LNG Unlimited

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US to point more small-scale LNG at Caribbean and Latin America

Secretary of Energy Perry says President wants to help friends overcome challenges

Our Europe editor

Carrier active in the regional market on America's backyard

The US Department of Energy said it intended to give faster approval of small-scale LNG projects from export facilities to target small-volume customers in the Caribbean, Central America and South America.

The plan was outlined by US Secretary of Energy Rick Perry and is part of general proposals for "deregulatory measures" in the US energy industry.

Economies of scale

Many of the countries in these regions, the closest neighbours to the US, do not generate enough natural gas demand to support the economies of scale required to justify large volumes of LNG imports from large-scale plants on full-sized conventional tankers.

The small-scale natural export market has developed as a solution to the practical and economic constraints limiting natural gas exports to these countries.

"The Trump Administration is focused on finding ways to unleash American energy and providing a reliable and environmentally friendly fuel to our trading partners who face unique energy infrastructure challenges," said Perry.

"The Department of Energy and this Administration are wholeheartedly committed to strengthening the energy security of the United States and our allies," he stated.

"This deregulatory measure will expedite the review and approval of applications to export small amounts of natural gas in the emerging small-scale LNG export market.

"Under the Natural Gas Act, the DoE has jurisdiction over imports and exports of natural gas," the department pointed out.

Caribbean Islands such as Barbados already receive shipments of US LNG by ISO containers onboard cargo ships from ports in Florida.

However, one Caribbean nation, Trinidad & Tobago, is in competition to the US.

The Trinidad plant at Point Fortin was once the dominant LNG player in the region and exported to the US before the shale-gas revolution.

Trinidad is now mostly able to secure higher prices for its LNG in South America and elsewhere than it did from US-based importers.

The Sabine Pass plant in Louisiana, operated by Cheniere Energy, already delivers large-scale loads to nations such as Mexico, Argentina, Brazil and Chile.

Under the DoE proposals it will be easier to ship ISO containers, for example, or cargoes on small-scale carriers to smaller nations in the Caribbean and Latin America.

For applications to export natural gas to countries without a qualifying free trade agreement (non-free trade agreement countries), the DoE must conduct a public interest review before authorizing an export.

This proposed rule provides that DoE, upon receipt of a request to export LNG to non-free trade agreement countries, will grant the request provided the application meets two criteria.

It must be no more than 0.14 billion cubic feet per day in volume and the proposed export qualifies for a categorical exclusion under the DoE's environmental policy rules.

For applications meeting these criteria, the exports are considered "small-scale natural gas exports" and are deemed in the public interest under the Natural Gas Act.

Exports of natural gas to free trade agreement countries are already deemed in the public interest under the Act. ■

UNLIMITED AGENDA

Australian LNG and domestic gas production rise amid concern as oil output hits 40-year low

Our Asia-Pacific editor

Australian East Coast LNG production in the state of Queensland and domestic natural gas output increased in the second quarter by around 19 percent and 12 percent respectively as oil output plunged to a 40-year low, leaving the nation possibly vulnerable to Asian refinery disruptions.

The three Queensland coal-seam-gas-to-LNG facilities, Asia Pacific LNG, Gladstone LNG and Queensland Curtis LNG produced 5 million tonnes of cargoes and the state had 193.2 petajoules of output in the second quarter for domestic use.

CSG output

Queensland coal seam gas production rose overall by 20 percent to 333 petajoules, according to estimates in the September quarterly review by Australian consultancy EnergyQuest.

EnergyQuest also noted a 27 percent annual rise in Australian natural gas output at the same time as the nation's oil production hit a 40-year low.

Curtis Island in Queensland hosts three CSG-to-LNG plants

"Surging production lifted total Australian natural gas output to a record 3,770 petajoules," said the report.

EnergyQuest Chief Executive Graeme Bethune said East Coast natural gas production was now catching up with demand following concerns that too much of the state's feed-gas was being reserved for LNG processing at the three plants on Curtis Island.

Bethune also explained that plummeting national oil production in Australia was in sharp contrast to the rest of the petroleum industry.

"Oil production fell to 54.4 million barrels (MMbbl), down 24.7 percent compared to the previous year. On current trends, oil will soon be eclipsed by condensate produced as a by-product of gas and LNG projects," he stated.

"National oil output has fallen to the lowest level in more than 40 years at just 140,000 barrels of oil per day (b/d), compared to consumption of more than 1 million b/d.

"This decline and the well-documented shortfall in our oil security arrangements makes Australia particularly vulnerable to disruptions to shipping routes from refineries in Singapore, Korea and Japan," the report concluded.

