LNG Unlimited

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Intercontinental Exchange and Platts to launch LNG e-Window

The platform allows participating firms to key in their bids and offers for all to see

LNG Journal editor

Intercontinental Exchange Inc. a leading operator of global exchanges and clearing houses, and US energy pricing company S&P Global Platts said they were launching an electronic platform known as eWindow for the liquefied natural gas market.

Unlike oil, which has several financial and physical trading platforms and exchanges, LNG markets are still evolving with various firms offering different products.

Trading does not occur on the eWindow, but tool's compatibility with ICE technology will allow any eWindow users to execute trades on ICE platform

Process

Platts, a unit of the US credit rating agency S&P Global Inc, already uses the eWindow platform as part of its pricing process.

The platform allows participating companies to key in their bids, offers or transactions directly and which appear on a screen for others to see.

It is aiming to launch the new platform with ICE in a few months.

ICE and Platts said the eWindow platform will be an online data-entry and communications tool that allows market participants in the Platts Markets On Close (MOC) price assessment process to communicate bids, offers and transactions directly to Platts editors and the marketplace simultaneously.

"Its grid-like screen offers an easy, at-a-glance view and allows market participants to instantly respond to the bids and offers submitted," said a statement.

"The eWindow method is already widely adopted to power the MOC process for key oil benchmarks and now will be accessible for Platts LNG price assessments, such as Platts Japan Korea Marker, the benchmark price for LNG delivered into Northeast Asia," they added.

ICE already has the broadest range of natural gas benchmarks, hosting UK National Balancing Point, Dutch Title Transfer Facility, Henry Hub and the Japan Korea Marker prices, allowing market participants to hedge their price risk via futures and options for the major gas hubs globally.

ICE-JKM LNG (Platts) futures and options contracts are increasingly being used as the benchmark contract for LNG in Asia and continue to break new trading records as one of the fastest growing natural gas benchmarks and the most liquid Asian natural gas benchmark.

ICE-JKM LNG hit a record 44,394 lots for futures and options combined in June and reached a new open interest record of 52,080 lots, at the end of June.

"As LNG markets continue to liberalize and new types of price agreements emerge between buyers and sellers of LNG, a range of hedging products are critical to allow the market to hedge risk and manage price exposure," said the companies.

Chuck Vice, deputy chairman of ICE said Platts and ICE have had a long and successful history of working together to bring transparent price discovery to energy markets.

"The launch of eWindow is an important milestone in the ongoing maturity and evolution of LNG markets, moving it to the next level in terms of standardization and transparency," he said.

"ICE is home to the broadest range of natural gas benchmark futures markets with an established and growing global community of gas traders using futures and options to transact and manage their price risk," he stated.

Trading does not occur on the eWindow, but the tool's compatibility with ICE technology allows eWindow users to execute trades on the ICE platform without leaving the Platts MOC price assessment process and environment.

"In the decade since we launched Platts JKM, our focus has been to help bring increased transparency to the pricing of LNG and feedback from market participants is that now is the right time to offer the LNG trading community the benefits of the eWindow communication tool," said Martin Fraenkel, President of S&P Global Platts. ■

UNLIMITED AGENDA

French major Total finalizes share and volumes deals with Tellurian for export plant near Lake Charles

LNG Journal editor

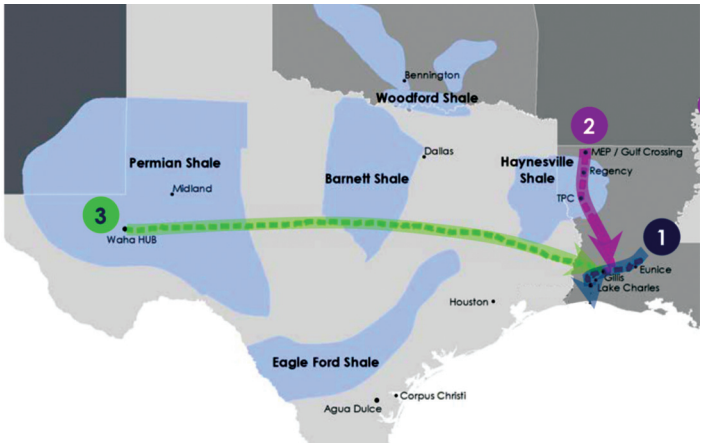
French energy major Total and Tellurian Inc. of the US have signed definitive agreements for $500 million of investments in the US Driftwood LNG export plant and for two Total subsidiaries to buy a total of 2.5 million tonnes per annum of LNG.

