locations to better access marginal and stranded gas fields of Malaysia," the company added.

"It introduces a new type of play to complement Petronas's global LNG portfolio and enhance its reputation as a preferred and reliable LNG supplier," it stated.

The Petronas FLNG plan has advanced at a time when both Malaysia and neighbour Indonesia, who are Asia's leading LNG producers, are trying to meet their own rising domestic demand for natural gas.

Both Malaysia and Indonesia are following a twin-track of gaining revenue from LNG exports while at the same time as distributing regasified LNG, mainly for use by power plants and industries.

The Kanowit FLNG hull was constructed at the Daewoo Shipbuilding and Marine Engineering yard in Korea and is scheduled to produce 1.2 million tonnes of LNG per annum.

However, a second FLNG project planned by Petronas, the Rotan FLNG facility for offshore Sabah, has been postponed as part of cost-cutting measures.

The French LNG and energy engineering company Technip oversaw the building of the topside and production facilities.

Tonnage

The "PFLNG Satu" weighs about 125,000 tonnes and is 365 metres in length. It is also the first vessel to use the dual row cargo containment system to ensure limited sloshing within the hull.

The Kanowit gas well is located about 180km northwest of the Malaysian onshore LNG complex at Bintulu in Sarawak.

Kanowit has significant gas accumulations and there are other stranded gas fields discovered in the same area,

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Eni holds talks in Mozambique on floating LNG venture and new project with Statoil and Sasol

Our Europe editor

Eni Chief Executive Claudio Descalzi has held talks in the Mozambique capital Maputo with the southeast African nation's President Filipe Jacinto Nyusi centred on the Italian energy company's approval of investment in the Coral South floating LNG project.

During the meeting, Descalzi gave the President a briefing on the progress Eni has made on its energy projects in the country, centred on LNG development from offshore natural gas fields.

Topics

"In particular, he discussed the development of Area 4, following the Eni's Board's recent approval of the investment plan of Coral South project, in the deep waters of the Rovuma Basin, and the agreement signed in October for the sale of all LNG volumes produced by this project to BP," Eni said.

The Italian delegation also discussed more exploration activities in Mozambique, backed by partners in another licence area, Norway's Statoil and South African energy group Sasol.

"Eni, together with ENH and in



Descalzi talks to the press in Mozambican capital Maputo

partnership with Statoil and South Africa's Sasol, obtained in October 2015 the exploration and development rights for the offshore block A-5A, in the Angoche area, in the deep waters of Zambezi's northern Basin," the statement explained.

Eni's CEO and other executives also met Mozambique's Prime Minister Carlos Agostinho do Rosario, the Minister of Mineral Resources Letícia Klemens and executives of state energy company Empresa Nacional de Hidrocarbonetos (ENH), including Chairman Omar Mithá.

Eni's Coral FLNG project will be located in waters more than 2,000 metres deep and about 80 kilometres offshore the northern Mozambican province of Cabo Delgado.

The Eni plan of development, the very first one to be approved in the Rovuma Basin, foresees the drilling and completion of the six wells and the construction and installation of a floating production facility.

Eni had previously been reluctant to move forward because of economic uncertainty in Mozambique following a state loans scandal.

The project involves the construction of 6 subsea wells connected to an FLNG facility with a liquefaction capacity of over 3.3 million tonnes per annum.

Mozambique authorities approved the project development plan in February 2016.

The Coral field, discovered in

May 2012, is entirely located within the Rovuma Basin Area 4 licence area for which Eni is the operator and contains about 16 trillion cubic feet of gas in place.

Eni estimates that the Area 4 resources amount to 85 Tcf. US energy company Anadarko Petroleum is the licence holder of the Area 1 zone, where large discoveries have been made and an onshore LNG project planned.

The Italian company also explained that the move was still short of a final investment decision, though this would be decided soon by Eni and the other parties and partners involved.

