

LNG Unlimited

LNG JOURNAL PUBLICATION

6 December 2016

Alabama, Georgia and Tennessee join LNG race with container loads

Pivotal LNG will use plants in southeast for Caribbean cargoes
Our North America editor in New York

Carib Energy, a subsidiary of US shipping line Crowley Maritime Corp., has been given approval to export LNG in containers on board cargo ships to any country in Central America, South America or the Caribbean and with the fuel supplied by small-scale plants in three states in the US southeast.

Carib said it would purchase the LNG for export from any of five existing small-volume natural gas liquefaction facilities, owned and operated by Pivotal LNG in the US states of Alabama, Georgia and Tennessee.

ISO storage

The permits from the US Department of Energy authorize Carib to export the International Standardization Organization (ISO) containers over a 20-year period and amounting to around 1.3 billion cubic feet of US natural gas.

The latest permit will increase LNG deliveries into the Caribbean and Latin American region where the ISO containers of LNG can be used for small-scale power plants or for fuel projects.

ISO containers of LNG leaving the US have recently commanded the highest prices of around \$10 per million British thermal units.

The LNG will be sourced from affiliates of Pivotal LNG and exported on ships from the ports of Jacksonville and Port Everglades in Florida and Gulfport in Mississippi.

The LNG ISO containers may also be shipped from other ports in the US southeast if they have



Trussville LNG was built in 1974 and will source cargoes

the required infrastructure. Carib states that delivery of the LNG will be taken at the five facilities and the containers would then be transported on highways.

The Crowley energy subsidiary Carib signed a sale and purchase agreement with Pivotal back in March 2014 and since then five small-scale liquefaction plants have been lined up to supply the containers.

The five liquefaction facilities owned and operated by Pivotal include the Trussville LNG plant in Alabama. The facility has a liquefaction capacity of 1.82 Bcf per annum and is capable of loading 20 containers a day.

The Trussville LNG Facility was built in 1974 and is subject to regulation by the Alabama Public Service Commission.

Another plant is located in Chattanooga in the state of Tennessee. The Chattanooga liquefaction plant is a peak-shaving facility designed to supply gas to meet shortages during peak usage and is owned and operated by Chattanooga Gas Co. Its output is listed as 3.65 Bcf per annum.

The facility, which was built in 1972 and is capable of loading 20 trucks per day, is overseen by the Tennessee Regulatory Authority

and subject to safety regulation by the Federal Energy Regulatory Commission.

The third plant supply ISO containers will be the Riverdale plant, a small-volume production facility located in Georgia, owned and operated by Atlanta Gas Light Co. It has a storage capacity equivalent to 2.5 Bcf per annum of natural gas.

The fourth supply plant is the Cherokee LNG plant located in Ball Ground, Georgia, also owned and operated by Atlanta Gas Light.

It has a storage capacity equivalent to 2 Bcf of natural gas. The plant was built in 1988 and is subject to regulation by the Georgia Public Service Commission.

The fifth plant supplying the Carib export venture is the Macon facility, located in the town of Macon in Georgia and owned and operated by Atlanta Gas.

It has storage capacity equivalent to 1.5 Bcf of natural gas and was built in 1978. It is also subject to regulation by the Georgia Public Service Commission.

The Crowley subsidiary behind the Carib-led venture is Crowley Petroleum Services, whose headquarters are in Jacksonville, Florida.

UNLIMITED AGENDA

SHIPPING

Golar LNG sees positive signs of shipping market revival

2

PROJECTS

Woodside and Semptra advance with US venture in Port Arthur

3

EXPORTS

China expects to receive second US shipment of LNG on Dec 13

5

INFRASTRUCTURE

UK National Grid gives latest on LNG, pipelines and storage

6

SMALL-SCALE

IM Skaugen posts a loss amid its pursuit of more small projects

7

INVESTMENT



BP CEO decides strategy includes stake in huge Egyptian gas field

8

Golar LNG sees positive signs of shipping market revival as global players log 300 spot charters

Our Europe editor

Golar LNG, the Norwegian fleet owner and project developer, said the shipping market shows positive signs with improving utilisation rates and the re-appearance of round-trip economics as it reported a narrowing of third-quarter operating losses.

Golar said a total of around 300 spot fixtures were expected to be concluded in the global market during all of 2016, a significant step up from around 190 voyages in 2015.

