

LNG Unlimited

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Qatar's LNG talks in Tokyo yield results amid 20-year landmark

Qatar Petroleum holds substantive discussions with Japan on policies
Our Europe Editor

Executives from Qatar Petroleum and its affiliates, the main shareholder in the Gulf state's two liquefied natural gas production companies Qatargas and RasGas, have met in Tokyo with Japanese customers during a three-day visit and attended a reception to mark almost 20 years of LNG deliveries from Qatar.

The Qatari LNG delegation was led by Qatar Petroleum President and Chief Executive Saad Sherida Al-Kaabi, who is also Chairman of Qatargas.

Reception

The QP reception for the Japanese natural gas and energy industry celebrated the first LNG shipment from Qatargas that arrived in Japan in January 1997 under the first binding supply contract signed between Chubu Electric and seven other Japanese buyers and Qatargas.

QP hosted the reception for Japanese partners, clients and contracting companies, part of an annual tradition to salute "historic business relationships that shape Qatari-Japanese ties."

The visit of the Qatari delegation to Japan came at a time of active lobbying by the Japanese government to gain more control over cargo prices.

The largest LNG importing nation is seeking to end destination clauses, renegotiate long-term contracts with producers linked to the oil price and to develop LNG financial derivatives on the com-



First Qatargas cargo arrived in Japan in January 1997

modities market to allow more hedging against price movements.

Qatar and other LNG producers point to the need for cargo prices to be at a level that reflects the high costs of exploration and production of oil and gas and constructing high-technology liquefaction plants and fleets of vessels to transport the fuel.

Qatargas alone has over 7 million tonnes per annum of long-term contracts with Japanese utilities and these are mostly up for renewal before 2021.

Of these Qatar-Japan supply contracts a total of 4 MTPA is with one Japanese company, Chubu Electric.

Chubu, whose annual imports from around the world amount to around 20 MTPA, has formed a joint venture with Tokyo Electric Power under Japanese market liberalization.

The firm is called Jera Co. Inc. and it aims to procure LNG and develop power and ventures.

While the Japanese contracts were fixed in the 1990s, there is now more competition from current and future supply growth from Australia and the US.

LNG deliveries to Japan from

the Middle East amount to around 2 million tonnes per month, or 24 MTPA, most of it from Qatar, which itself produces around 77 MTPA.

The QP CEO was accompanied by senior executives of the Qatari LNG industry and during the working visit met all the major Japanese energy companies.

"Meetings during the visit included discussions with Chairmen, Presidents, and senior executives of Chubu Electric, Jera Co Inc., Mitsui, Chiyoda Corporation, Idemitsu, Cosmo Oil Co., LNG Japan, Mitsui & Co. and Marubeni Corporation," QP said.

The Qatari delegation also held discussions with Japanese financial institutions, including the nation's largest bank, Bank of Tokyo-Mitsubishi UFJ, as well as the Japan Bank for International Cooperation, the import-export institution that lends to energy projects that supply Japan.

The Qatari executives also held constructive talks with executives from utilities Tepco, Kansai Electric, and Tohoku Electric and the shipping lines that transport the cargoes, including NYK Line and Mitsui OSK Lines.

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US LNG to flow worldwide at faster pace as second Train at Sabine Pass is cleared

Our North America editor in New York

The Cheniere Energy Sabine Pass liquefied natural gas production plant in Louisiana, the first US export facility in the new wave under construction, has received permission from the regulator to formally start commercial operations on the fully completed second processing Train.

The Federal Energy regulatory Commission authorized Sabine Pass LNG to commence service for liquefaction and export activities from Train 2 at the plant, located in the Gulf Coast state's Cameron Parish.

Inspections

"Based on FERC staff inspections and review of the commissioning activities, Sabine Pass has demonstrated that the above-mentioned facilities have been constructed in accordance with Commission approval and applicable standards and can be expected to operate



Sabine Pass has put Train 2 into formal operations mode

safely as designed," the regulator said.

"We note that project areas within the terminal have been satisfactorily stabilized and are in compliance with the terms," the FERC added.

Two Trains out of a planned total of six are now on stream at Sabine Pass, giving a combined nameplate capacity of 9 million tonnes per annum from the 4.5 MTPA Trains.

The first Train at Sabine Pass was able to ship its first commissioning cargo in February 2016.

US LNG cargoes have already been shipped from Sabine Pass to nations such as Chile, Brazil, Spain, Portugal, the United Arab Emirates, Kuwait, Japan and China.

Cheniere was also completing a scheduled four-week maintenance shutdown of the plant that also enabled the repair of gas flares that had not functioned properly.