Total's two units, Total Delaware and Total Gas & Power North America will purchase 1 MTPA of LNG while Tellurian and Total Gas & Power entered into a sales and purchase agreement for an additional 1.5 MTPA from Tellurian's offtake volumes at the plant being built near Lake Charles in Louisiana.

Aggregate

The US company said Total's aggregate investment in the Tellurian portfolio, including volume purchases and shares, will be around $907M.

Total's investments include two tranches, one of $150M and a second at $350M, and give the company the status as a Class A limited partner.



Tellurian to build three pipelines as well as LNG plant

The Driftwood plant planned for the west bank of the Calcasieu River, south of Lake Charles, will have output of 27.6 MTPA when completed in 2023.

This comprises five liquefaction Trains built in two phases and with each having output of 5.25 MTPA.

The liquefaction plant and its associated pipelines, Haynesville Global Access and Permian Global Access as well as the Driftwood inter-connecting feed-gas pipeline have received all the necessary permits and licenses to begin construction.

The SPA with Total for the purchase of 1.5 MTPA is on a free-on-board basis at a price based on the Japan-Korea Marker price with the French company providing its own shipping.

The agreements with Total bring Tellurian closer to taking a final investment decision to proceed with the project.

"The agreements we have executed with Total confirm the business model for the Driftwood project, establishing it as an LNG joint venture partnership with an implied value of $13.8 billion," said Tellurian Chief Executive Meg Gentle.

"The Tellurian team thanks Total for their leadership and we look forward to beginning the largest privately funded US infrastructure project," she added.

"We intend to finalize the agreements with the remaining partners and make the FID in 2019," explained Gentle.

"At full capacity, Driftwood will be capable of exporting approximately 4 billion cubic feet per day of natural gas, providing solutions for the acute US oversupply and delivering cleaner air to the world," stated Gentle. ■

Shale-gas output in US surges while Henry Hub forecasts are lower amid rising LNG exports

The United States said natural gas production will average a record 91.3 billion cubic feet per day in 2019, up 8.0 Bcf per day from the previous record in 2018, as shale gas begins to dominate the output and opens the way for more LNG and pipeline exports and domestic gas-fired power.

In addition to surging natural gas production this year, the average US output in 2020 is forecast to rise by 1.4 Bcf per day, according to the latest short-term outlook of the Energy Information Administration.

The EIA also forecasts that the benchmark Henry Hub natural gas spot price will average $2.50 per million British thermal units in the second half of 2019 and $2.77 per MMBtu in 2020.

The EIA noted that its forecast for the second half of 2019 is $0.29 cents per MMBtu lower than forecast in the June outlook.

"The lower forecast reflects recent price declines and EIA's updated assessment of US drilling activity and average well productivity," said the agency.

The EIA also forecast an average Henry Hub price for December 2019 of $2.80 per MMBtu and should be considered in the context of New York Mercantile Exchange (NYMEX) Henry Hub futures and options contract values for December 2019 delivery that traded during the five-day period ending July 3, 2019.

In a related report on US natural gas production and consumption, the EIA noted that both had generally increased since the mid-2000s.

"Consumer-grade natural gas production and consumption reached record highs of about 30 trillion cubic feet (Tcf) in 2018," said the EIA.

"In both 2017 and 2018, annual dry natural gas production exceeded consumption for the first time since 1966," it added.

As US natural gas production has increased, exports of natural gas have also increased and now surpass natural gas imports, even as the US is set to post a three-fold rise in the next few years in LNG exports from current levels.

The nation became a net exporter of natural gas in 2017. In 2018, the US exported a record of nearly 4 Tcf of natural gas, either by pipeline to Mexico and Canada or shipped overseas as LNG. Natural gas imports that year were 3 Tcf, the lowest since 2015.