Eni is the operator of Area 4 with a 50 percent indirect interest owned through the Eni East Africa subsidiary, which holds a 70 percent stake in Area 4.

The other shareholders are Galp Energia of Portugal, Korea Gas Corp. and the state's ENH, who each hold 10 percent stakes.

China National Petroleum Corp. (CNPC), the parent company of PetroChina, also has an interest through its 20 percent stake in Eni East Africa.

Papua New Guinea LNG ships 89 cargoes so far in 2016 as Japan is targeted for two new Trains

Oil Search, the Australian-listed energy company with a stake in Papua New Guinea LNG and in natural gas resources to underpin a second project, said annualized production at the liquefaction facility near Port Moresby amounted to 89 cargoes shipped at the end of October.

During a field trip for investors to the Oceania nation, Oil Search said the PNG LNG plant, operated by ExxonMobil, was now capable of 7.9 million tonnes per annum of output, above its nameplate capacity of 6.9 MTPA.

Oil Search said of the 89 cargoes delivered so far in 2016, 75 were shipped under long-term

contract and 14 were sold on the spot market.

A total of 6.6 MTPA of PNG contractual volumes are supplied to Tokyo Electric Power Co., Osaka Gas, China's Sinopec and CPC of Taiwan.

The company noted that there was "consistent demand for spot volumes reflecting high heating-value gas well suited to the Asian" natural gas networks.

Oil Search said the PNG plant was also expanding its customer base beyond the foundation customers, with nine of the 14 spot cargoes sold so far in 2016 going to buyers in Japan.

The company said the PNG

plant was continuing to optimize production and the Angore gas field tie-in is scheduled for 2018.

Appraisal and development activities are underway in the North-West Highlands, including the P'nyang gas field operated by ExxonMobil, to back the potential expansion of the existing plant

The Gulf Province of PNG is also seeing appraisal activities centred on the Elk-Antelope natural gas fields, operated by French energy company Total SA, to support the proposed Papua LNG project, which could also share existing facilities.

Oil Search executives told the investors that whatever the final decision on the additional natural

gas resources, there was enough proven feed-gas to more than double production.

"The material PNG resource base, underpinned by Elk-Antelope and P'nyang, is sufficient for at least a two-Train expansion," Oil Search said.

"Project cooperation and/or integration is likely, making the next phase of LNG from PNG one of the most competitive in the region," the company added.

"Various commercial models can be applied to ensure fair sharing of significantly increased value between Elk-Antelope, P'nyang and PNG LNG owners," Oil Search stated.

RasGas sends first of many cargoes to Dunkirk terminal

Qatari LNG production company RasGas said it had delivered its first cargo to the newest French import terminal in the Channel port of Dunkirk as the facility ramps up its regasification capabilities for the European winter season.

Once in full operation, the Dunkirk terminal is expected to be able to regasify 13 billion cubic metres per annum, 9.6 million tonnes per annum of LNG.

The Dunkirk facility is 65 percent owned by French utility Electricite de France and 10 percent by energy major Total.

The remaining 25 percent is held by Belgian natural gas company Fluxys, owner of the Zeebrugge LNG import terminal.

France's other three import terminals are operated by a subsidiary of France utility and energy company Engie.

The Dunkirk cargo was delivered by the 145,000 cubic metres capacity "Maran Gas Asclepius" for the EDF Group.

"RasGas is proud to support the start-up operations of this new LNG regasification terminal in France through the delivery of this cargo," said RasGas Chief Executive Hamad Mubarak Al-Muhannadi.

"We look forward to the successful start-up of commercial operations at the terminal and commencing deliveries in 2017 under our recently executed medium-term Sales and Purchase Agreement," added Al-Muhannadi.

SPA with Edison and the construction of the offshore Adriatic LNG regasification terminal in Italy," Benayoun explained.