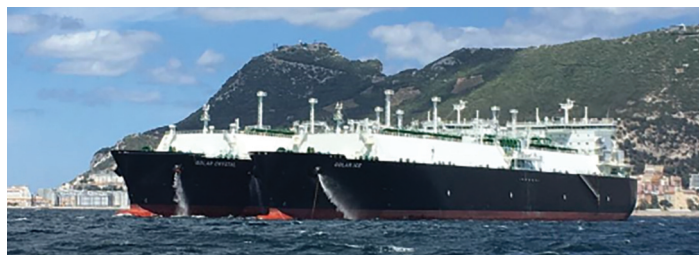
"New LNG supply Trains are delivering on an almost quarterly basis, gradually eroding the over-capacity in the shipping market.

Tightening

"There are clear signs of tightening in the spot market and this improvement is encouraging charterer interest in longer-term contracts," the company added.

Golar reported that its quarterly losses narrowed to \$28.2 million from \$37.2M in the previous quarter.

It explained that the third-quarter began in much the same way as the first half of the year with excess tonnage weighing heavily on rates.



Two Golar LNG vessels transfer a cargo offshore Gibraltar

The company added that this was followed by increased activity in August that resulted in a step up in rates and utilisation, particularly for owners with open tonnage in the Atlantic Basin where spot rates in excess of \$40,000 per day were achieved.

"Both chartering activity and rates have since eased but levels remain well above the lows reached in the first half of 2016.

"The Pacific market continued to be typified by higher liquidity with an abundance of available shipping as well as spot demand from projects, utilities and traders," Golar said.

"Spot charters have typically been for short durations, maintaining liquidity but limiting significant rate increases.

"Atlantic activity on the other hand has been more sporadic with

thin tonnage availability and limited demand occasionally interrupted by sudden waves of requirements that clear out this available tonnage and result in improved rates," Golar stated.

As regards its other activities in LNG and power development projects, Golar said it joined during the third quarter with oil and gas services company Schlumberger to form OneLNG to offer an integrated upstream and midstream solution for the development of low-cost gas reserves to LNG.

UK company Ophir and OneLNG subsequently agreed to form a joint operating company to develop the 2.6 trillion cubic feet of gas reserves in the Fortuna field offshore Equatorial Guinea using floating LNG technology.

Another subsidiary, Golar Power, closed a financing transaction with

US equity fund Stonepeak to capitalise on downstream opportunities.

Golar Power then reached a final investment decision on a Brazilian LNG-to-power project in the northeast state of Sergipe.

Golar signed a 25-year deal to charter a Floating Storage and Regasification Unit to the Brazil venture and also entered into a long-term sale and purchase agreement for the supply of LNG.

As regards its FSRU activities, Golar's existing fleet of six FSRUs all reside within the US-listed Golar LNG Partners affiliate but are managed by the shipping company.

Golar said the FSRU fleet had maintained "operational excellence" during the past three months.

The FSRU "Golar Tundra" remains at anchor off the coast of the West African nation of Ghana as part of a charter agreement with West Africa Gas Ltd (WAGL).

However, Golar commenced legal proceedings in order to collect amounts due under the charter, though on November 29 the company received its first payment from WAGL for amounts outstanding under the charter.

Gate LNG terminal celebrates expansion as key event for marine fuel and small-scale customers

The Dutch Gate LNG import terminal formally celebrated its expansion with 400 guests invited by the main shareholders, utility company Gasunie and the international storage giant Royal Vopak and by the main break-bulk partner, Royal Dutch Shell.

The expansion comprises a third berth and new infrastructure for the loading of small-scale LNG carriers to make deliveries around northwest Europe.

These small LNG vessels enable the distribution of more LNG in small quantities to regasification facilities in other North Sea and

Baltic ports where large tankers are prohibited from delivering directly due to their draught.

In conjunction with planned LNG bunkering vessels, the new Gate terminal berth will in future also make it easier for ocean-going vessels to fill up with LNG in Rotterdam as their preferred propulsion fuel and to meet stricter anti-pollution regulations.

The use of LNG as a maritime fuel is being encouraged by the European Union, the Dutch government and the Port of Rotterdam because of its more environmentally-friendly properties.

The guests who gathered in Rotterdam from the marine sector and the LNG industry also attended a forum at which several experts shared experiences regarding the use of LNG as a marine fuel.

"The Port of Rotterdam Authority highly values a more sustainable transport sector," said Allard Castelein, Chief Executive of the Port Authority.

"As a result of cooperation with many parties we lead the way in this transition. Rotterdam is the LNG hub of Europe. A new third berth is a good example of

what you can achieve together," Castelein added.