US engineering company Bechtel Inc., the world's leading liquefaction plant builder and whose corporate headquarters are in San Francisco, was contracted as lead

engineer and construction company for all six Trains at Sabine Pass.

Of the remaining Trains the substantial completion of Train 3 is scheduled for June 2017 based on the company's most recent progress reports to the FERC.

Train 4 is also progressing and is expected to be completed by August 2017.

As regards Cheniere's second export plant being constructed at Corpus Christi on the Gulf Coast of Texas, the company has told regulators that the total build was more than 40 percent complete.

The Texas liquefaction plant is being built on the shore of Corpus Christi Bay, at the north end of the La Quinta Channel.

The Phase 1 EPC contract for Corpus Christi includes building two LNG Trains, each with 4.5 MTPA of capacity, two storage tanks, one complete berth and a second partial berth.

Driftwood project of former Cheniere CEO Souki seeks multiple 30-year export permits

Driftwood LNG, the US project company run by former employees of Sabine Pass export plant owner Cheniere Energy, has applied to the US Department of Energy for authorization to export up to 26 million tonnes per annum from a proposed plant on the Gulf Coast of Louisiana.

Driftwood has asked the DoE for a long-term, multi-contract permit to export up to the equivalent of 1,496.5 billion cubic feet a year for 30 years of domestically produced natural gas to nations with and without a Free Trade Agreement with the US.

Driftwood LNG would export the cargoes from its proposed liquefaction plant to be located on the west side of the Calcasieu River, near Carlyss in the state's Calcasieu Parish.

The application was made on behalf of Tellurian Investments, based in Houston and described as a developer of LNG projects along the US Gulf Coast, funded by Charif Souki, former Chief Executive and Chairman of Cheniere and Martin J. Houston, a former Chief Operating Officer of UK LNG company BG Group, now part of Shell.

Souki has since head-hunted former London-based Cheniere Marketing executive Meg Gentle to be CEO of Driftwood and then named Cheniere's former Executive Vice President of assets Keith Teague as the new Chief Operating Officer of Tellurian.

Souki's Driftwood venture will be a major competitor to Cheniere's Sabine Pass plant, already operating on the Gulf Coast since February 2016 with two of a planned six

processing Trains completed. Driftwood is in the engineering design and pre-filing phase of the project to match Sabine Pass in production volumes from five processing Trains.

Souki's company expects construction to begin in 2018 and the project to become operational in 2022.

More Technical and project details about the Driftwood venture were also revealed in the DoE application, including the fact that the plant will be located on around 790 acres.

"Driftwood LNG has purchased approximately 140 acres and has leased an additional 650 acres with the right to enter into a long-term lease for up to a total of 50 years," it said.

"The facility will consist of five

LNG plants. Each plant will be comprised of one gas pre-treatment unit and four liquefaction units.

"Each liquefaction unit will consist of a refrigeration compressor driven by aero-derivative gas turbines.

"The liquefaction technology will be Chart Industries' proprietary Integrated Pre-Cooled Single Mixed Refrigerant process.

"LNG will be stored onsite in three LNG storage tanks, each with a capacity of approximately 235,000 cubic metres.

"The marine loading facility will be located along the Calcasieu River and will consist of three berths for LNG ships with a cargo capacity ranging from 125,000 and 216,000 cubic metres capacity," the company told the DoE.

Japan pushes LNG reform during talks in Algeria

The influential Japanese Ministry of Economy, Trade and Industry said it was continuing its global efforts to overhaul the liquefied natural gas trading market and recently took its message to a ministerial energy meeting hosted by Algeria, the North African LNG producer.

Japan's delegation at the International Energy Forum in Algiers was led by Economy and Trade Minister Yosuke Takagi.

The minister held direct talks with Algerian Prime Minister Abdelmalek Sellal and Algeria's Energy Minister Nouredine Boutarfa.

Japan has said that in order to develop a flexible LNG market, restrictions need to be eliminated such as destination clauses in long-term supply contracts.

The Japanese believe this would help increase the number of market players as well as trade volumes and frequency of trades.

Japan is on an international mission to lobby for a highly fluid LNG market and for itself to become an LNG trading and price formation hub by 2020.

During the Algiers gathering Japanese Minister Takagi also held one-on-one discussions with counterparts from Saudi Arabia, Kuwait and the United Arab Emirates.

"Japan delivered measures for developing LNG markets, and the necessity of developing liquid and flexible LNG markets was recognized," the ministry said.

"Particularly, Japan, the world's largest consumer of LNG, stressed that producers and consumers should cooperate in discussing measures to develop the market from the medium term to the long term," the Japanese added.