ExxonMobil joins UK project aimed at developing bunkering facilities

Our Europe editor

ExxonMobil, the US major and a shareholder in the world's largest liquefied natural gas supply complex in Qatar, has joined a UK project to develop LNG bunkering infrastructure as well as storage and technical support in the north of Scotland.

ExxonMobil is part of a joint venture, also including engineering company Babcock International, shipping services group Bernhard Schulte Shipmanagement (BSM), gas company Calor and the local council in the Orkney Islands.

Opportunities

All will collaborate in what is called the Caledonia LNG project for development of the fuel in the North Sea and the northern UK, with building maritime refueling facilities seen as a key part of the planned activities.

The parties have signed a memorandum of understanding to investigate opportunities to supply LNG for marine and land-based applications.

As well as being a stakeholder in the Ras Laffan LNG liquefaction Trains in Qatar, ExxonMobil also has



Executives gather for 'Caledonia LNG' joint venture signing

a stake in the UK South Hook import terminal at Milford Haven and is helping develop the US Golden Pass LNG export plant in Texas.

"ExxonMobil will explore the potential for its global marine network to deliver LNG bunker fuel to customers in the region as well as providing technical support and expertise to enable safe LNG bunkering operations," a statement said.

Babcock, one of the largest UK engineering services companies, will provide its experience of storage, handling and distribution of LNG, while BSM would be responsible for supervising the building, management and operation of the marine assets for the project.

Calor will investigate opportunities to supply LNG to industrial and

automotive sector customers, while the Orkney Islands Council would supply port services and security.

"The Memorandum of Understanding is a clear indicator that ExxonMobil, Babcock International Group, Bernhard Schulte Shipmanagement (BSM) and Calor are determined to leverage their history and expertise with LNG to work with Orkney Islands Council to maximise the possibilities for customers," said Luca Volta, LNG Venture Manager at ExxonMobil Marine Fuels.

"We will also draw upon our extensive global marine network to provide our customers in northern UK and the North Sea with LNG bunker fuel," Volta added.

Australian-owned gas field in Adriatic advances towards output

An Australian oil and gas exploration, development and production company said it has made advances in its aim to produce Italian gas in 2017 from its Teodorico field in the Adriatic Sea offshore northeast Italy, giving the European nations much-needed supplies.

Po Valley Energy Ltd., listed on the Australian Securities Exchange, said the Italian Ministry of Economic Development had formally awarded it a preliminary production concession for the Teodorico field in the northern Adriatic, the primary source of domestic gas production for much of Italy.

The Teodorico field is a former gas discovery of Italian energy company Eni, with five wells drilled and tested and full seismic coverage available through Eni's prior operations.

The field, with current estimated resources of 47 billion cubic feet, is located in shallow Adriatic waters of about 25 metres in depth and is outside the 12 nautical mile exclusion zone.

There is a ready market for the Po Valley offshore gas as Italy is the fourth-largest energy consumer in Europe, after Germany, France and UK and relies on imports for 90 percent of needs.