Eelco Hoekstra, Vopak Chairman and CEO, said the company had earmarked storage and the handling of LNG as one of its strategic focus areas.

"This third jetty is an opportunity to facilitate the introduction of LNG as a more sustainable transportation fuel," said Hoekstra.

"It also strengthens the Hub function of the Gate terminal in northwest Europe for our valued partners and customers," he added.

Australian LNG player Santos acquires data from Alice Springs firm

Central Petroleum, the Australian company with natural gas assets around Alice Springs, said LNG stakeholder Santos has begun its seismic acquisition programme with 1,000 kilometres of data as part of its fulfilment of an obligation to the area's South Amadeus project.

Central and Santos entered into a three stage farm-in agreement in 2012. Stage one comprised the acquisition of a minimum of 1,500 km of 2D seismic in the Southern Amadeus area.

Santos has stakes in the Gladstone LNG project in Queensland, the Darwin plant in the Northern Territory and the Papua New Guinea liquefaction joint venture.

That's as Central said the construction project is on track for the A\$800 million (US\$600M) Northern Gas Pipeline of 622km in length to get natural gas to market from the Alice Springs area, part of the Northern Territory.

"The Southern Amadeus Basin is a large and underexplored region characterised by northwest trending structures in the northern area, and a central area dominated by an east-west central," Central Petroleum said.

Santos added that the aim of the programme is to mature the Dukas and Mahler drill targets.

It explained that the second part of its data acquisition will involve 1,300 kilometres and is planned to be completed by March 2017.

Santos said it would also be able to maintain an increase in its participating rights from 20 percent to 40 percent for exploration prospects 82,105 and 112.

Central has said its immediate focus is to prove up sufficient gas reserves to provide a foundation supply contract for the pipeline.

Woodside and Sempra advance with US Port Arthur LNG export project

Our Asia-Pacific editor

Sempra Energy, developer of the US Cameron liquefied natural gas export project in Louisiana with European and Japanese partners, has filed with regulators to proceed with a second LNG export joint venture located in Texas and involving Woodside of Australia.

Sempra, whose LNG assets also include the Costa Azul import terminal on the Pacific coast of Mexico, said its application for permits had been sent to the Federal Energy Regulatory Commission for the Port Arthur project.

FERC move

The San Diego, California-based utility and energy company has formally sought authorization to site, construct and operate the Port Arthur liquefaction plant along the Sabine-Neches Waterway in Southeast Texas.

The FERC application for the proposed project includes two processing Trains producing a total of 13.5 million tonnes per annum of LNG, the equivalent of 698 billion cubic feet of natural gas.

Sempra and Woodside are also planning three LNG storage tanks,



Sempra to design Port Arthur like its Cameron plant

natural gas liquids and refrigerant storage, a feed-gas pre-treatment facility and an export terminal with two berths to load LNG carriers.

Sempra said a separate application was filed with the FERC seeking authorization to construct natural gas pipelines to deliver natural gas to the project.

"We are pleased to continue advancing the Port Arthur LNG project," said Octavio Simoes, President of the Sempra LNG and Midstream division.

"Our experience in developing, building and operating energy infrastructure will help us deliver a cost-competitive project to the global LNG market," Simoes added.

Sempra's partner Woodside is

one of the world's most experienced LNG plant operators and currently runs the Northwest Shelf and Pluto LNG plants in Western Australia, supplying customers all over the Asia-Pacific region.

Sempra and Woodside signed a project development agreement in February 2016 that provides a framework for the sharing of costs related to the development, technical design, permitting and marketing of the proposed liquefaction project.

Port Arthur will also have truck-loading and unloading areas to participate in the growth of the LNG fuel market for ships and trucking.

LNG cargoes to Mexico will eventually be priced out of market by pipelines

While the Sabine Pass liquefaction and export plant in Louisiana has recently shipped LNG to the Mexican Pacific Coast import terminal at Manzanillo, US pipeline exports of natural gas continued to grow and have doubled since 2009.

Almost all of this growth is attributable to increasing exports to Mexico, which have accounted for more than half of all US natural gas exports since April 2015.

Monthly averages of pipeline natural gas sent across the southern border are now around 4.2 billion cubic feet per day (Bcf/d).

"US daily pipeline exports to Mexico through August 2016 are at a yearly average of 3.6 Bcf/d, 25

percent above the year-ago level and 85 percent above the five-year (2011-15) average level," the US Energy Information Administration said in its latest report.