The EIA also gave a detailed overview of shale-gas production and its benefits brought about by the widespread adoption of horizontal drilling and hydraulic fracturing techniques that make production more economic.

"Shale gas now makes up a higher percentage of total US natural gas production than natural gas produced from both traditional natural gas wells and from crude oil wells as associated natural gas," explained the EIA.

"Smaller volumes of natural gas are also produced from coal seams, called coalbed methane," it noted.

In 2018, gross withdrawals of natural gas and other compounds extracted at the wellhead in the US totaled 37 Tcf, with more than half coming from shale gas wells.

Marketed natural gas production, which excludes natural gas used for repressuring the well, vented and flared gas, and any non-hydrocarbon gases, was nearly 33 Tcf. ■

European OTC gas trading in London up

European natural gas trading in the day-ahead and month-ahead over-the-counter markets in London soared almost 27 percent in June but at much lower prices compared with the same month in 2018.

The OTC trading in the UK was led by the continental European Dutch Title Transfer Facility price followed by the UK National Balancing Point benchmark.

Total European natural gas contracts traded in all the European instruments, including the seven largest markets, amounted 2,647,602,446 megawatt hours in June versus 2,089,809,591 MWh in June 2018, a year-on-year increase of 26.69 percent.

Trading in the Dutch TTF rose by 29.80 percent in June compared with June 2018, while trading in the day-ahead UK benchmark NBP dropped 40.66 percent year-on-year.

Over-the-counter transactions mean that the natural gas contracts are traded via a broker-dealer network as opposed to a centralized exchange.

The Dutch TTF and UK NBP prices are also the main indicators used when pricing Atlantic Basin LNG cargo trades.

Germany's two day-ahead trading hubs were among the next three in volume OTC trading terms through London, though separated by Italy, while the French PEG hub, now formally known as Trading Region France (TRF), came fifth in the volumes list and the Zeebrugge Hub was seventh behind the Austrian Virtual Trading Point.

The Dutch TTF logged 2,096,420,463 megawatt hours of over-the-counter bilateral and cleared monthly trades, according to the figures from the London Energy Brokers' Association. ■

Dutch join forces off Indonesia to fuel world's largest floating crane

LNG Journal editor

Three Dutch companies have co-operated in the bunkering with liquefied natural gas off Indonesia of the world's largest and strongest semi-submersible crane, now headed for Europe.

Heerema Group, the Dutch marine offshore contractor, said the crane built at Sempcorp in Singapore will be heading for Spain.

Duel-fueled

The semi-submersible crane, called the "Sleipnir", will take 45 days to reach its destination. The vessel can be powered on a dual-fuel basis with LNG and Marine Gasoil (MGO), thus reducing harmful emissions.

The vessel has just received LNG in a ship-to-ship transfer 12 miles off the coast of Indonesia from the LNG bunkering vessel, the 10,000 cubic metres capacity "Coral Fraseri", owned and managed by Dutch shipping line Anthony Veder.

"Since LNG is not yet obtainable worldwide this is among the first LNG bunkering operations in this area of the world," said Heerema.

The semi-submersible crane, the 'Sleipnir', can be powered with LNG and was built at Sempcorp Marine

Another Dutch company, Amsterdam-based fuel supplier Titan LNG, has chartered the "Coral Fraseri" for the fuel operation, thus resulting in unique Dutch cooperation.

"We are excited by serving Heerema's 'Sleipnir' in this LNG bunkering operation in cooperation with Titan LNG, and look forward to many more," said Jan Valkier, Chief Executive of Anthony Veder.

"Shortly after adding the 'Coral Fraseri' to our fleet we have already mobilized her in the small-scale LNG market, which underlines our strong position and commitment in supplying the maritime industry worldwide sustainable solutions for LNG as marine fuel," added Valkier.

Koos-Jan van Brouwershaven, the CEO of Heerema, said that not only was the "Sleipnir" the world's largest and strongest sea-borne crane, it is also first of its kind as far as sustainability goes. ■

Hong Kong floating terminal plan now has most elements in place

The Singapore office of international law firm, Ince, has given additional details of the planned Hong Kong offshore LNG import terminal project, involving the world's largest floating storage and regasification unit.