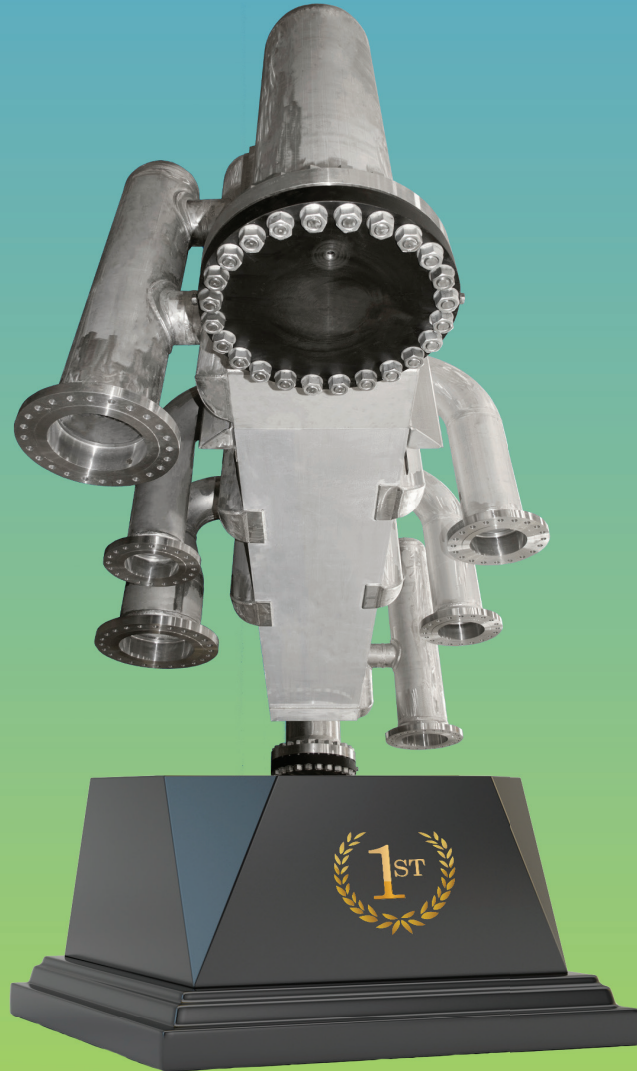
The Australian company's Ital-

ian gas field is also not far from the offshore LNG import facility whose shareholders are ExxonMobil, Qatar Petroleum and Italy's Edison Gas. The terminal, called Adriatic LNG, receives cargoes from Qatar.

Italian natural gas imports were 2.2 trillion cubic feet in 2015, while its own gas production was just 0.2 Tcf.

Following EIA approval and the granting of a full production concession, Po Valley will move to drill two production wells and then connect the gas field to Eni's Naomi Pandora offshore gas processing facility.

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NEWS NUDGES

Technip-FMC name board

Technip, the French energy and LNG engineering company, and US peer FMC Technologies have named their respective designees to the Board of the combined company to be called TechnipFMC. The 14-member board will have seven persons from each company. They include from the Technip side Chief Executive Thierry Pilenko, future Executive Chairman of TechnipFMC and designated Chair of the Strategy Committee and Marie-Ange Debon, Chair of the Audit Committee. FMC's seven board members include the new Chief Executive of TechnipFMC Douglas J. Pferdehirt and Peter Mellbye as Chair of the Nominating and Governance Committee.

US LNG project is backed

The Australian company, LNG Ltd, said the US Federal Energy Regulatory Commission had denied a request from the Sierra Club environmental activist group to revoke approved permits for its Magnolia LNG export plant being developed in Louisiana. "FERC entirely rejected the Sierra Club's arguments, basing its rejection largely on recent decisions from US federal appeals courts that have found FERC's approach is proper and consistent."

Dominion exec move

US natural gas and energy group Dominion, developer of the Cove Point LNG export plant in Maryland due to come on stream in 2017, has appointed Diane Leopold, currently President of Dominion Energy, to the additional post of Chief Executive of the energy unit. "She will be responsible for all of Dominion's natural gas businesses," said the Richmond, Virginia based company whose assets include 14,400 miles of natural gas pipelines.

Japan's Modec to market floating power plants that use LNG

Our Asia-Pacific editor

Modec Inc., the Japanese maker of oil and natural gas production platforms and other energy industry equipment, has developed a floating power plant that uses liquefied natural gas as the fuel for electricity generation.

Modec said its floating LNG-fueled power plant can be moored to a jetty or anchored offshore.

Asia target

The LNG-fueled floating generators are expected to be marketed in nations such as the Philippines and Indonesia, where there are many island areas without their own power plants.

It works the same as an LNG Floating Storage and Regasification Unit (FSRU), with an LNG carrier coming alongside and offloading LNG that can be regasified and then used to generate electricity for transmission to an onshore



Model of Tokyo-based Modec's LNG power plant vessel

power grid via an undersea cable.