On the LNG front, Cheniere Energy's Sabine Pass plant exported its first cargo to Manzanillo in August 2016 at a price of \$4.23 per million British thermal units and has sent a couple of others since then, one in October and another in November.

Added to the cost of the loaded LNG are shipping expenses, including the transit of the Panama Canal to access Mexico's Pacific Coast, and regasification costs.

Pipeline natural gas is more economically attractive to the Mexi-

cans. That's why the country has also embarked on a five-year plan to significantly expand its pipeline network to accommodate higher levels of shipments from the US.

"These imports would help meet increasing power demand, offset declining domestic natural gas production, reduce reliance on LNG imports and create new markets for natural gas in currently supply-constrained regions," the EIA explained.

"The plan proposed 12 pipeline additions, increasing the existing network capacity and adding more than 3,200 miles of new pipeline through Mexico," it added.

FOAMGLAS®

Pittsburgh Corning

FOAMGLAS® INSULATION

Trusted by contractors and
engineers worldwide
for over 75 years.

FOAMGLAS® INSULATION

FOR LNG,
ENGINEERED TO LAST.

Contact us to learn more
www.foamglas.com
1-724-327-6100 | 800-545-5001

PITTSBURGH CORNING SERVICES:

- Education & Training
- Energy & Thermal Imaging Surveys
- Insulation Thickness Calculations
- Insulation Guide Specifications
- Jobsite & Start-up Support
- Special Testing Services

NEWS NUDGES

Hoegh LNG share offering

Hoegh LNG Partners, the US-listed affiliate of the Norwegian fleet owner and project company, has priced a share sale of 6 million common units at a public offering price of \$17.60 per unit to raise \$105.6 million. The partnership intends to use the net proceeds to fund its purchase from Hoegh LNG of a majority stake in the Floating Storage and Regasification Unit, the "Hoegh Grace". Investment banks Citigroup and Barclays are acting as the joint book-running managers of the offering in addition to the brokers DNB Markets, Fearnley Securities and Stifel. The partnership has granted the underwriters a 30-day option to purchase up to an additional 900,000 shares depending on demand.

Magnolia venture given permit

Liquefied Natural Gas Ltd, the developer of the Magnolia LNG export plant in Louisiana, said the US Department of Energy has authorised the planned facility to export cargoes to countries with which the United States has not entered into a free trade agreement. "Our Magnolia project team is very pleased to have successfully received this final piece of the regulatory framework enabling our LNG project to export US-produced natural gas to the global energy market," said LNG Ltd Chief Executive Greg Vesey.

Centrica sale in Trinidad

UK utility and energy company Centrica said it agreed to sell its portfolio of natural gas assets in the LNG producing nation of Trinidad and Tobago to Shell Exploration and Production for an initial cash consideration of \$30 million. The assets consist of a 17.3 percent interest in the producing NCMA-1 block and 80 per cent and 90 per cent operated interests in two other undeveloped blocks. ■

China expects to receive second shipment of LNG from US Dec 13

Our Asia-Pacific editor

The US is currently shipping its second liquefied natural gas cargo to an import terminal in China as the Sabine Pass export plant in Louisiana heads for record shipments with three Trains completed.

The 170,000 cubic metres capacity "Methane Julia Louise", operated by GasLog, is carrying the cargo from the US and is heading for the Ningbo import terminal in Zhejiang province of eastern China, owned by Chinese Offshore Oil Corp., according to shipping data.

Sabine Pass

The cargo was loaded on November 17 at the Sabine Pass plant and is scheduled to arrive at the Chinese terminal on December 13.

CNOOC was also the recipient of the first US cargo shipped to China which arrived on August 21 at the Guangdong Dapeng Bay LNG terminal on the Pearl River delta.

The vessel involved in the first shipment was the 161,870 cubic



'Methane Julia Louise' signalled heading as Zhejiang

metres capacity "Maran Gas Apollonia".

The ship carrying the second cargo for China traversed the Panama Canal on November 23 enroute to China.

Exports to the key markets of China, Japan and South Korea were made considerably more economical with the opening of the expanded Panama Canal at the end of June 2016.

Chinese LNG imports rose just over 15 percent in the month of October, according to data from the General Administration of Customs.

China imported 1.84 million

tonnes of LNG last month compared with 1.60MT in the same month of 2015. The country received just over 20MT of LNG for all of 2015 at its network of 14 import terminals.

That's as the US is already facing more competition for its new volumes in both the Pacific and Atlantic Basins, with Australia shipping more cargoes to China from its new coal-seam-gas-to-LNG plants in Queensland.

