

LNG Unlimited

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Two US midscale LNG projects progress on tolling and permits

A utility company that started in telecoms and a Brownsville venture have both advanced
Our North America editor in New York

A Southern California phone utility company that expanded into energy has signed its fourth preliminary LNG supply agreement for the liquefaction and export facility it plans to build on Monkey Island in Cameron Parish, Louisiana.

"This multi-billion dollar agreement was signed with a reputable Asian energy company that owns and operates an LNG import terminal and has plans to construct additional terminals," the company said.

Equity partner

"The agreement also has an option for a future equity investment into the LNG liquefaction terminal," it added.

The LNG development company is led by Chairman and Chief Executive Greg Michaels and is known as SCT&E LNG, under name of the originally established Southern California Telephone Company, a privately-held United States Public Utility.

The original Michaels company, Southern California Telephone, now does business as Southern California Telephone & Energy (SCT&E), to signify its move into LNG and natural gas.

The project site for the SCT&E LNG liquefaction and export terminal is located on Louisiana's Calcasieu Ship Channel.

The site is about 2.5 miles inland from the Gulf of Mexico and with a building area on the island of 245 acres.

The company's business model seeks to export LNG via take-or-pay tolling agreements and is focused on supplying LNG to meet



Project site is located on Louisiana's Calcasieu Ship Channel

customer needs during what it sees as a "second wave" of LNG demand in 2022 and beyond.

In 2015, SCT&E LNG signed two Memoranda of Understanding (MOUs) a total of 1.7 million tonnes per annum of LNG, and the company signed a third MOU earlier in 2016.

This fourth and latest agreement, combined with the previously signed MOUs, brings the company's total offtake agreements up to 4.7 MTPA.

"SCT&E LNG now has over one-third of the facility's overall capacity reserved via MOUs," said CEO Michaels.

"We have seen an increase in commercial activities from clients looking to secure LNG supply beginning in 2022, and it is great to see LNG buyers confirm our business decisions and market timing," added Michaels.

The SCT&E LNG project currently contains plans to have four LNG Trains, each with capacity to produce 3 MTPA. It envisages three LNG storage tanks each of 160,000 cubic metres capacity.

Meanwhile, another small to medium-sized project, Texas LNG Brownsville, has also made progress, filing its permit requests with US regulators for a liquefaction plant to be built in two phases and to produce 4 million tonnes per annum by 2020.

The filing with the US Federal Energy Regulatory Commission was revealed by LNG and gas industry veteran and company founder Vivek Chandra.

"Transitioning from the pre-filing to the formal application stage is significant, placing Texas LNG within a select and elite group of US LNG export projects in the FERC formal filing process, bringing us closer to our goal of delivering low-cost LNG under flexible terms from the Port of Brownsville to global buyers in 2020," Chandra said.

Texas LNG plans to begin construction of Phase 1 of the project before the end of 2017.

The Texas project is one of several proposed export projects located along the Brownsville Ship Channel. Of the current ventures, two others have been accepted into the FERC's pre-filing program.

They are Annova LNG with plans to produce 6 MTPA and the Rio Grande LNG project targeting 27 MTPA of output.

Texas LNG said it continued to believe that "smaller independent projects that promise low cost, low technical risks, and offer transparent, flexible tolling terms" will be best placed in the current global market.

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LNG shipping and importing companies agree definitive charter contract for spot cargoes

Our Europe editor

The Baltic and International Maritime Council (Bimco), the largest of the international associations for shipowners, and the France-based International Group of Liquefied Natural Gas Importers, have issued the first definitive voyage charter party contract designed for the expanding LNG spot market.

The new voyage charter, called LNGVOY, will provide parties with greater commercial flexibility and an additional means of managing their risks and costs.

Collaboration

Companies that worked on the project included representatives from LNG fleet owners Exmar of Belgium, Mitsui Osk Lines of Japan, France's Total, Royal Dutch Shell, Swiss-based trader Vitol and other companies, including international law firm Stephenson Harwood.

Bimco is known globally for its core activity, which is the development of standard contracts and clauses used in many of the major sectors of the shipping industry.

The body has 2,300 members in around 130 countries and represents around two-thirds of the world's commercial fleet. It provides a wide range of services to members who are also operators,



Bimco has 2,300 members in 130 nations and two-thirds of world's fleet in all professional commercial sectors

managers, brokers and agents. Traditionally, LNG has been shipped under long-term time charter contracts, often of around 20-25 years.