While FSRUs are viewed as a fast track to LNG imports compared with building an onshore terminal, so the Modec floating LNG power plants can also lower costs and shorten permitting processes.

Modec said it would be taking orders in 2017 and power companies would be able to deploy the vessels by 2019.

The 300-metre LNG power generation units will be offered in versions ranging from 84,000 kilo-

watts to 720,000kW. A 250,000kW system meeting the needs of roughly 150,000 people will cost a total of some 40 billion yen (\$350 million), including design, materials procurement and construction.

"Customers can opt for a gas turbine combined-cycle system that uses gas and steam turbines to generate electricity and a desalination system can be added to the plant to turn seawater into freshwater," a statement said.

Spain's energy and rail companies plan to test first LNG locomotive

The main Spanish natural gas and LNG companies, Enagas and Gas Natural Fenosa, have launched a project with the state-run railway company Renfe to run Europe's first locomotives powered by LNG.

"The test aims to analyse the potential environmental and financial advantages of natural gas in rail transport along non-electrified lines," said a statement from the three companies and other partners.

The advantages are seen as being a reduction in environmental pollution and lower operating costs for LNG compared with oil-based fuels used on older trains.

The project will also see the commercial companies working with the Asociación para la Reconstrucción de Material Ferroviario (ARMF), the Institut Cerdà, which supports Spanish innovations, and French classification company Bureau Veritas.

"This innovation project will assess the feasibility of adapting locomotives to run with LNG engines and tanks, and the relevant technical, legal, economic and environmental analysis for the Spanish and European rail network," they said.

The project, coordinated by the Institut Cerdà and with ARMF as rail integrator, is in line with the European Union directive on the deployment of alternative fuels infrastructure in Europe.

The agreement involves a pilot test being carried out with an LNG-powered engine on a locomotive from the Feve diesel train depot in northwest Spain along a 20 kilometres section between Trubia and Baiña stations, extending to Figaredo in Asturias.

"For this purpose, the diesel engine on one of the two paired locomotive units will be replaced

with one powered by natural gas, and tanks for storing LNG will be fitted, alongside other necessary auxiliary equipment," the statement explained.

"The test will allow the results obtained for both diesel and gas technology to be compared, given that a locomotive running on each type of fuel will be used on the same train," it added.

"This track test will be used to draw conclusions on technical requirements for space, weight, refrigeration, and autonomy for running on natural gas, as well as other considerations and comparative variables in emissions and operating economy," it said.

Renfe, Gas Natural Fenosa and Enagas said they were also assessing the possibility of presenting a second phase in this project which could qualify for EU funding.

ConocoPhillips to sell Alaska liquefaction plant amid continued build-out elsewhere

Our North America editor in New York

ConocoPhillips said it was in the process of selling its Kenai liquefied natural gas plant in the state of Alaska, the first US liquefaction and export plant to come on stream in 1969 and which went on to export cargoes to Japan for 46 years.

ConocoPhillips said its move to sell the small-scale Kenai plant was consistent with the review process to sell assets not seen as a priority as the company refocuses and cuts costs.

Buyer interest

The US oil major said it would open a "data room" associated with the sale in January 2017.

"Our current focus is on our North Slope operations," said spokeswoman Amy Burnett in reference to the huge natural gas resources that will be available for a



Alaska LNG export plant supplied Japan from 1969 to 2015

new LNG export project majority-held by the state.

LNG from Kenai had previously been shipped under long-term contract to Tokyo Electric Power Co. and Tokyo Gas though operations have gradually been cutback at the aging plant where the capacity is less than 900,000 tonnes per annum.

That compared with the even-

tual 27 million tonnes per annum planned for the first US Gulf Coast LNG export plant to come on stream, Sabine Pass in Louisiana.