Another buyer of US cargoes during the first year of production on the Gulf Coast has been Brazil. ■

Driftwood LNG company of ex-CEO of Cheniere attracts GE investment

Tellurian Investments Inc., the development company of former Cheniere Chief Executive Charif Souki and his Driftwood LNG project, said General Electric's oil and gas subsidiary had made a \$25 million preferred equity investment in Tellurian.

Tellurian recently entered into a merger agreement with Magellan Petroleum Corp., a small oil and gas exploration company listed on the Nasdaq stock exchange, and expects the agreement to close before the end of December, giving Tellurian listed status.

Under the Tellurian-Magellan merger agreement each share of Tellurian will be converted into the right to receive 1.30 shares of Magellan.

Magellan will issue about 122 million shares of common stock to Tellurian shareholders, representing about 95 percent of Magellan's outstanding shares.

The Souki company said the GE Oil & unit investment has a common stock value of \$5.94 per share.

"This investment represents another step forward in the development of Driftwood LNG, where we are working together with GE to design the lowest cost liquefaction for the global market," said Tellurian President and Chief Executive Meg Gentle.

"GE Oil & Gas has provided technology for LNG facilities worldwide for over 25 years and is a pioneer in innovation and a leader in reliability," she added.

"We look forward to a long and beneficial partnership with the GE team," Gentle said.

Tellurian and the Driftwood LNG project were set in motion by Souki after he left Cheniere just before the Houston-based company's Sabine Pass LNG export plant in Louisiana came on stream in February 2016.

The former Cheniere CEO aims to replicate Sabine Pass with the Driftwood venture, currently in the engineering design and pre-filing phase of the Federal Energy Regulatory Commission permit process.

Tellurian expects construction of Driftwood LNG to begin in 2018 and the project to become operational in 2022. ■

UK National Grid report gives latest on LNG and pipeline imports and storage prospects

Our Europe editor

National Grid, the UK natural gas system operator and LNG terminal owner, has just published its “Gas Ten Year Statement”, giving details of latest capacities and updates on projects under development.

As regards imports, the UK has a diverse set of import options with pipelines from Norway, the Netherlands and Belgium, and from other international sources in the form of LNG.

Connections

“There are currently no plans for increased pipeline interconnection,” the company said in the 200-page report.

It currently oversees a network of 7,600 kilometres of pipelines throughout the UK as well as storage and import facilities.

National Grid, which also has operations in the United States, manages the day-to-day operation of the UK gas network, including balancing supply and demand and maintaining system pressure.

The report said that natural gas import dependency has grown considerably since the early 2000s and could reach 93 percent by 2040.

The UK has 152 billion cubic metres capacity for pipelines and LNG imports. Of that total 103 Bcm of capacity is for six pipelines from Europe and the three LNG import terminals have 49 Bcm of capacity.

The UK’s LNG import infrastruc-



RasGas LNG carrier at terminal located near London

ture currently includes three large-scale terminals, National Grid’s Isle of Grain facility with capacity to handle 15 million tonnes per annum of LNG and the South Hook facility in Milford Haven, owned by Qatar Petroleum and ExxonMobil, and able to handle the same capacity as Grain LNG.

The third is also in Milford Haven and is called Dragon LNG. It is owned by Royal Dutch Shell and Malaysia’s Petronas and with capacity of 5.5 MTPA.

The report noted that the UK still has four LNG import projects on its regulatory books, including the Norsea LNG project in Teesside of ConocoPhillips and for which planning permits have been granted.

A second is the Port Meridian floating LNG terminal at Barrow in Furness in Cumbria, northwest England, which has held an open season to test market demand.

The third is the Halite Energy LNG import terminal in Anglesey in Wales. It has also been given full

approval, though is not moving forward.

The National Grid report said that in the last year there had been an increase in gas demand from Combined-Cycle Gas Turbines (CCGTs), or gas-fired power plants.

“The cost of gas relative to coal has fallen significantly, making gas the more favourable fuel for electricity generation,” it said.

“Furthermore, as a result of European Union environmental directives, coal power stations are being retired with the last site expected to close in 2025,” National Grid said.

UK natural gas exports account for around a sixth of total gas demand. The country has two export interconnectors, one to Ireland and one to Continental Europe.

In 2016, the Irish Corrib gas field started injecting into the Irish system, resulting in lower levels of exports to Ireland.

“We expect that while Corrib is running there will be a reduction

in exports from Great Britain.