With relatively recent developments in the way LNG cargoes are traded there is an increasingly active LNG spot shipping market with ships being fixed for much shorter periods, often single-trip charters.

Voyage charter parties have not been a feature of the LNG trade up until now, but with the importance of managing costs and resources, and providing commercial flexibility, the new contract has been established.

"One of the key benefits to charterers of using a voyage charter party is the ability to fix their costs by agreeing a lump sum freight rate," Bimco explained.

"Moreover, a voyage charterer will not be burdened with the operational or maritime responsibili-

ties as is the case for a time charterer," the body added.

"Careful account was taken of the interests of both owners and charterers to create a balanced and clearly worded agreement," Bimco said.

"One of the main goals of LNGVOY is to provide a charter party whereby the charterer can assess, with a greater degree of accuracy, the cost of transporting LNG from A to B and/or C," it added. Four main issues inherent in LNG shipping have been addressed for voyage charters:

1. A "boil-off" cap whereby both owner and charterer agree on a negotiated maximum quantity of boil-off over the voyage. In case the cap is exceeded, a compensation structure, agreed during negotiations, is applied, subject to a few limited exceptions.

2. LNG Heel at the commencement and completion of the voyage - it was considered that legal title (ie ownership) to the heel should remain with the owner throughout the charter and that there would be a balancing payment between the quantities remaining on board, again, at the commencement and completion of the voyage. This arrangement helps avoid potential issues with administration and bills of lading etc.

3. Presentation - condition of the cargo tanks on arrival at the loading port is now covered. The costs involved can be handled adequately under a voyage charter as opposed to a time charter trip covering the three potential conditions: cooled down ready to load; warm under natural gas vapours; and warm and inerted.

4. Arrival at discharge port. Given the inherent nature of the cargo, scheduling of arrival times at discharge carries great importance and delays can be very costly. As a result, most voyages have a specific delivery window and risks of delay and ensuing boil-off have been allocated.

Stena Line orders four LNG-ready ferries from Chinese shipyard with four newbuild options

Stena Line of Sweden, one of Europe's leading ferry companies with 35 vessels and 22 routes in Northern Europe, has ordered four liquefied natural gas-ready ferries with options for four others from the AVIC Shipyard in China.

The vessels will be able to accommodate about 1,000 passengers, vehicles and freight trucks the ships' engines will be "gas ready", prepared to be fueled by either methanol or LNG.

Stena, based in Gothenburg, said the contracts for the "RoPax"

ferries will see deliveries begin in 2019 and 2020. The intention is that the four initial vessels will be used within Stena's route network in Northern Europe.

"We are very pleased that Stena have signed a contract for four vessels with an option for another four from the Chinese shipyard based in Shanghai.

"During the course of the past 24 months our engineering staff has managed to develop a design that is not only 50 percent larger than today's standard RoPax vessels, but more importantly, incor-

porates the emission reduction and efficiency initiatives that have been developed throughout the Stena Group during the past years," said Carl-Johan Hagman, Managing Director of Stena.

"These ships will be the most fuel efficient ferries in the world and will set a new industry standard when it comes to operational performance, emissions and cost competitiveness, positioning Stena Line to support its customers in the next decades," added Hagman.

"With this investment we

are building on our successful RoPax concept mixing freight and passengers.

"Through standardization we secure a reliable operation and through flexibility we can provide an even better support to our customers and help them to grow," stated Hagman.

Dan Sten Olsson, Chairman of Stena Line, said the company foresaw a continued demand growth for short sea services in Northern Europe and in many other parts of the world.

Asia-Pacific LNG player Santos shakes up exec team

Asia-Pacific LNG stakeholder Santos of Australia has just overhauled its executive team as new Chief Executive Keven Gallagher puts his stamp on the company for the challenges of the oil price slump.

Santos, whose Gladstone coal-seam-gas-to-LNG plant was recently completed on Curtis Island in Queensland at a cost of US\$18.5 billion, is also a stakeholder in the Darwin LNG facility run by ConocoPhillips and the Papua New Guinea liquefaction plant operated by ExxonMobil.

Gallagher has just made six executive changes and described the move as a “key step in establishing a new operating model for Santos that is focused on both lifting productivity and driving long-term value for shareholders in a low oil price environment.”

The team of senior executives will be based in the Australian city of Adelaide.