Ince acted as adviser to the Japanese shipping line, Mitsui O.S.K. Lines (MOL), which is chartering the FSRU to two Hong Kong utilities.

The project involves a joint venture between sponsors Castle Peak Power Co. Ltd. and the Hongkong Electric Co.

MOL will provide the vessel "MOL FSRU Challenger", along with operations and maintenance services, to the project aimed at supplying regasified LNG for gas-fired power at the Black Point and Lamma Island power stations.

"With a storage capacity of 263,000 cubic meters, the 'MOL FSRU Challenger' is the largest FSRU in the world and the project will ensure a reliable and stable fuel supply for Hong Kong," said Ince.

The "MOL FSRU Challenger" is currently deployed as an import facility offshore Turkey.

MOL had previously said the FSRU is expected to enter service off Hong Kong around the end of 2020 or early 2021 and after an accord was signed by the shipping line back in June 2018.

The Japanese-owned vessel will supply the Black Point Power Station located in the New Territories and the Lamma Power Station on Lamma Island to improve air quality and the environment in Hong Kong, which was returned to Chinese sovereignty in 1997 after 156 years of British rule.

Law firm Ince said it advised MOL on the negotiation of the FSRU Time Charter Party and Services Agreement, Hong Kong regulatory issues and complex finance-related issues.

The Ince team which comprised of shipping, energy and finance lawyers was led by Devandran Karunakaran, Singapore office Managing Partner, with a team of lawyers from Singapore and Hong Kong. ■

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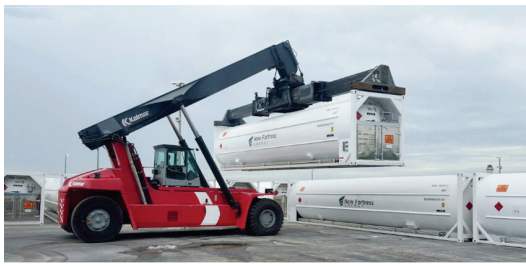

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NEWS NUDGES

French regas offering

Elengy, the French LNG import terminal owner, said it was launching a call for capacity subscriptions for its Atlantic Coast Montoir-de-Bretagne LNG import facility in Western France to promote access to North-West European natural gas markets. "It is initiated in response to market signals, collected in recent months, indicating requirements for securing and booking LNG import capacities," said Elengy whose Montoir terminal has been in operation since 1980. The Montoir terminal owner said it was offering slots from October 2021 until December 2035.

Novatek deal on equipment

Russian natural gas company and Yamal LNG plant operator Novatek and JSC Atomenergomash, a mechanical engineering division of Russia's nuclear body Rosatom State Corp., have signed a memorandum of understanding on forming a strategic partnership for localizing the fabrication of equipment for LNG production.

Knutsen LNG growth

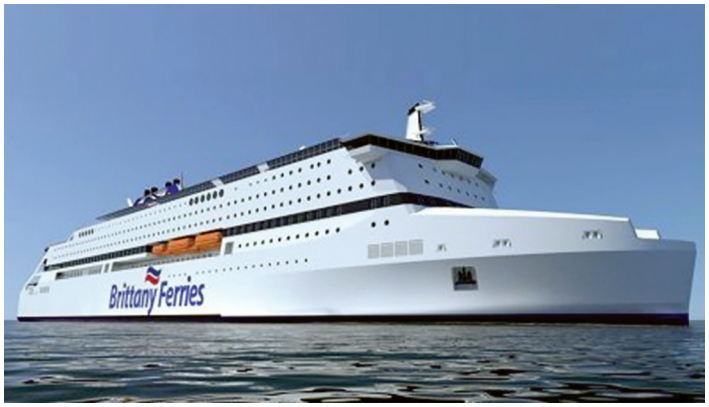
Knutsen Group, the Norwegian shipping company, said it expanded its liquefied natural gas carrier fleet to 12 vessels as its latest newbuild, the 180,000 cubic metres capacity carrier "Adriano Knutsen", is set to leave the South Korean shipyard of Hyundai Heavy Industries at Ulsan. The vessel is part of a series of three being built at Hyundai with two delivered in 2019 and the third in 2020. The "Adriano Knutsen" has been signed up to a seven-year charter deal with Spanish utility Endesa to transport LNG from the Texas Corpus Christi plant. ■

Brittany Ferries names third ship to have LNG fuel propulsion as part of clean-fuel expansion

LNG Journal editor

French shipping company Brittany Ferries said its third chartered ferry powered by liquefied natural gas has been named the "Santoña" and it expects British passengers to remain its top customers even after the UK leaves the European Union.