However, it is anticipated that the gas field production will be relatively short lived, with rates reducing over time and the reliance on GB exports gradually returning,” the report said.

“Exports to Europe via the Interconnector UK (IUK) are highly sensitive to both the overall UK supply/demand balance and continental gas markets.

“The import and export levels flowing through IUK are subject to uncertainty,” National Grid stated.

As regards UK natural gas storage many new sites have been proposed over the last 10 years and there are currently plans for nearly 9 billion cubic metres of space, both for medium-range fast-cycle facilities and for long-range seasonal storage.

UK utility and energy company Centrica has reduced the capacity of the Rough long-range storage site, located in the North Sea offshore the east coast of England, as a precautionary measure while investigative work and tests are undertaken.

“In a further development, Centrica Storage Ltd. decided that part of the facility would not be returned to service following the testing,” the report added.

National Grid said the Rough site should be regarded as provisional until all testing has been completed. This is expected by March 2017.

Intercontinental Exchange gives result of the natural gas storage auction for Netherlands

Intercontinental Exchange, the leading platform for global futures and options trading, announced the results of the ICE Endex natural gas storage auction held on behalf of Netherlands-based GasTerra.

A total of 4,549,451 Standard Bundled Units (SBUs) for the contract period of 2017-2018 were offered to the market and after

four auction rounds, 4,549,451 SBUs were allocated.

ICE said the outcome of the auction was an average weighted price per SBU of 2.07 euros.

The natural gas from this virtual storage is delivered at the Title Transfer Facility (TTF), which is the benchmark Dutch natural gas trading hub.

GasTerra, whose headquarters

are in Groningen is 50 percent owned by Royal Dutch Shell and ExxonMobil and 50 percent by the Dutch government.

ICE Endex has successfully operated auctions for virtual gas storage services in the Netherlands since 2011, with auctions taking place twice a year.

Gas storage services are sold in the form of “standard bundled

units” (SBUs), which allow market participants to inject or withdraw gas from a virtual storage facility.

However, contracts for physical delivery are through the transfer of natural gas at the TTF Virtual Trading Point, operated by Dutch network operator Gasunie Transport Services.

Philly yard in US delivers latest vessel as LNG-ready

Philly Shipyard Inc. has delivered the LNG-ready vessel "American Endurance", the first of four next-generation product tankers built for American Petroleum Tankers, a subsidiary of Kinder Morgan, better known for its US pipelines and storage facilities.

The 50,000 deadweight tonnage ship is the 25th vessel built by the yard formerly known as Aker Philadelphia Shipyard.

Philly Shipyard is listed on the Oslo stock exchange and is specializing in building vessels for the US domestic trading market and with LNG envisaged as a future fuel.

"The vessel has also received LNG-ready Level 1 approval from the American Bureau of Shipping," the shipyard said.

"The 600-foot tanker has a carrying capacity of 14.5 million gallons of crude oil or refined products," Philly added.

Another US shipping line, Crowley Maritime Corp., has already taken delivery of three vessels from Philly with the LNG-ready notation.

Tougher environmental legislation has been enacted in North America and Northern Europe, creating Emission Control Areas.

These have prompted a shift towards alternative fuels in the shipping industry and a rise in the number of ships ordered to take LNG as a fuel, sometimes on a dual-fuel basis, or to be made ready for conversion. ■

IM Skaugen swings to loss amid pursuit of more small-scale projects

Our Europe editor

IM Skaugen, the Norwegian operator of small-scale LNG carriers and other fuel vessels, reported a net loss of \$13.36 million for the third quarter of 2016 compared with a profit of \$4.27M in the year-ago period as it continued to pursue LNG projects.

IM Skaugen said that there was underlying growth in seaborne transportation of all liquefied gases, including LNG and liquefied petroleum gas as well as petrochemicals.

Norgas

The company, which has offices in Oslo and Singapore, said it was seeking four additional LNG projects to supply power plants with shipments amid continued small-scale deliveries in Asia.

IM Skaugen's Norgas unit is currently operating a fleet of 15 advanced gas carriers, in sizes from 6,000 cubic metres capacity to 12,000 cubic metres in capacity.

"We have provided offers and we are participating in tenders where our services are critical for the success of the projects and which could materialize soon,"



Norgas unit is currently operating a fleet of 15 carriers

the company said. The longer-term LNG contracts it is pursuing will allow it to improve its cash flow, which will enable a refinancing of the company's debts maturing in 2017.