“The new model involves a move away from geographic based business units to an asset-focused model with strong technical capabilities in our primary business of exploration, development and production of oil and natural gas both onshore and offshore,” said Gallagher, who was recruited from Australian energy engineering company Clough Ltd.

The changes see Bill Ovenden appointed Vice President Exploration, in charge of developing and executing exploration strategy; Brett Woods, Vice President Development for delivering projects and Vince Santostefano is Chief Operating Officer.

Santos also named John Anderson as Executive Vice President Commercial and Business Development; Andrew Seaton is named Chief Financial Officer and Angus Jaffray is the new Executive Vice President for Strategy and Corporate Services.

Qatargas signs four-year supply deal with Kuwait ahead of regas upgrades

Our Middle East editor

Qatargas has signed a supply agreement with Kuwait Petroleum Corp. to deliver 500,000 tonnes per annum of cargoes over the next four years to the Gulf state's floating import facility at the port of Mina Al Ahmadi.

The LNG will be sourced from the processing Train known as Qatargas II, a joint venture between Qatar Petroleum, ExxonMobil and France's Total which started production in 2009.

Cif cargoes

The deal is on a delivered contract basis with the cargoes being shipped to Kuwait on board Qatar's second-largest carrier type, its Q-Flex ships.

“The agreement consolidates the position of Qatargas as the LNG partner in the Gulf Cooperation Council (GCC) region and the Middle East, and enhances its established global position,” said Saad Sherida Al Kaabi, Qatargas Chairman.

Kuwait's LNG delivery season typically would start from March



The Gulf state's regas facility at port of Mina Al Ahmadi

and extend to November of each year, to meet Kuwait's growing demand for power for air conditioning during the peak summer months.

Qatargas has been supplying Kuwait with the majority of its LNG requirements for the past five years through both direct sales to KPC and through third parties who have made deals with both Qatargas and the Kuwaitis.

As for other Middle Eastern markets, Qatargas has been supplying LNG to Dubai since 2008 and has delivered a commissioning cargo to Jordan in May 2015.

“The signing of this agreement with KPC is another significant

step in demonstrating Qatargas' capability to reliably and efficiently lead the supply of LNG to the Middle Eastern emerging energy markets,” said Qatargas Chief Executive Khalid bin Khalifa Al-Thani.

“This deal demonstrates the eagerness to strengthen and expand our relationship, and Qatargas' readiness to meet KPC's future demand for LNG,” Al-Thani added.

The Kuwaiti supply deal with Qatar comes as it continues to plan a new onshore LNG import terminal at Al-Zour to supplement supplies received at the port-side Mina Al-Ahmadi FLNG facility.

Japanese energy company Inpex says Indonesia wants Abadi FLNG change

Inpex Corp., the Japanese energy company and Asia-Pacific LNG project developer, said it had been instructed by the Indonesian government to re-propose a plan of development for the Masela Block natural gas resources previously planned as a floating liquefaction venture.

Indonesia said on March 23 it had decided against a proposal by Inpex for the Abadi FLNG project in eastern Indonesian waters and would instead proceed with plans to process the gas resources onshore.

The original Inpex plan with Royal Dutch Shell was to produce 7.5 million tonnes per annum of LNG in the Abadi FLNG project in the Arafura Sea.

The Abadi FLNG is owned 65 percent by Inpex and 35 percent by Shell, though the Indonesian government has control of the production sharing agreement.

The new Indonesian onshore project is to be located on Aru Island in order to save on development spending, according to the latest plans from Jakarta.

The Indonesians propose that a 370-mile pipeline will be built to connect the Abadi gas field resources to a liquefaction plant on the island.

“The company will carefully examine the contents of the notification, and intends to work closely with the Indonesian government authorities aiming for the

early start-up of development,” Inpex said.