The ferry company has chartered the vessel from Stena of Sweden and it is scheduled to be delivered in 2023.



The first ferry, the 'Honfleur', will be operational next year

E-Flexer

The acquisition of the "Santoña" built to the Swedish fleet owner's E-Flexer design is part of the company's fleet renewal programme being carried out at a cost of 550 million euros ($606M).

The company's first LNG-powered ferry, the "Honfleur", will be operational next year.

She is currently under construction in Germany and will serve the company's busiest Portsmouth-to-Caen route.

A second vessel, the "Salamanca" will be delivered in 2022 to carry passengers and freight on long-haul routes between the UK and Spain. The "Santoña" will also work the UK-Spain route.

"Brittany Ferries is committed to LNG as the most environmentally-friendly fuelling solution currently available for shipping," said Frédéric Pouget, Brittany Ferries director of fleet and port operations.

"Despite the significant investment made in scrubber technology for our ships, we know that the best way to respect the environments in which we operate, and to exceed emission reduction targets, is to commit to LNG," he added.

"This is what we have done with an investment worth half a billion euros," stated Pouget.

The company said the fleet renewal plan would have a significant impact on the reduction of carbon emissions per passenger compared with currently operated vessels between the UK and Spain.

It carries around 2.5 million passengers every year, 85 percent of whom are British, as well as around 210,000 freight units.

The company was born on 2 January 1973, the day after the UK joined the European Economic Community (EEC), the forerunner of the European Union.

The first sailing carried market garden produce grown by Breton farmers seeking new markets across the Channel.

From these humble beginnings, Brittany Ferries quickly became a tour operator, adding routes linking the UK to Spain in 1978.

Brittany Ferries has established itself as the national leader in French maritime transport and is still a private company owned by the Breton agricultural cooperative.

It has also pledged to increase services in the event of a no-deal Brexit to keep trade flowing from the UK to the Continent and back. It signed a deal with the UK Government to this effect in December 2018.

The ferry company operates 11 large ferries that connect ports in France, the UK, Ireland and Spain.

In terms of refuelling infrastructure, Brittany Ferries has developed a solution to re-fuel its first LNG-powered vessel, "Honfleur".

"In partnership with Total, industry-standard, containerised LNG will be trucked on board, then lifted into position by on-board cranes where they will replenish the 'Honfleur' fixed, on-board LNG storage tank," said the company.

This process will be reversed when mobile tanks are empty.

Additional costs of the "Honfleur" LNG fuel system and equipment have been partially offset by the support of the French Government's "Programme of Investments for the Future".

For Spanish ferry operations, Brittany Ferries has signed a letter of intent with Spanish energy company Repsol for the delivery of LNG.

"Under the agreement between the two companies, Repsol will install quayside LNG storage facilities at ports in northern Spain," added the company.

This will then be used to fuel both E-Flexer ships during their calls. The E-Flexer-class ships will be among the largest in the Brittany fleet.

The three 42,200 tonne E-Flexer-class ships will be among the biggest in Brittany's fleet. Each will be 215 metres long with 3,000 garage lane-metres for freight vehicles and capacity for around 1,000 passengers in 340 ensuite cabins. ■

Ship-to-ship transfer haven for Yamal LNG cargoes off Norwegian port of Honningsvag is formally shut

LNG Journal editor

Novatek, the Russian natural company and owner of the Yamal LNG export plant in northern Siberia, has formally ended its re-loading activities offshore the Norwegian port of Honningsvag that saw several million tonnes of LNG transferred from Ice-class carriers to conventional vessels and shipped to European terminals and beyond.