Sharjah to be third UAE importer after accord with Germany's Uniper

Our Europe editor

Sharjah, the third largest of the seven United Arab Emirates after Dubai and Abu Dhabi, has signed an accord with German utility and energy trading company Uniper for liquefied natural gas deliveries.

Sharjah National Oil Corp. (SNOC) and Uniper signed a memorandum of understanding for the shipments to be delivered from the first quarter of 2018.

Free Trade Zone

The cargoes will be unloaded at the Port of Hamriyah, a deep water Gulf seaport in the Sharjah emirate's Hamriyah Free Trade Zone.

"Gas will flow to the Sajaa gas field complex and further into the existing pipeline network throughout the Northern Emirates," a SNOC statement said.

"The natural gas will be marketed to existing gas consumers in the region and new business seeking a reliable long-term supply of energy," SNOC added.

"We highly value this project which will add to the supply of gas in Sharjah and Northern Emirates to meet the growing demand for energy," said Sheikh Sultan Bin



Done deal: Uniper envisages 2018 deliveries to Sharjah

Ahmed Al Qasimi, SNOC President.

"The combination of SNOC and Uniper efforts with all their capabilities and experience in natural gas activities will achieve the planned targets," Al Qasimi added.

Uniper Global Commodities said that under the accord just signed the firm would assist SNOC in developing the Port of Hamriyah to receive LNG cargoes and obtain supplies of energy from LNG markets.

"We are grateful that SNOC has selected Uniper to support the Emirate of Sharjah in their quest for uninterrupted supplies of natural gas," said Klaus Schaefer, Chief Executive of Uniper.

"Uniper has over 50 years of experience, through its legacy

companies, in delivering sustainable competitively priced energy to customers," added Schaefer.

The Sharjah LNG accord is likely to lead to the chartering of a Floating Storage and Regasification Unit to handle the shipments.

The Emirate of Abu Dhabi inaugurated an FLNG import facility in August 2016 at the port of Ruwais. The FSRU loaded LNG from the UAE's own production plant on Das Island and delivered it to the port.

Arab nations have favoured floating LNG solutions. Previously the Gulf state of Kuwait started the port-side FSRU import terminal system in 2009 followed by Dubai's use of its first FSRU for the UAE in late 2010.

Japan fails to give delivered spot LNG cargo price because of lack of deals

Japanese spot cargoes on a delivered basis at low prices in September were unavailable for the government to log, though cargoes contracted last month before delivery were priced at \$5.70 per million British thermal units.

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 average price of spot-LNG imported into Japan that arrived in September 2016 is not published," a statement said.

"In accordance with the Statis-

tics Act, we can publish the price of the spot-LNG only in the cases where there are two or more reporters that imported spot LNG," it added.

"If there is only one reporter or none at all, we will not publish a price," the Ministry explained.

The previous spot cargo figures were released by Japan on September 9 when the contracted price for August was not published because of a dearth of reported deals.

However, the delivered price for spot cargoes that arrived in August was given as \$5.40 per MMBtu compared with \$6.00 per

MMBtu in July. 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 Japanese Finance Ministry released figures on September 21 showing overall LNG shipments for August unexpectedly surged more than 9 percent.

The August 2016 deliveries were 7.72 million tonnes compared with 7.06MT in the same month of 2015, an increase of 9.4 percent.