The latest EnergyQuest report's release comes after recent accusations by politicians and others that LNG feed-gas demand was ramping up prices on Australia's East Coast domestic gas market.

"Queensland is importing (from other states) less gas to the point where it is increasingly self-sufficient," said the report.

"Even with its LNG plants, the State is importing only about 2 petajoules per month, or 1.4 percent of the east coast supply.

"There has also been a net flow of gas south from Queensland since the first week of June, for the first time since November 2015," it added.

However, New South Wales, South Australia and Tasmania are increasingly reliant on gas imports from Queensland and offshore Victoria.

"NSW imports around 10 petajoules per month and even South Australia nearly 4 petajoules," the report said.

EnergyQuest also said that East Coast short-term natural gas and new contract prices remained high when compared with others in South East Asia. ■

Australian Gladstone LNG partners pledge gas for East Coast domestic use in 2018 and 2019

Australian energy company Santos and its Gladstone LNG plant international partners will supply the East Coast domestic market with volumes of natural gas during 2018 and 2019 that is not required for liquefaction and export.

"The gas, which would otherwise have been exported as LNG, is being sold to East Coast customers including power companies," said Santos. The volume of gas pledged is 30 petajoules, enough to satisfy the needs of over 300,000 homes for two years.

The Gladstone LNG plant partners include Malaysian energy company Petronas, France's Total and Korea Gas Corp.

Feed-gas for liquefaction is delivered from coal-seam gas tenements in the Bowen and Surat Basins of southwest Queensland in a 420-kilometre underground pipeline to the GLNG plant on Curtis island near the port of Gladstone.

The Santos move follows a proposal from the Australian government in May 2017 to temporarily block LNG exports if necessary to ensure adequate domestic gas supplies in Queensland and other eastern states and at lower prices.

Prime Minister Malcolm Turnbull said at the time the planned blockage was in response to shortages and concern over future shortfalls on the East Coast, where coal-seam gas is used for three CSG-to-LNG plants brought on stream in the past three years.

The three plants combined have a total nameplate capacity of 23.3 million tonnes per annum of LNG, with the GLNG facility operated by Santos having output of 7.8 MTPA.

The other two plants are the Royal Dutch Shell-owned Queensland Curtis LNG plant and the Australia Pacific plant, operated by ConocoPhillips and whose other main shareholder is Chinese energy company Sinopec.

Turnbull had said it was unacceptable for Australia to soon become the world's largest exporter of LNG but not have enough domestic supply for Australian households and businesses.

"Over the last few months, Santos has been working constructively with the Federal Government and our GLNG partners to supply additional gas to the east coast domestic market," said Santos Chief Executive Kevin Gallagher in announcing the GLNG plant's volume pledge for 2018 and 2019 for the domestic market.

He said 30 petajoules of natural gas was being supplied as it was volume of gas which could power a 228 megawatts power station or 330,000 homes over the two-year period. ■

Singapore-based lawyers advise MOL on part in Indian project

King and Spalding, the international law firm, said it represented one of the main parties in an agreement signed to develop the Swan LNG import project planned for some time in the northwest Indian state of Gujrat, where three other regasification terminals already operate.

King and Spalding said it advised Mitsui OSK Lines, the Japanese LNG carrier operator, in the Indian project negotiations.

Swan Energy, part of an Indian industrial conglomerate, plans to deploy two floating storage and regasification units at Jafrabad Port, north of Mumbai.

The facility would be the fifth terminal on the Indian west coast, while none has so far started operations on the east coast, though several are planned.

The LNG terminal will have a receiving capacity of 5 million tonnes per annum and will use a dual floating storage and regasification unit (FSRU) and floating storage unit (FSU) solution.

"MOL has agreed to provide the FSU and the long-term operation/maintenance of both the FSU and the FSRU, which will be constructed by Hyundai Heavy Industries in South Korea," said the law firm.

The Singapore-based King and Spalding that advised MOL was led by projects and energy partner Richard Nelson and also included associates Kristian Whitaker, Christophe Vauthier and Ji Nin Loh.

Among other details, the FSRU tank capacity will be 180,000 cubic metres and the FSU tank capacity will be between 135,000m to 145,000 cubic metres.

■

Singapore signs deal for small-scale LNG supplies for Indonesian projects

Our Asia-Pacific editor

Pavilion Energy of Singapore and its gas subsidiary signed a preliminary agreement to cooperate with state-owned Indonesian electricity company Perusahaan Listrik Negara (PLN) on small-scale LNG projects with another Singaporean firm Keppel Offshore & Marine.

The signing of the agreement took place during a visit to Singapore by Indonesian President Joko Widodo for talks with Singapore Prime Minister Lee Hsien Loong.