Sabine Pass began operations in February 2016 and now has completed three liquefaction Trains with a combined 13.5 MTPA once they are ramped-up.

More such large-scale export plants are currently being con-

structed on the Gulf Coast and two others on the east coast, including Cove Point in Maryland, scheduled to come on stream in 2017.

The original investors in the Kenai plant were Marathon Oil and the predecessor company of ConocoPhillips. Its start-up in 1969 came four years after the first full-scale LNG export plant began commercial operations at Arzew in Algeria.

That Japanese contract with Kenai was signed in 1969 and the latest renewal expired in 2011. The Kenai plant was effectively mothballed in March 2013 because of uncertainty over whether Alaska's Cook Inlet had enough gas to meet local and export demand.

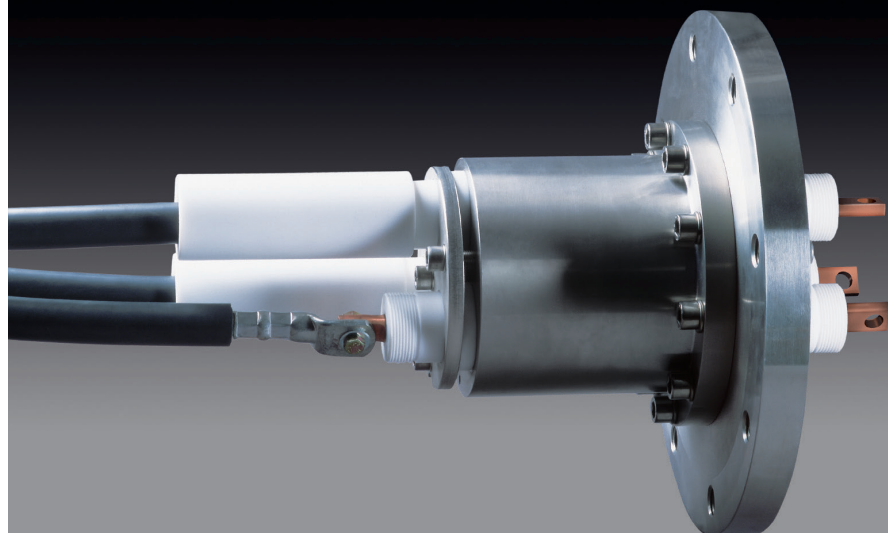
Kenai was then given a short reprieve and during 2014 and 2015 exported about 10 cargoes to Japan, mostly on a spot basis to Japanese utilities, including Kansai Electric Power Co.

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Conference hears industry less flexible and secure

The Japanese government-run LNG Producer-Consumer Conference in Tokyo has heard from a list of speakers focusing on moves to abolish destination clauses in contracts and facilitating LNG trading at the same time as improving energy security.

The gathering is organized by the Japanese Ministry of Economy, Trade and Industry (METI) and the Asia Pacific Energy Research Centre.

While the rise of LNG has accelerated the globalization of natural gas, the energy security implications of this transformation have attracted much less attention.

The International Energy Agency launched a new report on the security of supply issue at the Tokyo conference.

While the global gas markets are well supplied, the IEA warned that LNG markets were less flexible than is commonly believed.

"A growing share of LNG capacity is offline, mostly because of a lack of enough gas to feed into the system but also because of security and technical problems, meaning the market has less extra capacity than assumed.

"Between 2011 and 2016, the level of unusable export capacity has doubled, disabling about 65 billion cubic metres of gas, which is equal to the combined exports of Malaysia and Indonesia, the world's third-largest and fifth-largest exporters," the IEA noted.

The IEA added that the supply security architecture of an energy system should not be based on cyclical factors.

"It stems from a step change in the pace of global gas demand expansion that caught industry by surprise, and as such it highlights the challenges of accurately forecasting demand (and supply) in a rapidly evolving energy system," the IEA said. ■

Tokyo Commodity Exchange and Singapore sign derivatives accord

Our Asia-Pacific editor

The Tokyo Commodity Exchange and the Singapore Exchange (SGX) have signed an agreement to cooperate in developing the liquefied natural gas derivatives and futures market in Asia.