In the third quarter, Norgas carriers also continued to perform several LNG voyages in Asia.

"These voyages confirm the versatility and flexibility our multigas carriers have in terms of loading LNG from any source," the company added.

"Our long-term view is that small-scale LNG will substitute diesel and naphtha for use by

smaller and stranded power plants," IM Skaugen said.

"The delta between the diesel and LNG prices, which provides for the cost of shipping, conversion, storage and regas has thus started increasing recently.

"This has brought new life to some of our LNG projects which have previously been postponed or for other reasons delay," it added.

"We remain cautiously positive that we can expect a gradual recovery of the trading opportunities in the longer-haul petrochemical gas markets. ■

French major Total confirmed as operator of Ivory Coast African Hub

French energy company Total said it had now formally become the operator of the planned floating liquefied natural gas import terminal venture being developed for the West African nation of the Ivory Coast.

The Ivory Coast LNG consortium led by Total with a 34 per cent stake has now finalized all agreements and has been awarded the rights to build and operate the facility with a planned capacity of 3 million tonnes per annum.

Total said it would use the terminal to supply LNG volumes from its global portfolio in proportion to its participating interest in the project.

The regasification and import

facility is expected to become operational by mid-2018.

The project involves the construction of infrastructure connected to a floating storage and regasification unit in the Vridi area of the capital Abidjan.

An associated pipeline will also be constructed to connect the FSRU to existing and planned power plants, as well as to regional markets to be supplied by the Ivorian network.

"This will enable the Ivory Coast to become the first regional LNG import Hub in West Africa and to meet both regional and domestic demand," Total stated.

"This project illustrates Total's strategy to develop new gas mar-

kets by unlocking access to LNG for fast-growing economies," said Philippe Sauquet, President of Gas, Renewables and Power at Total.

"Working closely with our partners enabled us to put together an integrated proposal combining LNG supply and import infrastructure through a floating storage and regasification unit," said Sauquet.

"We are very pleased to have been selected by the Ivorian authorities to manage this project, which will meet growing domestic and regional needs for gas and power," the French company executive stated. ■

BP CEO decides strategy includes stake in huge Egyptian gas field that will impact LNG market

Our Europe editor

Italian energy company Eni has agreed to sell to BP a 10 percent stake in the Shorouk concession in Egyptian waters of the East Mediterranean for up to \$500 million, making the UK company a partner in the “supergiant” Zohr field that will impact regional LNG supplies when it comes on stream in late 2017.

Eni currently holds a 100 percent stake in the block and said the agreed deal with BP includes a sum of \$375M and a pro-rata reimbursement of past expenditures, which amount so far to \$150M.

The Italian company said that in addition, BP has an option to buy a further 5 percent stake under the same terms.

The Zohr field when it comes on stream as early as the end of 2017 will affect regional LNG markets, especially for main player Egypt which was once an exporter and now imports LNG cargoes.

“This transaction is in line with the Eni’s ‘dual exploration model’ aiming at an early monetization of



Dudley says Egyptian gas field is ‘truly world-scale’ asset

the value through the dilution of recent huge exploration discoveries owned with high participating interests,” the Milan-based company said in announcing the deal.

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

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

track development plan. The Eni discovery will go some way to satisfying Egypt’s domestic natural gas needs, while possibly helping to revitalize its two LNG export plants and ending the need for LNG imports.

Egypt has two Floating Storage and Regasification Units deployed at the port of Ain Sokhna in the Gulf of Suez to import cargoes and satisfy natural gas demand.

So far in 2016, Egypt has taken delivery of almost 100 LNG cargoes from the spot and short-term market.

“This interest in a truly world-scale asset will complement our existing Egyptian business,” said Bob Dudley, BP Chief Executive, on the purchase of the Zohr field stake.

“We already have a strong partnership with Eni in Egypt and look forward to working closely with them to efficiently bring these important resources to the Egyptian market.

“BP has now been in Egypt for over 50 years and we continue to see opportunities to further develop our extensive activities here.

“Beyond Zohr, the first phase of our major West Nile Delta project is on schedule to begin production next year and the fast-tracked development of the Atoll gas field is expected to come on stream in 2018,” Dudley stated.

However, BP’s West Nile project is relatively small with 5 Tcf of gas, a fraction of the estimated resources in the Zohr field, located about 190 kilometres north of Port Said in water depths of 1,500 metres.