Singapore PM Lee and Indonesian President Widodo

Opportunity

The small-scale LNG agreement was one of several memoranda of understanding signed during the talks on September 7.

"We are pleased with this opportunity to collaborate with PLN to deliver small-scale LNG to remote locations in Indonesia for power generation, and to enhance energy cooperation between Indonesia and Singapore," said Seah Moon Ming, Chief Executive of Pavilion Energy and Pavilion Gas.

"Small-scale LNG enhances Singapore's role as a regional hub for LNG storage and reloading, break-bulk and distribution," added the CEO.

The collaboration involves the distribution of LNG to remote islands and locations in West Indonesia, according to Pavilion, whose parent company is Singapore wealth fund Temasek.

"LNG will be delivered to floating and onshore LNG terminals using small LNG vessels, where it will be regasified and used to generate electricity at PLN's power plants of between 25 megawatts (MW) to 100 MW in capacity," the Singaporean company explained.

Small-scale LNG allows LNG to be transported and distributed in smaller quantities to remote locations where pipelines do not exist as is the case with Indonesia.

"It is a fitting solution for the Southeast Asian region, which is home to thousands of small islands - of which many are inhabited and require power," said Pavilion.

"Pavilion has identified small-scale LNG supply and distribution as a key business area for the company, and has built up its capabilities in small-scale LNG supply chain and engineering to provide a reliable, efficient and cost-effective solution," it added.

■

German company MAN wins contract for LNG bunkering at Gothenburg port

German propulsion maker MAN Diesel and Turbo said its marine fuel-gas system subsidiary had signed a contract with Sweden's gas network operator Swedegas to deliver a liquefied natural gas bunkering facility in the Port of Gothenburg.

The new facility will enable vessels to bunker LNG from trucks or containers while simultaneously loading or unloading cargo at two specialized jetties at the Swedish port.

The MAN Diesel subsidiary, MAN Cryo, is based in Gothenburg and is a leading European manufacturer of LNG storage, distribution and handling equipment.

"We are very happy to have won the contract to build this first such bunkering facility in the important Port of Gothenburg," said Mikael Adler, Managing Director of MAN Diesel & Turbo in Sweden.

"Our strategy to offer LNG solutions to the marine market, both on board vessels as fuel-gas supply systems but also as bunkering infrastructure, dovetails perfectly with the general development towards cleaner ship propulsion," he added.

The German company said the Gothenburg facility would comprise a discharge station for LNG trailers or containers, feeding pumps, vacuum-insulated piping and bunkering equipment to facilitate efficient operations.

The installation will also satisfy the "stricter sulphur directive for shipping" designated by the European Union as a prioritized infrastructure project.

MAN Cryo will oversee the project as holder of the engineering, procurement and construction contract and will be managed from MAN's Gothenburg office.

The facility is scheduled to open during 2018 and will be operated and managed by Swedegas in close cooperation with the Port of Gothenburg.