The memorandum of understanding (MOU) will see SGX and TOCOM develop LNG pricing mechanisms and derivatives in the region that accounts for more than 60 per cent of the world's LNG demand.

Futures

The signing of the MOU was announced in Tokyo at the start of the LNG Producer-Consumer Conference.

SGX started LNG derivatives trading in January 2016 with its Singapore SGX LNG Index Group (SLInG) derivatives contract for a minimum 10,000 million British thermal units.

The SLInG contracts are based on a spot-price index of the same name jointly developed by SGX and its subsidiary Energy Market Company.

The product is an industry-led pricing benchmark that assesses prices for a virtual point off Singa-



Both exchanges expected to support LNG market

pore based on a simple average of participant assessments submitted each week, after excluding outlier prices in the upper and lower 15 percent region.

Singapore has been striving to become Asia's LNG trading hub with more than half of global supplies passing through its offshore waters each year, while Japan is the largest consumer of the fuel in the region.

"Together, the two countries will play an important role in enhancing price discovery of spot LNG in Asia - a critical component of the industry's move towards

gas-on-gas pricing based on an Asian LNG price, away from long-term contracts and pricing linked to oil," SGX and TOCOM said.

They said the potential areas of cooperation included the joint study of the benefits of product initiatives, such as the co-listing of LNG derivatives based on relevant indices. The two exchanges will also study synergies between their market distribution networks and will additionally share experiences in developing the electricity market in their respective jurisdictions. ■

Woodside CEO tells Tokyo conference era of 20-year contract not yet over

Woodside Energy Chief Executive Peter Coleman told the LNG Producer-Consumer Conference in Tokyo that the era of the 20-year supply contract was not yet over, even as Egypt alone has bought almost 100 spot cargoes so far in 2016.

Coleman also said that LNG project developers have experienced significant financial turmoil, just as buyers have, with balance sheets stressed, credit ratings downgraded and free cash drying up.

The consequences of stressed balance sheets and a reluctance of buyers to commit to projects due to the abundance of supply has inevitable consequences, with today

over 80 percent of newbuild capacity being deferred.

"As we look to the future today, there are challenges for both LNG producers and their customers," said the CEO of the Australian operator of two export plants.

"For sellers it is being comfortable that acceptable returns will flow from the new investments needed to meet demand over the period from 2023 to 2030," he added.

"For buyers, the challenge is to ensure diversity while maintaining certainty of supply," Coleman said.

"We are not only facing a five-year period in which there will be an abundance of resources coming from the world's liquefaction fa-

cilities, but an abundance all the way across the LNG supply chain - almost a perfect storm - in the availability of shipping, in the flexibility of contracts and in the existence of cheap regasification capacity.

"Today, 50 percent of the market is being taken up by new buyers," Coleman stated.

Coleman said about 26 percent of the LNG market, or 66 million tonnes, was traded under short-term contracts in 2015.

He point out that last year also saw the rapid emergence of new regasification markets such as Egypt, which bought exclusively under short-term contracts. ■

LNG imports by India surge as regasification capacity rises ahead of new project advances

Our Asia editor

Imports of liquefied natural gas to India continued to rise in 2016, surging by 18.6 percent in October compared with the same month a year ago, helped by slowly rising regasification capacity while LNG shipments continued to be limited by a lack of east coast terminals and nationwide pipeline infrastructure.

Shipments of LNG received by the country's terminals on the West Coast near Mumbai amounted to 2.26 Billion cubic metres of natural gas, the equivalent of 1.67MT of LNG, compared with 1.90 Bcm of natural gas, or 1.41MT of LNG, according to the Ministry of Petroleum and Natural Gas.