The last LNG tanker left Honningsvag at the start of July and when the Northern Sea Route is closed at the start of the next winter season, a Russian re-loading site is set to open near Kildin Island in Kola Bay.

Re-loading site being moved from Norway's water to Kola Bay in Russian territorial waters of the Barents Sea

Contract

The Norwegian privately-held logistical and ship management company, Tschudi Shipping, has handled the reloading operations for Russian LNG off Norway after it signed an agreement with Novatek in September 2018.

Ice-class carriers have shuttled cargoes from the Yamal LNG plant at Sabetta on the Yamal Peninsula to Honningsvag for ship-to-ship transfers.

At busy times in the Northern Hemisphere Spring season groups of LNG carriers were simultaneously involved in reloading in Sarges Fjord, the bay outside Honningsvag.

At the same time, a number of additional tankers were waiting in nearby waters for their turn to reload.

The third liquefaction Train at Yamal LNG came on stream ahead of schedule and took overall capacity up to 16.5 million tonnes per annum.

Novatek had managed to ramp up production at a fast pace after beginning commercial services on the first Train at the end of 2017.

The second Train at the Russian facility, built at a cost of US$27-billion, had come on stream in July 2018.

The deal between Novatek and Tschudi Shipping was signed in September 2018 as there were not enough Ice-class carriers to ship the cargoes over the longer distances to import or re-loading terminals in Europe or elsewhere and at the same time keep up with Yamal production.

For the purpose of the re-loading agreement Tschudi secured permission from the Norwegian authorities to conduct scores of transfers off the port of Honningsvag.

The Tschudi Group confirmed that the agreement with Novatek has come to an end and that the Russians would move the ship-to-ship reloading operations to their own waters in the course of late 2019.

While more Russian cargoes are now pointing at Asia from the Yamal plant and its three Trains, the Northern Sea Route season comes at a time of high global volumes and low prices.

However, Yamal shipments have already been delivered to terminals in China and at least one has been unloaded in Japan as of late June.

Japanese spot cargo deliveries cost more

Spot liquefied natural gas cargoes delivered to Japan last month cost $2.20 per million British thermal units more than in the previous month even as market prices were much lower and available volumes were high.

Delivered cargoes in June 2019 had cost an average of $7.50 per MMBtu versus $5.30 per MMBtu in May 2019 and $8.90 per MMBtu in June 2018.

The North Asia spot cargo price for Japan, China and South Korea quoted in the Singapore market for June delivery had been around $4.50 per MMBtu.

Shipments for Japan contracted in June 2019 had cost an average of $5.50 per MMBtu compared with $5.40 per MMBtu in May 2019 and $9.30 per MMBtu in June 2018.

The North Sea Brent crude oil price that influences Japanese long-term contract prices has less of an impact on spot LNG cargoes, a market mainly governed by delivery windows and available shipments.

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 dropped for the sixth month out of the seven in May 2019 as the nation received fewer shipments from the Middle East and Asia leading to a drop in its energy spending bill on fuels such as LNG and coal. ■

Energy World Corp. makes more progress with Indonesian venture

LNG Journal editor

Energy World Corp., the Australian-listed LNG and power project developer in southeast Asia, is making more progress on its Indonesian and Philippines ventures, including the Sengkang LNG production plant, as it successfully completed the installation and start-up of two gas compressor units.

The company's Indonesian project involves a 315 megawatts gas-fired power plant at Sengkang on the South Sulawesi coast of eastern Indonesia with an affiliated LNG production plant with output of 2 million tonnes per annum.

Compressors at Kampung Baru will boost Sengkang plant

Extension

EWC was also recently granted a 20-year extension to its Indonesian natural gas production-sharing contract.

The two compressor units at Kampung Baru will boost the supply of gas to the Sengkang power plant that is currently owned and operated by PT Energi Sengkang, a subsidiary of EWC.

"With the operation of the compressors, we will be in a position to deliver more gas to the plant which will then be able to supply more electricity when required," said Brian J. Allen, an EWC executive director.