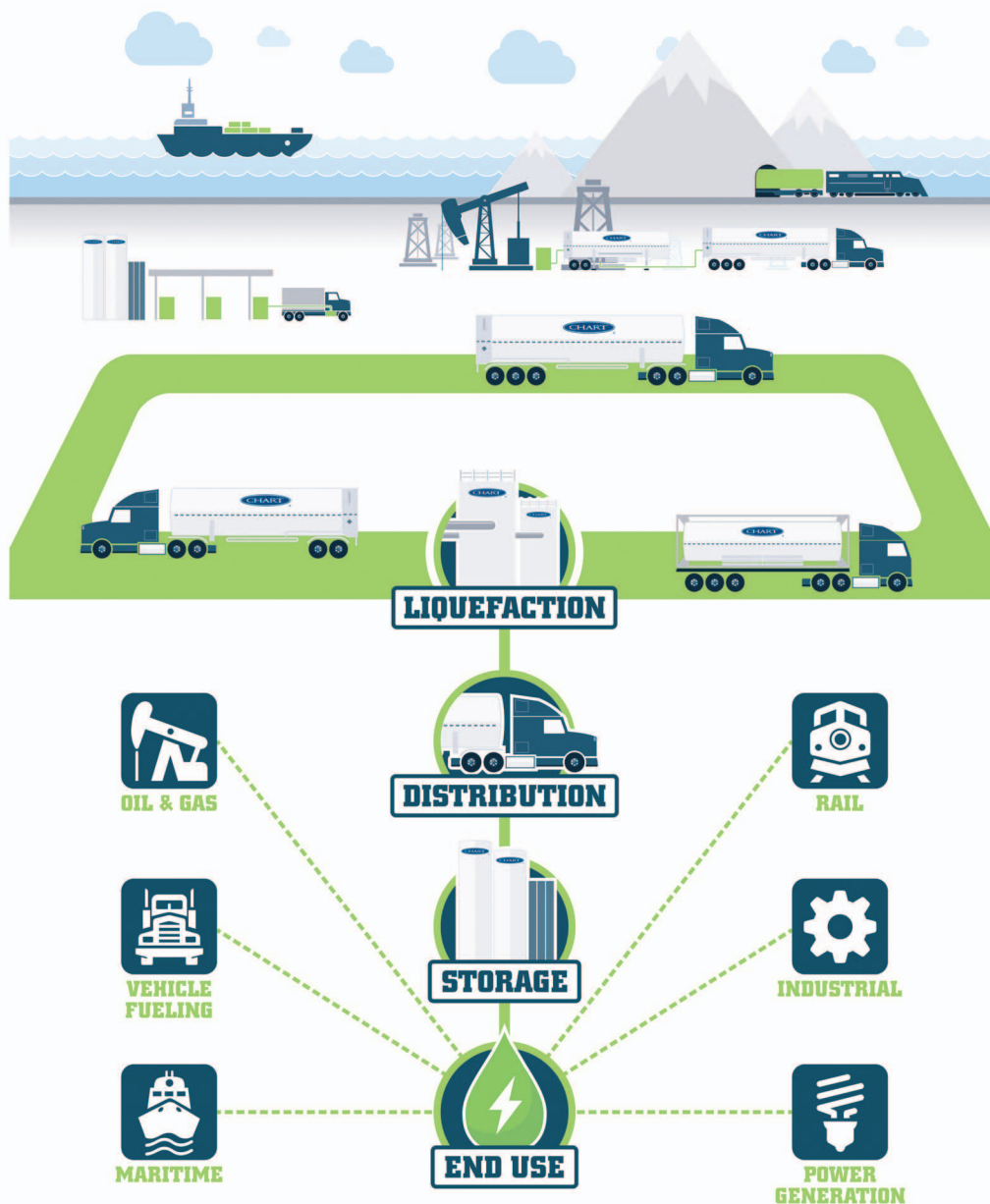
“Going forward, Inpex will openly disclose in a timely manner any developments on this subject,” the Japanese company said in its short statement.

The Abadi FLNG venture was to have had two production hulls deployed offshore Indonesia, each with about 3.6 MTPA of output capacity and modelled on Shell's Prelude FLNG project offshore Australia.

The Japanese company is also developing the Ichthys LNG project in Australia's Northern Territory and which is due for completion at the end of 2017.



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NEWS NUDGES

US DoE appointment

The US Department of Energy's Office of Fossil Energy, one of the main overseers for LNG plant developments and export permits, named Doug Hollett as Principal Deputy Assistant Secretary, replacing Julio Friedmann. "We're fortunate to have someone with Doug's industry and technical background," said Christopher Smith, Assistant Secretary for Fossil Energy. Hollett's portfolio includes oversight of research programs, oil and natural gas systems, international engagements in clean fossil energy and inter-agency work within the US government. Hollett came to the Department of Energy in 2011 with more than 32 years of experience in the energy industry, most recently with Marathon Oil.