LNG VALUE CHAIN SOLUTIONS

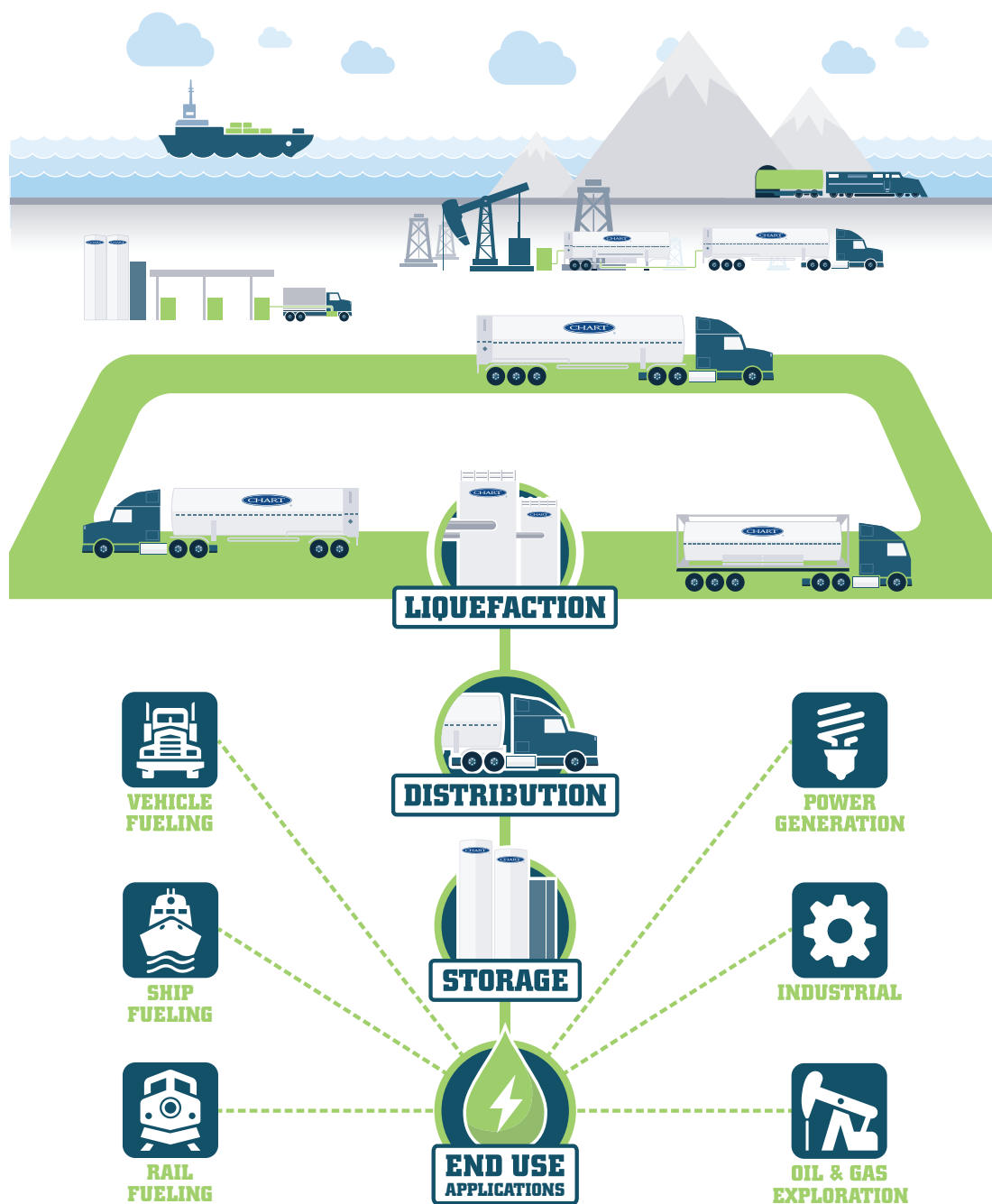


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NEWS NUDGES

Trinidad sees feed-gas fall

Trinidad and Tobago said in its latest natural gas reserves audit that resources had declined by 900 million cubic feet from the previous year, with much of the gas production used at the Atlantic LNG export plant at Point Fortin in Trinidad. Energy Minister Nicole Oliverre said proved gas reserves now stand at 10.6 Tcf, down from 11.5 Tcf in 2014. The survey was carried out by Ryder Scott, the oldest and most respected reservoir-evaluation consulting firm, and showed that the Caribbean nation's proved reserves have almost halved in 13 years from 20.8 Tcf in 2002.

Lease sales for Alaska

The US state of Alaska, an official LNG project developer, has nominated the Beaufort and Chukchi seas and Cook Inlet for inclusion in the 2017-2022 proposed Outer Continental Shelf (OCS) lease sale programme for exploration and development. The State asked that a minimum of one lease sale in each location be included in the five-year programme. "We will continue to work with Arctic stakeholders, the federal government, and our Congressional delegation to ensure Alaskans can see economic progress," a statement said.

Indian gas price ceiling

The Indian Ministry of Petroleum and Natural Gas said its natural gas price ceiling for October 2016 to March 2017 was \$5.30 per million British thermal units on a gross calorific value basis for the purposes of marketing production from domestic discoveries. The latest price is \$1.31 per MMBtu lower than the official price of \$6.61 per MMBtu given for the period from April to September 2016.

French LNG tanks firm GTT signs landmark US onshore market deal

Our Europe editor

Gaztransport and Technigaz (GTT), the France-based liquefied natural gas storage tank technology company, has signed a breakthrough agreement to market its onshore LNG storage tanks through a leading US operator.

GTT, which specializes in providing storage tanks for ships, also has onshore patents and has signed a licensing agreement with the US company Matrix PDM Engineering, a maker of above-ground storage tanks and steel plate structures.