Allen added that the company was now in a more advantageous position in discussions for the extension of the power purchase agreement (PPA) for the Sengkang power plant to supply electricity to the Indonesian national utility, PT Perusahaan Listrik Negara, beyond September 2022.

"The current PPA is a long term, take-or-pay power agreement that runs to 2022. Discussions for its extension have commenced," said Allen.

Installation of these two gas compressor units also followed the 20-year extension of the Sengkang gas field production sharing contract from October 2022 to October 2042.

"With this extension in place, EWC is able to implement plans to supply gas for additional power generation, city gas and the provision of additional reserves for EWC's Sengkang LNG facility," stated Allen.

EWC also has plans to develop an LNG hub in the Philippines. ■

Sale of FLNG and other Malaysian assets to Thailand is completed

Murphy Oil, the US company whose Rotan natural gas discovery offshore Malaysia is the subject of a floating LNG joint venture, said it completed the sale of its Malaysian assets for more than $2 billion to Thailand state energy company PTT Exploration and Production.

Murphy, based in the town of El Dorado in the southern US state of Arkansas, had spent 20 successful years in Malaysia and was set to contribute its Block H reserves offshore Malaysia to the FLNG venture.

The US company said it had now completed the sale of its main Malaysian subsidiaries, Murphy Sabah Oil and Murphy Sarawak Oil, to PTTEP for $2.12 billion in an all-cash transaction, plus up to a $100M bonus payment contingent upon certain future exploratory drilling results.

Murphy's year-end proved reserves were 816 million barrels of oil equivalent of which 16 percent were attributable to Malaysia.

The proved reserves are comprised of 468 billion cubic feet of natural gas and 51 million barrels of liquids.

"We would like to congratulate PTTEP on the purchase of their new assets," said Roger W. Jenkins, Murphy's President and Chief Executive.

"As our talented and committed Malaysia team transitions to their new owner, I am confident they will diligently work to ensure continued success in the country," added Jenkins.

"Also, I would like to thank our long-term partners Petronas, Petronas Carigali and Pertamina. They too have diligently worked to ensure our long-term success in the region," stated Jenkins.

Total production net to Murphy in 2018 for the properties divested was over 48,000 barrels of oil equivalent per day. ■

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Lloyd's Register agrees to joint industry project with Chinese partners for large LNG carrier

LNG Journal editor

Lloyd's Register, the UK maritime classification society, has signed an agreement with a group of six Chinese companies to design and develop an LNG carrier with membrane-type containment tanks with total capacities of 220,000 cubic metres.

"The seven parties will use their expertise, experience and research capabilities to define the ship's technical specifications and general arrangement of the main systems, to factor in route and capacity requirements," said Lloyd's Register.

Representatives of seven companies and bodies in venture

Capacity

The 220,000 cubic metres capacity Chinese LNG carrier if built would be slightly larger than the Qatari Q-Flex vessels of 210,000 cubic metres capacity, though smaller than the Q-Max ships at 266,000 cubic metres capacity.

The UK class society and its Chinese counterpart CCS will provide technical support and consultancy services to ensure that the design meets all international regulations, industry-wide conventions and standards, and that it complies with each society's classification rules.

Lloyd's Register said it signed a joint industry project (JIP) accord with the Chinese companies and bodies, COSCO Shipping LNG Investment (Shanghai), COSCO Shipping Heavy Industry Co., Jiangnan Shipyard, the Marine Design and Research Institute of China (MARIC), the Shanghai Ship and Shipping Research Institute (SSSRI) and the China Classification Society (CCS) to design and develop the Mark III tanks under licences from France-based GTT.

The UK and Chinese class societies will also offer technical support for ship-shore matching, focusing particularly at upstream and downstream loading and unloading terminals.

"Once the LNG carrier has been designed, LR and CCS will look to grant the design approval in principle, which will further enhance the project partners' competitiveness in the large LNG carrier market," said Lloyd's Register.

"The parties will conduct hydrodynamic assessments on the design to optimise its performance and plan to continually improve the design," it added.

Zhu Cangman, a Vice-Director at COSCO Shipping LNG Investment, said the seven companies seek to benefit.