■

At the Core of LNG

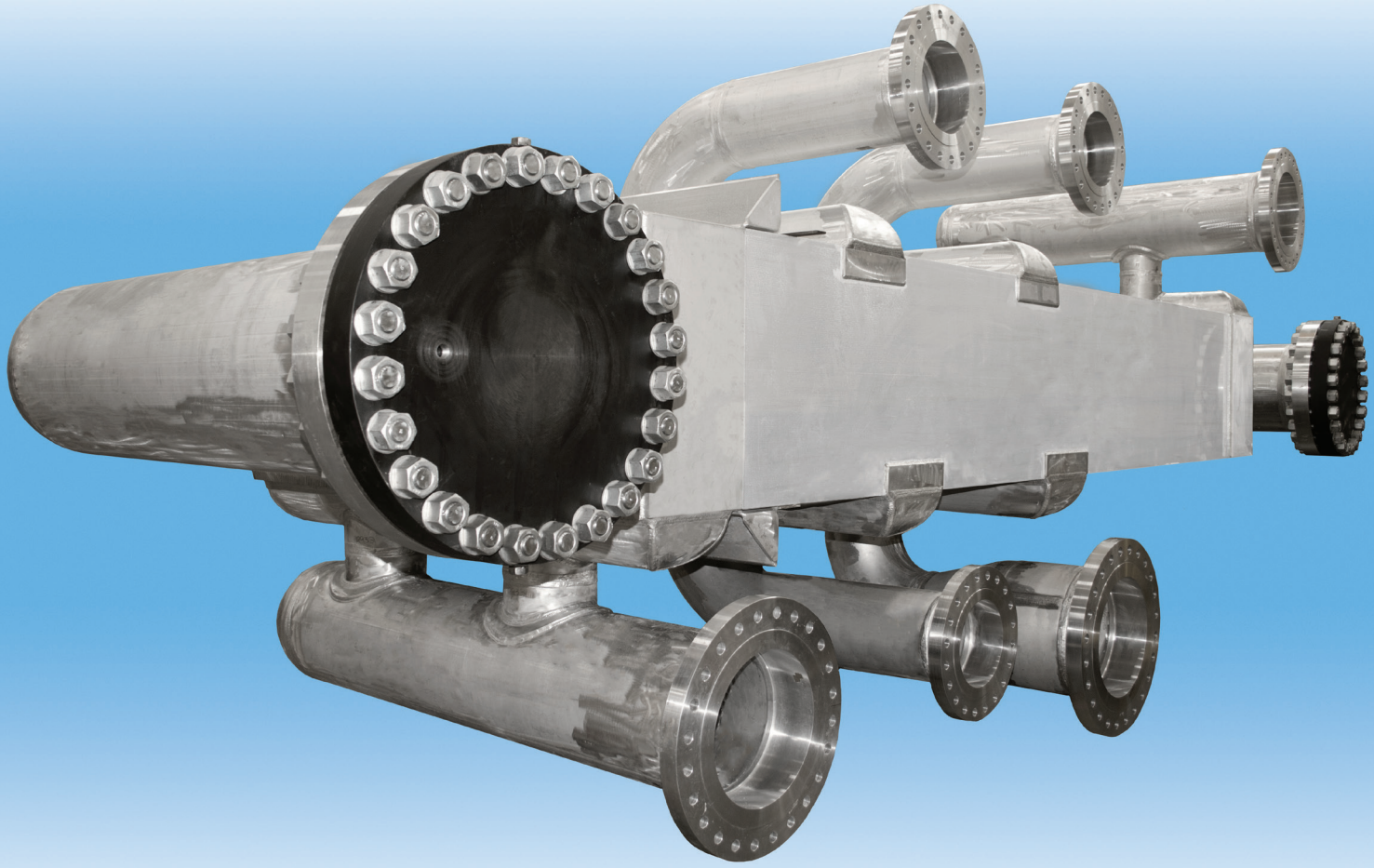

Chart brazed aluminum plate fin heat exchangers (BAHX) are highly efficient, custom engineered, compact units that have been at the heart of LNG liquefaction processes since the 1970's and are facilitating the export of North American shale gas today.

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NEWS NUDGES

LNG debt is in demand

Gladstone LNG plant operator Santos carried out a US$800 million senior unsecured fixed-rate bond transaction. "The book was six times oversubscribed and received strong support from a mix of global asset managers and insurance companies from Asia, Australia and Europe," said Santos. The bonds were priced at a fixed coupon of 4.125 percent for a period of 10 years, maturing on 14 September 2027. "The use of proceeds from the bonds will include general corporate purposes and debt refinancing," it added. The bonds will replace the existing Euro-hybrid notes with "more efficient" long-term debt funding. Santos said it remained focused on debt reduction and was on track to achieve a target of US$2 billion in net debt by the end of 2019.

Cove Point plant progress

Dominion Energy, developer of the US Cove Point export plant on Chesapeake Bay in Maryland, is making progress with the commissioning process to support first production of LNG in the fourth quarter of 2017. Dominion has been granted permission by the Federal Energy Regulatory Commission to introduce feed gas and perform related commissioning activities in the pre-treatment and liquefaction areas of the plant and for equipment related to ship loading.

Norway gas landmark

Norway celebrated its 40th anniversary as a natural gas exporter to Europe. The opening of the Norpipe pipeline on 8 September 1977 marked the start of Norwegian gas deliveries to European countries. The event was celebrated by Norwegian pipeline operator Gassco at an event in Emden in Germany. ■

Angola LNG signs supply deal with trader Vitol as plant raises reliability level

Our Europe editor

Angola LNG, the southwest African export plant with a mixed reliability record since it came on stream in 2012, has signed a multi-year LNG sales agreement with global commodities trader Vitol.

Under the accord, Angolan cargoes will be delivered to Vitol at destinations around the world.

One of the African project's fleet of modern tankers

Important step

The plant in Soyo in the north of the country produces 5.2 million tonnes per annum from one liquefaction Train.

"This sales agreement is an important step for Angola LNG and demonstrates our ability to respond to the needs of our customers and the market," said Artur Pereira, Chief Executive of Angola LNG Marketing.

"Vitol has already purchased many LNG cargoes from Angola LNG, and we look forward to continuing our successful relationship," added Pereira.