Construction

The licence grants Matrix PDM the right to implement GTT's patents to construct onshore storage tanks for LNG, liquefied petroleum gas and other liquefied gases through affiliated Matrix construction companies.

"As the first Engineering, Procurement and Construction company based in the US to be licensed by GTT, Matrix PDM and its affiliates are well positioned to provide GTT's onshore technology throughout the US, Canada, Mex-



US company Matrix Engineering will use storage patents

ico and the Caribbean," a joint statement said.

The agreement was signed at the Matrix headquarters in Tulsa, Oklahoma, by Joe Montalbano, President of Matrix PDM and Aziz Bamik, General Manager of GTT North America.

Also present was John Hewitt, Chief Executive of Matrix PDM parent Matrix Service Company, which is listed on the US Nasdaq stock exchange.

In December 2015, GTT's membrane technology was approved for inclusion in the 2016 edition of the US standard for the production, storage, and handling of LNG.

This standard is widely regarded as the reference standard

in many regions of the world, especially North America, Latin America, Asia-Pacific, the Middle East and Africa.

"GTT is pleased to partner with Matrix, a first-class EPC company, to bring a new value proposition to the North American market through the inherent advantages of GTT's proven membrane technology," said Philippe Berterottiere, Chairman and Chief Executive of GTT.

Ken Erdmann, Vice President of Matrix PDM, said the GTT membrane technology added to its offerings in the North American region and its expertise in the design and construction of LNG and Natural Gas Liquids tanks.

US natural gas production jumps for fifth year amid domestic demand rise

US natural gas production levels rose for a fifth consecutive year amid record domestic consumption and rising pipeline exports to Mexico as prices tumbled compared with the previous year.

Other figures showed that Canadian pipeline exports to the US held their ground compared with previous years and Canadian LNG truck exports across the border increased.

US domestic dry natural gas production in 2015 was 27.1 trillion cubic feet (Tcf), or 74.1 billion cubic feet per day (Bcf/d), a rise of 4.5 percent compared with 2014 levels, according to the figures just released by the Energy Information Administration.

The nation's exporting of its natural gas surplus in the form of LNG only began in February 2016 and the growing levels will feature in next year's survey

For the third consecutive year, shale-gas producer Pennsylvania saw the largest total gain in annual production, increasing from 11.56 Bcf/d in 2014 to 13.04 Bcf/d in 2015.

Pennsylvania market production totaled 4,812 million cubic feet for 2015 compared with the highest total recorded by Texas at 7,880 mcf.

Production in Ohio increased the most, percentage-wise, of any state for the second consecutive year. Dry natural gas production in

Ohio doubled from 1.31 Bcf/d in 2014 to 2.62 Bcf/d in 2015.

Deliveries to consumers of natural gas in 2015 were a record level of 25.1 Tcf, or 68.6 Bcf/d, an increase of 2.8 percent from 2014 deliveries.

Deliveries of natural gas used as vehicle fuel also increased (by 11.6 percent) in 2015.

Exports of natural gas increased year-to-year for the first time since 2012, from 1,514 Bcf in 2014 to 1,783 Bcf in 2015, an increase of 17.8 percent.

Pipeline imports from Canada were little changed from 2014 at 2,625 mcf compared with 2,634 mcf the previous year.

Heads of 16 European LNG import terminals meet in Spain to discuss business strategies

Our Europe editor

Gas LNG Europe, the industry business organization, has held a meeting at the Reganosa import terminal in the northwest Spanish port of El Ferrol attended by 16 directors of regional natural gas regasification facilities.

They discussed challenges facing European natural gas companies as well as issues such as small-scale LNG distribution, market transparency and decarbonisation measures.

Evolution

The autumn meeting of GLE brought together LNG terminal operators representing 90 percent of the region's regasification capacity.

Participants took part in discussions covering the evolution of LNG terminals in such areas as providing marine bunkering facilities and other fuel distribution operations.



Reganosa near El Ferrol port hosted regas plant executives

"The transformation of regasification plants into distribution centres for LNG, especially for marine fuel, is expected to constitute a decisive factor in the provision of cleaner shipping and emission reductions," the GLE said.

The choice of the Reganosa terminal's facilities in El Ferrol port to hold the meeting reflected the interest shown by members of

GLE in the development of small-scale services by its operators.

The Reganosa import terminal, also known as the Mugardos plant, is also noted for having received Europe's second LNG shipment from the US.

The cargo was delivered by the 138,000 cubic metres capacity vessel "Sestao Knutsen" on July 21, 2016, from the Sabine Pass liq-

uefaction plant in Louisiana, operated by Cheniere Energy. The first US LNG cargo shipped to Europe had gone to Portugal's Sines facility in April.