"All of the partners involved in this project hope to achieve complementary advantages through close cooperation, which will further enhance the competitiveness in the large LNG carrier market within China and local areas," stated Zhu.

Hu Keyi, Chief of Global Technology of Jiangnan Shipyard, said the membrane type LNG carrier is Jiangnan's strategic and long-term product and expanding its LNG series will allow Jiangnan to support the rapid growth in demand. ■

South Korean shipbuilders burdened by fact that their LNG storage tanks have failed to be accepted

South Korean shipyards are the builders of choice for the global liquefied natural gas carrier market with a share of over 80 percent of newbuilds, though executives regret that the nation has not gained acceptance for its LNG maritime storage technology and that shipowners prefer French-designed tanks.

Gaztransport & Technigaz (GTT) of France is the technology company that earns royalties from every LNG carrier built in South Korea and elsewhere in the world when its designs are used.

One South Korean shipbuilding executive estimated that GTT had earned 2.5 trillion won (US$2.1 billion) in royalties from South Korean shipbuilders over the last 10 years for the rights to use its membrane-type LNG tanks.

GTT's average royalties are generally kept confidential, though are estimated to be around $10 million per vessel with carriers costing between $180M and $200M in the current market.

The South Korean national news agency Yonhap has carried a report citing financial analysts and unnamed shipyard executives regretting the fact that a South Korean-designed storage tank was not seen as acceptable in the market.

When South Korea's three major shipbuilders receive orders for LNG carriers, they all use GTT's technologies. About 5 percent of the vessel's price is reportedly paid to GTT in royalties and this has been largely affecting the shipyard profitability.

The nation's shipbuilders have been trying to alter the landscape of the LNG tank system business for years. In fact, all three of South Korea's major players have designed their own LNG cargo containment systems for maritime transportation.

Samsung Heavy Industries Co. developed its KCS LNG cargo containment system in 2011, and Hyundai Heavy Industries Co. created its own LNG cargo containment system in 2013.

Daewoo Shipbuilding & Marine Engineering Co. for its part introduced its Solidus LNG tank in 2017.

However, none of them have yet been used in vessels in service. The reason why was summed up by Samsung Heavy Industries.

"The shipping industry is a very conservative industry," said a spokesman at Samsung.

"Safety always comes first before looking into new technology and functions. Shipowners or shippers don't want their vessels to become a test bed for new products," stated the South Korean company.

Against this backdrop, the local shipbuilding industry is also lamenting the failure of the KC-1 tank, the country's first LNG membrane system to be applied in LNG vessels.

The KC-1, developed by the state-run Korea Gas Corp. (Kogas) in collaboration with the three South Korean shipbuilders, made its commercial debut last year after it was installed in two LNG carriers operated by the local shipping line SK Shipping Co. ■

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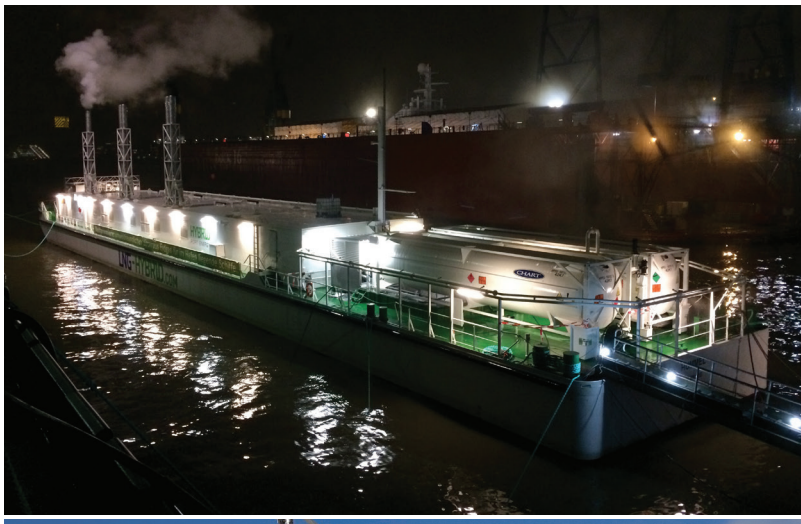

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