Angola LNG, one of the most troubled liquefaction plants ever built in terms of post-start-up troubles, is operated by Chevron Corp.

It resumed production in June 2016 and began shipping cargoes worldwide by international tender after a two-year shutdown.

Production at the facility had originally been scheduled to restart in December 2015 following completion of modifications and repairs at the facility.

The plant, located near the Congo River estuary, in April 2014 experienced a failure in the flare blow-down piping system, resulting in a fire and an extended plant closure.

Recent recipients of a revitalized Angolan plant have included Brazil, France, Spain, the United Arab Emirates, Jordan, China and India.

The facility cost an initial $10 billion to build and is a joint venture involving Chevron with partners including the Angolan energy company Sonangol, BP of the UK, Italy's Eni and France's Total.

Soyo was the world's first LNG plant built to be supplied solely with associated gas, whereby the natural gas is a by-product of crude oil production. ■

Chart Industries expands in Europe with takeover of German cryogenic operator

US LNG equipment-maker Chart Industries continues to expand its business by acquiring German company VCT Vogel, a servicer of cryogenic and mobile gas tank equipment and trucks and a European leader in truck-mounted drive and control systems for the operation of LNG pumps on trailers and containers.

The takeover of the German company follows its $410 million cash purchase of smaller US sector rival Hudson Products Corp.

Hudson, based in Beasley, Texas, makes a range of heat-transfer equipment for the refining, petrochemical, natural gas and other industrial markets.

Hudson, based in Beasley, Texas is a North American leader in air-cooled heat exchangers and a global leader in axial flow cooling fans.

Chart said the German acquisition expands and strengthens Chart's service and aftermarket presence in Southern Germany, Austria and Switzerland, and adds highly complementary truck drive systems to Chart's mobile equipment offering.

The US company did not disclose the value of the transaction to purchase VCT, which will become part of the Distribution & Storage division of Chart.

Chart said the German company VCT was expected to generate net sales of approximately $4 million in 2017. Services account for approximately 55 percent of VCT's sales.

"VCT is a market leading company for cryogenic services in Germany, Austria and Switzerland with a proven competence to fulfil customer needs on short notice while maintaining a high quality standard," said Hans Lonsain, Chart's European Distribution & Storage business unit president.

"It has an excellent reputation for outstanding technical capabilities throughout the markets it serves. In addition to its service offering, VCT manufactures state-of-the-art systems that are needed to drive and control cryogenic pump units," added Lonsain. ■

International Gas Union to elect new President from three candidates to serve from 2021-2024

Our Americas editor

The International Gas Union, the world body that promotes natural gas and LNG use and technology for economic progress, has scheduled an election of a new President to serve from 2021 to 2024 and has three candidates to choose from representing Canada, China and Egypt.

The election for the three-year Presidency will be held on 26 October 2017 and will decide the holder of the office for the 2021-2024 period as well as the host of the 29th World Gas Conference in 2024.

Members

The IGU was established in 1931 and brings together natural gas associations and corporations, including 91 charter members and 51 associate members, representing 97 percent of the global gas industry.

The US holds the current Presidency under David C. Carroll

The US holds the current Presidency under David C. Carroll and will also host the next World Gas Conference to be held in Washington DC on June 25-29 in 2018.

For the 2018-2021 triennium, South Korea has already been elected to assume the next IGU Presidency and to host the 28th World Gas Conference in Daegu, South Korea, in June 2021.

The IGU October election is for the next Presidency after that. The President is elected by the IGU Council for a three-year period and is responsible for preparing the next World Gas Conference.

A feature of the forthcoming October election for the 2021-2024 Presidency is that Egypt and the Oman are jointly standing, with an Egyptian put forward for the presidency and the Sultanate of Oman seeking to host the 2024 WGC Conference.

It is the first time that two member-countries of the IGU have presented a candidacy jointly.

The Egyptian-Oman candidate for President is Khaled AbuBakr, an engineer who is Chairman of private sector energy company Taqa Arabia and President of the Egyptian Gas Association (EGA).

The suggested location for WGC 2024 is the Oman Convention & Exhibition Centre in the Omani capital Muscat.

Egypt joined the IGU in 1989 while Oman became a member in 2002. Both are big participants in the gas and LNG industries. ■

China suggests Alaska LNG is possible future energy import

China says the US state of Alaska is making serious efforts to become a stable supplier of liquefied natural gas for Chinese import terminals from the liquefaction project planned by Alaska Gasline Development Corporation.

AGDC President Keith Meyer is cited in reports in many Chinese new outlets as he hosted China's Consul General from San Francisco, Luo Linquan, at the company's headquarters in Anchorage, Alaska, on August 31.