The GLE meeting also discussed the transition towards "decarbonisation" with LNG regarded as a key fuel in the transition towards workable and economic renewable energy sources.

"The meeting also agreed its criteria to give greater transparency to the natural gas market," GLE added.

President of GLE, Wim Groenindijk from Gasunie natural gas company in the Netherlands, said that the progress of the sector to the new environment has already begun because "our plants are becoming LNG distribution centres while retaining their conventional and vital roles in the gas system."

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Japanese LNG fleet operator sees brighter 2018

Mitsui OSK Lines, the Japanese shipping company with a liquefied natural gas fleet operation of 70 vessels, said the global shipping industry will face a harsh situation at least until the end of 2017, though LNG prospects are brighter in the medium term.

"Many marine shipping companies are struggling to stay afloat as the global market remains stuck in the doldrums," said Junichiro Ikeda, President of the shipping company, in an interview with the Japanese financial daily "Nikkei".

Ikeda said that with South Korea's Hanjin Shipping, one of the world's largest container companies, collapsing at the end of August the industry was forced to consider more options to emerge from the slump in better shape.

MOL is becoming involved in managing more LNG carriers in supplying Asia as more liquefaction projects come on stream in the Asia-Pacific region, the US and Russia.

It will also play a key role in operating ice-class LNG carriers from Arctic Ocean routes to transport LNG from Russia's Yamal project from 2018.

Ikeda said that the LNG shipping was being helped by the crude oil tanker segment being firmer and in the medium term by the expansion of the Panama Canal. He also cited the Russian Yamal project as having additional benefits for MOL.

"Demand for oil tankers has been lifted by China's efforts to boost its strategic petroleum reserves," Ikeda said.

"The Panama expansion has made it possible for liquefied natural gas carriers to pass through there. I expect Japan and other countries will be able to procure energy more efficiently."

Leading LNG carrier flag state of Marshall Islands tops tanker table

cOur Asia-Pacific editor

The Republic of the Marshall Islands (RMI) Registry, with many liquefied natural gas carriers on its books, has hit a significant landmark by attaining the status as the world's largest tanker fleet.

This status was achieved recently with additional tonnage joining the RMI Registry from markets in Greece, the United States and Asia.

Gas carriers

Marshall Islands flags fly on the world's largest LNG carriers such as the 261,700 cubic metres capacity Q-Max "Al Ghuwairiya" and the 210,000 cubic metres capacity Q-Flex vessel "Al Aamriya", which transport the fuel for Qatar.

It also flies on many of the most modern LNG average-sized carriers owned by European shipping lines such as Greece's Dynagas and its ships like the 160,000 cubic metres capacity "Clean Ocean".

The RMI-flagged tanker fleet now stands at 44.6 million gross tons, putting it ahead of Liberia with 40.6MGT, Panama 36.1MGT,



Majuro (bottom) is capital and best known is Bikini (top)

Singapore 20MGT and Hong Kong 18.9MGT. The RMI comprises a chain of volcanic islands and coral atolls in the central Pacific Ocean, located between Hawaii and the Philippines.

International Registries Inc., which provide administrative and technical support to the RMI Maritime and Corporate Registries, is committed to the continued decentralization of services to better support the Registry's owners and operators in every aspect of their business.

This principle has led the RMI Registry to an average year-on-year

growth of 15 percent since 2001.

Overall, the RMI Registry now stands at 137.3 million GT, with an average age of 8.7 years.

The 3,937 vessels flying the RMI flag are afforded the excellent safety record of the flag that has been on the US Coast Guard's Qualship 21 program for 12 consecutive years and continues its status on the White Lists of the Paris and Tokyo Memorandums of Understanding.

"Qualship 21 is a particularly difficult standard to meet," said Bill Gallagher, President of IRI.

Royal Caribbean Cruises joins rival Carnival in ordering LNG propulsion

US shipping line Royal Caribbean Cruises Ltd., operator of 46 liners, said its newest vessels on order would be powered by liquefied natural gas, joining rival Carnival Corp. in reducing emissions from fuel to meet stricter emissions standards in North America and Europe.

Royal Caribbean, based in Miami, said that it signed a memorandum of understanding with shipbuilder Meyer Turku for the new dual-fuel class of vessel called Icon.

The Icon ships are expected to run primarily on LNG but will also be able to run on distillate fuel, to accommodate occasional

itineraries that call on ports without LNG infrastructure.

The undisclosed number of vessels will be delivered in the second quarters of 2022 and 2024.

Royal Caribbean already uses advanced emissions purification scrubbers, which clean exhaust gases before they leave the ship.