Cumulative

The cumulative imports for the seven months of the current financial year to the end of October amounted to 14.91 Bcm of natural gas (11.03MT of LNG) compared with 11.92 Bcm (8.82MT of LNG) to October 2015, a rise of 25 percent.

Most shipments currently come



Dahej import terminal near Mumbai now has most capacity

from Qatar but several cargoes have been received from the US and India.

India said its gross domestic natural gas production for the month was 2.75 Bcm, little changed from a year ago, and consumption of natural gas during the month amounted to 4.93 Bcm.

If the current 2016 import levels are maintained India's terminals could bring in shipments of between 18MT and 19MT, given current infrastructure limitations in terms of the pipeline grid and geographical spread.

India's net annual LNG imports amounted to 14.6MT in the 2015 calendar year.

Once the country develops import capacity on the East Coast, where none currently exists, LNG shipments will be able to rise higher.

The four West Coast terminals also have plans or potential to increase existing capacity.

Petronet LNG recently completed the expansion of its Dahej terminal from 10 MTPA to 15 MTPA.

The Dahej terminal, located north of Mumbai, is the most

widely used in the country. The Shell-operated import terminal at Hazira, also on the West Coast near Mumbai, has 5 MTPA of capacity.

The Dabhol facility, south of Mumbai, still only has the capacity to handle 1.7 MTPA of cargoes because of a lack of breakwater infrastructure.

The fourth West Coast terminal at Kochi in the southwest state of Kerala is little used because of inadequate pipeline connections, though it can handle 5 MTPA of imports.

Around half-a-dozen east coast LNG import ventures are planned, including the use of floating storage and regasification units.

There are also building projects under way for almost 14,000 of additional kilometres of natural gas pipelines to connect to mostly industrial and power plant customers.

These would add to the existing network of 16,250km and encourage more infrastructure developments to satisfy demand, also linked to continued economic growth.

Japanese import rise is overshadowed by more buoyant shipments of thermal coal

Japanese liquefied natural gas imports rose last month 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.

The monthly imports cost Japan 242.46 billion yen (\$2.18Bln) compared with 357.02Bln yen (\$3.21Bln) in October 2015.

This means that LNG costs for

Japan have fallen by around 32 percent in the past year as even long-term, oil-linked contract terms have softened.

Current average prices paid by Japan are around \$6.72 per million British thermal units compared with \$10.28 per MMBtu a year ago, including oil-linked volumes and currency fluctuations.

During September Japan imported a similar amount of thermal coal when the shipments increased by the corresponding amount of the fall in monthly LNG cargoes, rising 3.5 percent to 10.12MT.

The import figures from the Ministry of Finance showed that total shipments of LNG from the Middle East dropped 13.1 percent year-on-year.

Deliveries from countries like Qatar, the United Arab Emirates and Oman amounted to just 1.66MT.

Asian deliveries in September plunged 24 percent from a year ago from nations such as Malaysia and Indonesia, Papua New Guinea and Brunei. The shipments last month amounted to 1.72MT.

Russian imports were 27 percent higher at 657,000 tonnes compared with the year-ago figure of 516,000.

The balance of other imports in the preliminary figures amounted to 2.24MT from exporting nations such as Australia and Nigeria and in the form of spot shipments.

There were still no imports from the United States logged in Japan's trade figures during October.

Japan's government said on November 10 the average price of spot LNG imported into Japan that was contracted in October was \$6.10 per million British thermal units, a rise of \$0.40 per MMBtu from the previous month.

The latest contracted spot price is higher compared with the \$5.70 per MMBtu price given for September 2016, but lower than the \$7.60 per MMBtu logged a year ago by government officials.

The "Arrival-Based" price for October was given as \$5.70 per MMBtu, while no price was given in September as the minimum of two required deals were not registered. However, the "Arrival-Based" price given in October 2015 was \$7.90 per MMBtu.

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