AGDC has just held a non-binding open season until the end of August for companies to express an interest in volumes or to book capacity.

"The proposed LNG exports would be a beautiful fit for both Alaska and China and help solidify ties between the United States and China," said Meyer in a report distributed across China on September 5 by the Xinhua news agency.

He made a pitch for the state's LNG project his company is working on, which is aimed at shipping cargoes made with feed-gas from Alaska's North Slope resources to the Asia-Pacific market and to Chinese customers in particular.

The Alaska LNG project is an integrated gas infrastructure development. its major components include a gas treatment plant located at Prudhoe Bay, an 800-mile pipeline to Southcentral Alaska with up to five off-take points to supply domestic customers and a liquefaction plant in the small port of Nikiski to produce LNG for export.

Meyer said that one of the reasons why Alaska valued the Chinese market for LNG exports was that the US state was rich in natural gas resources but had limited domestic demand from a tiny population of 750,000. ■

Ichthys export project holds LNG carrier ceremony at Japanese yard

Our Asia-Pacific editor

Inpex Corp., the Japanese energy company and liquefied natural gas developer, has held a naming ceremony in Japan for an LNG carrier that will transport cargoes from the Ichthys export project near Darwin in Australia's Northern Territory to Taiwan.

The naming of the "Pacific Breeze" carrier took place at the Sakaide shipyard in Kagawa Prefecture of Kawasaki Heavy Industries.

Carrier 'Pacific Breeze' is being completed by Kawasaki

Taiwan route

The 182,000 cubic metres capacity carrier will transport 1.75 million tonnes per annum of LNG from the liquefaction plant near Bladin Point to LNG import terminals operated by CPC Corp of Taiwan.

Taiwan has been an LNG importer for longer than mainland China and in 2016 handled 15.07 million tonnes of deliveries compared with 27.42MT received by China from global projects.

Taiwan is the fifth-largest LNG importer in Asia and China is the third biggest.

The naming ceremony for the "Pacific Breeze" was attended by CPC executives and numerous other guests, including Inpex President and Chief Executive Toshiaki Kitamura.

The nameplate capacity of the Ichthys plant is 8.9 MTPA from the two processing Trains. Following various delays, the first cargo from the Australian liquefaction plant is expected to be shipped at the end of 2017 or early 2018.

Inpex CEO Kitamura has said that the Ichthys venture was likely to be expanded with the building of additional liquefaction Trains near the Bladin Point plant site.

In addition to supplying Taiwan, the Ichthys plant has long-term contracts to deliver cargoes to Japanese utilities Tokyo Gas, Osaka Gas, Kansai Electric Power, Toho Gas and Jera Co. Inc., the joint procurement venture between Tokyo Electric Power and Chubu Electric. ■

Dynagas LNG posts net quarterly loss because of rising expenses for fleet

Dynagas LNG Partners, the Greek-owned carrier operator with six vessels, posted first-quarter operating income of $8.7 million and a net loss $5.2M amid extra expenses for a scheduled class survey and dry-dock costs for the company's three steam turbine-powered vessels.

Voyage revenues dropped 25 percent in the second quarter and amounted to $31.97M compared with $42.63M in the same three months of 2016.

Dynagas said the decrease was primarily due to the scheduled off-hire periods for the LNG vessels "Clean Energy", "Ob River" and "Amur River".

Operating expenses for the fleet in the quarter rose by 12.4 percent to $7.5M from $6.7M in the same period of 2016.

"We are pleased to report our earnings for the financial quarter ended June 30, 2017, which were within our expectations," said Tony Lauritzen, Chief Executive of the partnership.

"We have previously communicated that this quarter would be affected by scheduled class surveys and related dry dockings for three of our six vessels which would result in cost items and would also qualify as off-hire under the relevant contracts," he explained.

"We are satisfied that the class surveys, including dry dockings, were completed in a quick and efficient manner with an average of approximately 15 days per vessel from arrival to departure at the shipyard," he added.

"The 'Clean Energy' became available for employment, at which time we entered into two consecutive short-term charters to employ the vessel through the end of August 2017," added the CEO.

Dynagas said its earnings were also affected by its decision to reduce the charter hire rate charged to Russian company Gazprom Global LNG on two vessels, the "Yenisei River" and the "Lena River", in exchange for a long-term charter on the "Clean Energy" for an almost eight-year term.