BC Asia LNG trade mission

The Canadian province of British Columbia, where up to a dozen liquefied natural gas export projects are planned and only one has been approved, is mounting a trade mission to LNG buying countries Japan and South Korea led by provincial Premier Christy Clark. As part of her seventh major trade mission to Asia, Clark and her delegation will travel to Seoul and Tokyo between May 23-31 and will also visit the Philippines capital Manila. "This trade mission will focus on strengthening trade and investment with priority markets in South Korea and Japan," said Clark.

Gorgon LNG in Yokkaichi

The 160,000 cubic metres capacity carrier "Asia Excellence", owned by Chevron, has safely delivered and unloaded the first cargo from Gorgon LNG in Western Australia at the Yokkaichi import terminal in Japan, operated by Chubu Electric Power.

Australian developer of two export plants in North America chooses CEO

Our Asia-Pacific editor

Australian company LNG Ltd, developer of two North American liquefaction plants in the US state of Louisiana and Nova Scotia in Canada, has named Gregory M. Vesey from US major Chevron Corp. to replace founder Maurice Brand as Managing Director and Chief Executive based in Houston, Texas.

Brand who will continue as an Executive Director of LNG Ltd until his retirement scheduled for June 2017, the company said in a statement to the Australian Securities Exchange, where it is listed.

Proposals

LNG Ltd is developing the medium-scale Magnolia LNG export plant near Lake Charles in Louisiana, the Bear Head project in Nova Scotia, Canada.

It also has a site lease agreement in the Australian port of Gladstone for a possible coal-seam-gas-to-LNG venture called the Fisherman's Landing project.

Chairman Richard Beresford



Company logo is on US and Canadian projects

thanked Brand on behalf of the board, citing his "vision and enormous contribution" as founder.

The Australian company said Vesey was bringing "a wealth of experience to this role, most notably through his 35 years with Chevron" in a number of senior executive roles.

"Most recently he was President of Chevron Natural Gas and Vice President Gas Supply and Trading from 2011 to 2015 where he was responsible for Chevron's global LNG, natural gas, and natural gas liquids marketing and trading activity," LNG Ltd said.

"After conducting a comprehensive search the board is delighted to announce Greg's appointment," LNG Ltd said.

Vesey said he was excited to join LNG Ltd and lead the next phase of its project and corporate development.

"While the LNG industry is under pressure in the short term, the LNG Ltd business model of mid-scale projects using its wholly owned OSMR technology combined with its portfolio of projects in Magnolia LNG, Bear Head LNG and Fisherman's Landing LNG enables the company to be successful globally," Vesey said.

"I look forward to working with Maurice, the LNG Ltd staff and board, and to meeting our shareholders, strategic partners and current and potential customers in the months ahead," Vesey added.

Outside of his Chevron duties, Vesey recently completed a four-year term on the board of the Natural Gas Supply Association of America, serving the last two years as Chairman.

Clough chosen as engineering partner of largest LNG operator Woodside

Australian engineering company Clough said it won a major services contract from the nation's largest LNG operator, Woodside Energy, while continuing to build up its own North American business.

Clough said the Woodside contract covers "the full spectrum of engineering services" and includes concept and feasibility studies, front-end engineering and design, assessment and review, detailed engineering and production support across all of Woodside's operated onshore and offshore producing assets.

"We are delighted to be selected as an engineering partner by our key client Woodside," said Clough's Chief Executive Peter Bennett.

"Over the past two years, we have worked hard to lower our cost base and increase productivity by investing in our engineering and project management systems and talent development," Bennett added.

"This contract award sees this investment come to fruition, and reinforces Clough's capability to work across asset life-cycle while building upon our established brownfields engineering credentials," the CEO said.

"Our brownfields engineering team will deliver fit-for-purpose engineering solutions that reduce capital expenditure and operating expenditure costs while increasing safety, productivity and schedule certainty," he stated.

Woodside operates two existing

plants in Western Australia, the NorthWest Shelf venture and Pluto LNG.

Additionally, Woodside is involved in the Wheatstone LNG project as a shareholder with Chevron Corp.

The Julimar offshore gas project, operated by Woodside, will provide feed-gas for the Wheatstone plant from 2018 and is more than 80 percent complete.

Clough noted in its statement that it was also building its LNG activities in North America, through its global LNG consultancy unit, CH-IV.

The US subsidiary was awarded an owner's engineer contract for Eagle LNG in Jacksonville, Florida.