Use of the new technologies will result in much cleaner emissions as they produce no sulfur and significantly reduce the production of nitrogen oxides and particulates.

"With Icon class, we move further in the journey to take the smoke out of our smokestacks," said Richard Fain, Chairman and Chief Executive.

"We are dedicated to innovation, continuous improvement, and environmental responsibility, and Icon gives us the opportunity to deliver against all three of these pillars," Fain added.

"As more ships are built for LNG, the number of ports that support it will grow," the CEO said.

Rival Carnival signed an agreement in September with Finland's Meyer Turku and its affiliated German shipyard Meyer Wreft to deliver three additional cruise vessels that will be fully powered by LNG rather than have dual-fuel propulsion.

US marine LNG plant to be completed in 2017 to supply ships and East Coast bunker barges

Our North America editor in New York

Construction is starting on a liquefied natural gas production and supply joint venture in the Port of Jacksonville in Florida with plans to load bunkering barges to deliver marine LNG up and down the East Coast of the United States.

The joint venture called JAX LNG involves four US companies and a major shipping line as its main customer and will be North America's first small-scale coastal liquefaction facility in operation when it comes on stream in the fourth quarter of 2017.

Vessel

The facility will include marine distribution capabilities using the region's first LNG bunkering barge called "Clean Jacksonville".

JAX LNG was formed in 2015, bringing together Pivotal LNG, a subsidiary of Southern Company Gas, the NorthStar pipeline company, LNG supplier and developer Clean Marine Energy and the Los Angeles, California-based equity fund Oaktree Capital Management.

Their LNG production facility will be located at Dames Point near the Port of Jacksonville.

When completed in about 12 months' time the plant will consist



'Isla Bella' is one of two ships contracted to use JAX LNG

of small-scale processing Trains with the capacity to produce in excess of 120,000 gallons of LNG per day and a 2 million-gallon storage tank.

The JAX LNG project is underpinned by a long-term supply contract for the world's first LNG dual-fuel container ships to be operated by TOTE Maritime.

TOTE Maritime, which was formed from the merger of Sea Star Line and Totem Ocean Trailer Express (TOTE), has operations in based in Alaska and Puerto Rico providing high-speed liner services in the US domestic trade.

The shipping company's two new vessels, the "Isla Bella" and "Perla del Caribe", will trade between Florida and the US territory

of Puerto Rico. "This new plant development in the Port of Jacksonville will allow us to continue to work with our partners and develop innovative LNG bunker opportunities," said Peter Keller, Executive Vice President of TOTE Maritime.

Tim Hermann, President of Pivotal LNG, said the LNG industry was seeing a steady growth in demand for fuel.

"This facility will expand our ability to serve more customers and add commerce, including skilled jobs to support the local economy.

"We greatly appreciate support from the local Jacksonville community, government officials, JAX-PORT, the US Coast Guard and the

JAX Chamber of Commerce. Without their support, this project would not be possible," Hermann stated.

Pivotal LNG has already successfully tested and used a mobile pumping skid, developed by TOTE and Applied Cryogenic Technology to transfer fuel obtained from its own existing resources to the new TOTE Maritime containerships.

"Testing of the manifold was successful, and the first LNG bunkering occurred in December 2015," the joint venture said.

Start-up

Since then, LNG has been delivered to TOTE's ships by JAX LNG on a regular basis utilizing the mobile pumping skid operated by Pivotal LNG.

"With the mobile pumping system as an interim fueling solution, we have already begun to serve the LNG fueling needs of TOTE in Jacksonville," said Hermann.

"Once complete, this new LNG facility will provide a reliable long-term LNG fuel source in Florida that will help meet the growing LNG demands of the maritime industry and help expand the use of LNG throughout the southeastern US," he stated.

US liquefaction plant at Port Allen plans 2017 start to serve river region vessels and trucks

US small-scale distribution company NuBlu Energy has started construction of a liquefaction plant along the Mississippi River at Port Allen in Louisiana to supply high-horsepower fuel users in the region including inland waterway vessels.

The energy company said construction is expected to be completed and commissioning able to begin by the second quarter of 2017.

The NuBlu customers will include mainly long-haul trucks, ma-

rine fuel operators, peak-shaving needs at power plants and other clean-fuel users.

NuBlu Energy, whose headquarters are in Shelby County Center, said the initial Train would produce 30,000 LNG gallons per day.

The building of the Port Allen liquefaction plant is part of a general expansion of capacity for the US wholesale market in fuel for trucks and shipping, with bunker ships also operating on the Gulf coast.