"Part of our strategy has been to enter into longer term charters for the employment of the vessels in our fleet," stated CEO Lauritzen. ■

US Driftwood LNG developer Tellurian agrees to acquire acreage and assets in Haynesville Shale

Our North America editor in New York

Tellurian Inc., developer of the Driftwood LNG project on the Gulf Coast of Louisiana, said it had agreed to acquire acreage in Haynesville Shale play in the northwest of the state to add potential gas assets to its portfolio for future export.

Tellurian's LNG project involves constructing a liquefaction and export plant near Lake Charles to match the nearby Sabine Pass venture of Cheniere Energy with 27 million tonnes per annum of output.

Producer

Tellurian has now entered into an agreement with a private seller to acquire natural gas producing assets and undeveloped acreage in northern Louisiana for $85.1 million.

The transaction by Nasdaq-listed Tellurian is scheduled to close by the end of November 2017. The seller was described in Tellurian's Securities and Exchange Commission documents as an unrelated third party.

A drilling operation in Haynesville Shale in Louisiana

Tellurian was founded by former Cheniere CEO Charif Souki and by Martin Houston, who ran the operations of the LNG portfolio company, BG of the UK, and has already made progress in the regulatory and permit processes.

Analysts pointed out that Tellurian's new gas assets in addition to providing future feed-gas from shale at competitive prices will also require investment funds for the development of the plays located in Red River, DeSoto and Natchitoches Parishes of Louisiana.

After the transaction was announced, Tellurian shares rose 14 percent to $10.20 on the Nasdaq, their highest level since July 3.

The company said the 9,200 net acres have 138 operated Haynesville and Bossier drilling locations.

Tellurian added that the Haynesville plays had around 1.3 trillion cubic feet of potential gas resources from 19 producing and operated wells with net current production of 4 million cubic feet per day.

The asset purchase also comes with associated natural gas gathering and processing facilities.

"The assets are 100 percent held by production and 92 percent operated, allowing Tellurian to control the pace of development for its multi-year drilling inventory," said Tellurian.

The company's Chief Executive Meg Gentle said the acquisition of natural gas producing assets was integral to its growing business.

"We expect our full cycle cost of production and transport to markets will be approximately $2.25 per million British thermal units, which represents a significant savings to natural gas we will purchase at Henry Hub and other regional liquidity points," said Gentle.

The Haynesville shale covers areas of northeast Texas as well as northwest Louisiana and is one of the most prolific in the US with more than 13 Tcf of historical production an array of active drilling rigs and access to multiple pipelines.

Tellurian has previously submitted applications to the Federal Energy Regulatory Commission to construct and operate the Driftwood liquefaction plant on a 1,000-acre site on the west bank of the Calcasieu River near the town of Carlyss in Calcasieu Parish. ■

US Port Fourchon LNG of Asian plant developer Energy World Corp. seeks cargo export permits

Fourchon LNG, the US export venture owned by a subsidiary of Hong Kong-based Energy World Corp. and planned for Belle Pass in Louisiana, has applied to regulators for multi-year permits to ship cargoes for 30 years to countries with a Free Trade Agreement (FTA) with the US and for 20 years to any countries without an FTA.

The application with the Department of Energy (DoE) for multi-contract authorization to export up to 260 billion cubic feet a year of natural gas follows the Fourchon project's recent receipt of a letter from the Federal Energy Regulatory Commission giving permission to start its pre-filing environmental review process.

The Fourchon developers, who also have offices in Houston and Sydney, Australia, plan a two-phase construction of the liquefaction facilities with initial production of 2 million tonnes per annum and a second phase expanding output to a total of 5 MTPA.

The Louisiana project also plans to reserve up to 500,000 tonnes a year of LNG for domestic use, with the intention of providing fuel for offshore supply vessels powered by LNG and operating in the Gulf of Mexico.

Fourchon is being developed by Energy World Corp. subsidiary Energy World (USA) Inc. EWC is engaged in the business of infrastructure, power generation and energy-related projects mainly in the Asia-Pacific region.

The company recently completed a small-scale LNG import terminal in the Philippines linked to a power venture and is in the final stages of building LNG liquefaction and power plants in Indonesia.

EWC director Graham Elliott is running the Louisiana project and has pointed out to regulators that the company has 20 years of experience in the LNG industry.

EWC completed the LNG terminal in the Philippines, located at Pagbilao in Quezon Province, in late 2016. It is developing an LNG hub in Pagbilao with two storage tanks, each with total capacity of 130,000 cubic metres.

The company is additionally constructing a 650-megawatts, combined-cycle gas-fired power station at Pagbilao adjacent to the terminal.

This facility will provide electricity sold to the Luzon transmission grid in line with the Philippines Government's vision for a clean energy future.