Delek of Israel signs financing deal for Leviathan natural gas project in the East Mediterranean

Delek Group, the Israeli developer of the Leviathan natural gas project in the East Mediterranean to supply Israel and neighbouring countries, has signed a first phase financing deal for up to \$1.75 billion to start development of the Leviathan project.

The agreement is in the form of a “commitment letter” signed between the Leviathan partnership and UK-based HSBC Bank Plc and US bank J.P. Morgan.

Delek subsidiaries Delek Drilling and Avner Oil Exploration are shareholders in the Leviathan project, along with Noble Energy of the US.

The Leviathan field is located offshore Israel and has estimated recoverable natural gas resources of around 22 trillion cubic feet.

A statement said each company of the partnership will be entitled to enter into the agreement on the agreed terms until February 20, 2017.

Companies with supply agreements for the Leviathan field once it comes on stream include National Electric Power Company of Jordan.

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

A similar agreement was signed most recently, on November 24, with Israel’s Paz Ashdod Refinery for 3.12 billion cubic metres of natural gas over 15 years.

This natural gas sales accord

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

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

The Jordanians became the fourth Arab nation to deploy a Floating Storage and Regasification Unit as an import facility at the port of Aqaba on May 25, 2015.

“Closing of the financing agreement brings Delek Group and our Gas Partnerships closer to taking the final investment decision to

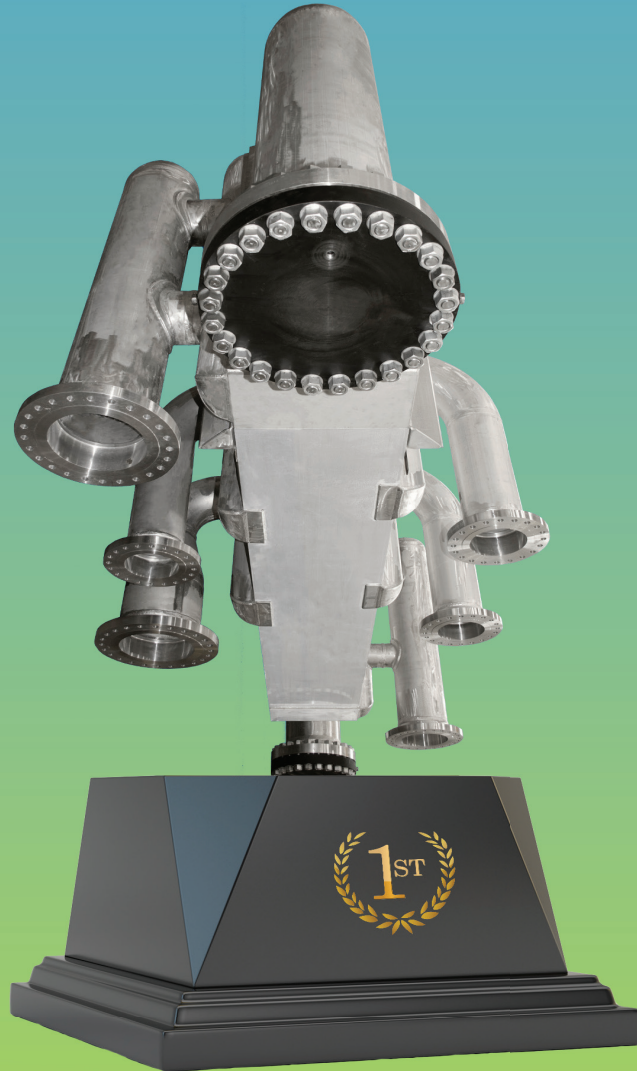
develop the Leviathan field,” said Asaf Bartfeld, President and Chief Executive of the Delek Group.

“Completion of the long regulatory process allows us to concentrate on implementing the Natural Gas Outline Plan, to develop the Leviathan field, to supply the requirements of the Israeli energy market and to extend export activities.

“We are committed to delivering natural gas from Leviathan to the Israeli market and to comply with the timetable as agreed between the project partners,” Bartfeld said.

The Leviathan financing loan will be divided into tranches, each of which can be drawn down if various prior conditions have been fulfilled.

Chart Brazed Aluminum Heat Exchangers



First to Produce LNG On-board a Floating Facility

Custom designed, highly efficient, compact heat exchangers with superior heat transfer performance and operational flexibility. Providing substantially lower weight, scalability, modular construction and proven performance, Chart Brazed Aluminum Heat Exchangers are uniquely suited to the rigors of floating vessels, where space is at a premium and reliability is paramount.

www.chart-ec.com



Innovation. Experience. Performance.®