There is also greater use of LNG as fuel for ships servicing the offshore oil and gas market.

The single load-out will be designed to accommodate trucks and International Standardization Organization (ISO) storage tanks and can be expanded depending on demand.

Expansion work for an additional Train will also take output to 90,000 LNG gallons per day from the patented single-refrigerant pressure let-down design.

The overall storage at the Louisiana plant will be for 120,000 gallons when completed.

NuBlu spokesman Josh Payne said the company aimed to make "local" supplies more available to the emerging retail and wholesale markets.

"NuBlu is different from other energy providers because we have the ability to invest in the entire supply chain, from LNG conversions to fueling solutions," Payne added.

US engineer KBR awarded contract to study expansion of Singapore import infrastructure

Our Asia-Pacific editor

KBR Inc., the US engineering and construction company, said it was chosen to carry out a feasibility study, including exploring the possible expansion of the Singapore LNG Corp, import terminal at the city state's Jurong Island.

KBR pointed out that the Singapore terminal operator was formed by the state Energy Market Authority to develop, build, own and operate the terminal. This is KBR's first contract with SLNG.

Terms

Under the terms of the contract, KBR will provide feasible concepts and a long-term design option.

KBR said the work was expected to be performed over five months with the Houston, Texas-based company using its engineering teams in London and Singapore offices, at its Granherne sub-



Jurong Island LNG terminal expansion is already envisaged

sidary and SLNG's own development team.

Singapore currently has one LNG import facility, located on Jurong Island, consisting of two jetties that handle the largest carriers, three storage tanks of 180,000 cubic metres capacity and regasification equipment.

The city state has previously looked at using additional floating LNG import facilities as it builds up its infrastructure as a regional

LNG trading and bunkering hub with its own pricing formula.

Singapore's government had singled out two sites where Floating Storage and Regasification Units could be berthed, either at a quayside or offshore.

The Jurong Island terminal began operations in May 2013 and was scheduled to be expanded from the current capacity to import 6 million tonnes per annum to 11 MTPA by 2018. Plans for a sec-

ond onshore terminal have also been examined.

"Singapore's first LNG Terminal in Jurong Island is a strategic and critical national infrastructure," said Greg Conlon, KBR President for the Asia-Pacific region.

"Together with SLNG, KBR is excited to help advance the growth of the energy market and LNG hub in Singapore and support SLNG's vision of being a world-class terminal operator," added Conlon.

"KBR is pleased to be awarded this important project and we look forward to working with SLNG to meet the future gas needs for Singapore.

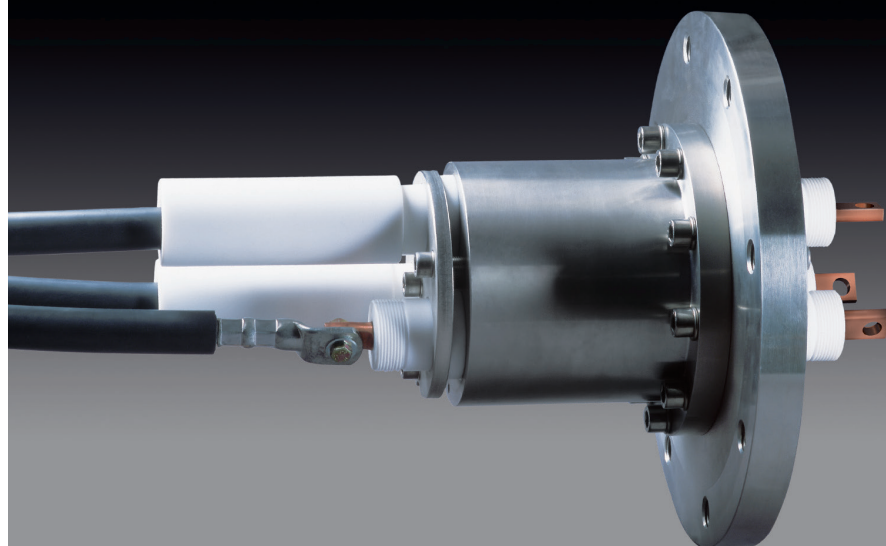
"This strategic win allows KBR to demonstrate our capabilities and develop a long-term working relationship with SLNG on future projects," he said.

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Electrical terminal headers are small, yet safety-critical components of LNG vessels and terminals. They hermetically feed electricity and data to submerged LNG pumps, turbine expanders and compressors. At the same time their quality and reliability is critical to uphold the pressure vessel integrity and therefore the safety of the entire system. SCHOTT Eternaloc® terminal headers are the safest, most proven solution available in the market. **What's your next milestone?**

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