EWC is also constructing an LNG liquefaction plant in Indonesia at Sengkang in South Sulawesi. ■

Oman to consider LNG options when Khazzan gas field comes on stream amid record oil output

Our Middle-East editor

The Sultanate of Oman on the Arabian Peninsula has seen petroleum and liquids production reach their highest ever levels at more than 1 million barrels per day and will soon receive a boost to its LNG export and domestic natural gas markets when a new gas field comes on stream at the end of 2017.

Oman LNG, owned by a consortium including the government, Royal Dutch Shell and Total, operates three liquefaction Trains at the company's plant near the town of Sur on the Gulf of Oman.

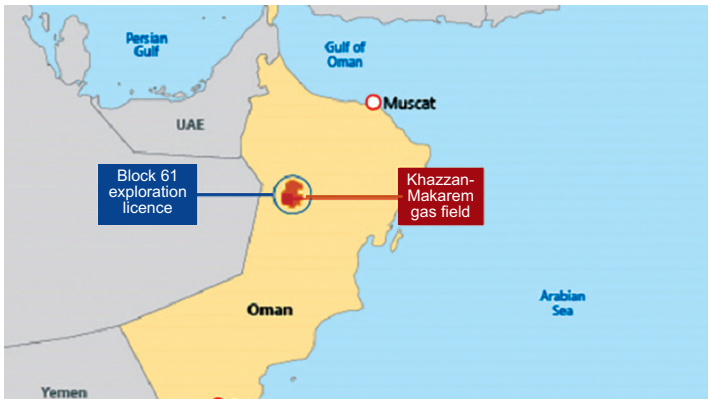
Volumes

The plant last year exported a total of 8.12 million tonnes of LNG compared with 7.56MT in the previous year, an increase of 7.4 percent.

That's as domestic natural gas consumption more than doubled from 2006 to 2016, increasing from 380 billion cubic feet (Bcf) in 2006 to 820 Bcf in 2016, putting pressure on feed-gas available for LNG.

Oman consumes slightly more than 70 percent of the natural gas it produces. Natural gas is also becoming a key source of energy to the development of the Omani economy.

The concern over rising natural gas consumption prompted the Oman LNG company to announce in 2015 that it would divert all its exported volumes of natural gas away from foreign markets and toward domestic consumers by 2024.



Khazzan gas field project is in the license area of Block 61

However, this aim could change as the Sultanate has also focused on diversifying its LNG export destinations with its first ever sales of two spot cargoes to Kuwait and Jordan outside its long-term cargo commitments to contract holders in Japan and South Korea.

Oman is now waiting for a surge in natural gas production from its Khazzan field block operated by BP of the UK.

The field is a tight gas formation, and BP is developing two phases to access 10.5 trillion cubic feet of recoverable gas resources.

Located on a desert site 350 kilometres south of the capital Muscat, the Khazzan tight gas project began in 2014 and BP said recently Phase 1 of the project was almost complete and would be on stream by the end of 2017.

Full production from Phases 1 and 2 is expected to total around 1.5 billion cubic feet per day (Bcf/d), equivalent to about 40 percent of Oman's current total domestic gas production.

The project involves the construction of a three-train central processing facility with associated gathering and export systems and the drilling of around 325 wells over a 15-year period.

BP estimates that Phase 1 of the project is almost complete and will be on stream by the end of 2017.

"The start-up of the Khazzan tight gas field will significantly ease the pressure on Oman's natural gas supplies," said a report from the US Energy Information Administration, which also noted that Oman was on track to maintain its record petroleum and liquids production levels in 2017.

"China is Oman's largest export market, and that country received 78 percent of Oman's crude oil exports in 2016, while Taiwan received the second-highest volume," the report noted.

Oman also has one international natural gas pipeline - the Dolphin Pipeline - that runs from Qatar to Oman through the United Arab Emirates.

Oman is not a major importer of natural gas, though the country did import around 74 Bcf of natural gas in 2016 from Qatar.

According to the Omani government, the imports through the Dolphin Pipeline are necessary to meet the rising levels of domestic natural gas consumption, including re-injection into oil wells.

Oman is also planning to capitalize on this strategic location by constructing a world-class oil refining and storage complex near Ad Duqm, which lies outside the Persian Gulf and its choke-point, the Strait of Hormuz.

Oman like all the countries of the region is highly reliant on its LNG and oil and gas sector and the Omani Ministry of Finance stated that finances had been severely affected by the decline in oil prices since mid-2014.

Last year's Omani oil and natural gas revenues were 67 percent lower than in 2014, despite achieving record production.

Oil revenue accounted for 27 percent of Oman's gross domestic product in 2016, a decrease from 34 percent of GDP in 2015 and 46 percent in 2014. ■