US ratings agency to tell LNG 18 headwinds for top LNG producers will last several years

Our Asia-Pacific editor

Liquefied natural gas producer nations including Qatar, Australia, Asian countries such as Indonesia and Malaysia, as well as new entrant the US, will face market headwinds for some years because of their exposure to the collapsed oil price.

The warning comes from US-based global ratings agency, Standard and Poor's Ratings Services (S&P), a subsidiary of New York-based McGraw Hill Financial.

Relief

It notes, however, that there could be some relief and improved returns if an oil price rebound and higher gas demand were driven by actual and sustained stronger economic growth in China and elsewhere.

The chances of such a scenario



LNG 18 taking place at Perth Convention Centre

emerging, however, are rated by S&P as more theoretical than likely in the near-term.

The LNG outlook guidance is proffered by S&P's London-based Director for Commodity Ratings, Simon Redmond, who is due to address the global LNG 18 conference that got underway in Perth, Western Australia, on April 11.

"LNG global revenues per tonne currently are low, and geographical price differentials, trade flows and market dynamics are

more volatile than for many years as global LNG supply capacity increases," Redmond was to say in his presentation on April 13.

"For established LNG producers, lower oil-linked prices for contracted volumes and less certain returns on uncontracted volumes, imply slower debt repayments or lower dividends.

"For new LNG volumes, the current and future price and market outlook is likely more in line with stress scenarios considered at

the time of Final Investment Decisions (FID)," he stated.

Redmond also warned that it would take a material event to shift market expectations in 2016 for LNG and bring higher returns back into the sector.

"Given the volume of new LNG supply, mostly contracted, the LNG market will likely remain a bit like the proverbial oil or LNG tanker - slow to change direction," Redmond said.

"Even with Henry Hub prices at record lows currently, the arbitrage with substantially reduced landed Asian prices doesn't allow the kind of trading margins that had become normal just a few years ago and as a result, this is seeing the balance swing back in favour of the utilities and off-takers during contract negotiations.

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Wood Group of UK acquires privately-held Australian firm

Wood Group, the UK energy services company, has acquired Australian firm SVT Engineering Consultants with a client base covering the onshore and offshore oil and gas market, including LNG, as well as other sectors.

SVT, a privately-owned company with headquarters in Perth, Western Australia, provides piping and rotating equipment vibration, noise, integrity engineering and asset integrity services. The value of the transaction was not disclosed.

The company was formed to pioneer the application of sound and vibration technology in the Australian resource sector.

Wood Group, based in Aberdeen and listed on the London Stock Exchange, said current Managing Director Stewart Wharton would continue to lead the 110-strong team of personnel across SVT's offices in Perth and Brisbane. SVT will operate within the Wood Group Kenny business.

"SVT further expands the global technical expertise, which Wood Group established with the acquisition of Calgary-based BETA Machinery Analysis in June 2015.

"The acquisition also enhances the geographic footprint of Wood Group, making it a truly global offering," the UK company said.

"Australia is one of the world's largest producers and exporters of minerals and is on the cusp of becoming the world's largest LNG producer," said Bob MacDonald, Chief Executive of Wood Group Kenny.

"SVT builds on our asset integrity management service line as part of our strategy to enhance our vibration, dynamics and noise capability to support the operational phase of Australia's LNG and mining infrastructure for decades to come," MacDonald added.

Excelerate of US signs user agreement with Bangladesh for floating LNG terminal

Our Asia-Pacific editor

Bangladesh Oil and Gas Corp. (PetroBangla) has signed a user agreement with Excelerate Energy for the Floating Storage and Regasification Unit the US company will deploy as Bangladesh's first import terminal.

A signing ceremony was held in the capital, Dhaka, in the presence of Bangladesh government officials and executives of PetroBangla and Excelerate.

The first floating LNG terminal will be located near the island of Moheshkhali, offshore the port of Cox's Bazar in the Bay of Bengal.

An FSRU of 135,000 cubic metres capacity will provide natural gas to the southeast region of Chittagong, particularly for the power industry, according to the agreement.

Excelerate was the same company involved in the setting up of Pakistan's first FSRU facility in 2015 at Port Qasim, near the city of Karachi.

After receiving final approval from the Bangladesh government, PetroBangla will sign a 15-year charter deal with Excelerate for



US company Bangladesh FSRU will be deployed near island of Moheshkhali, offshore the port of Cox's Bazar

the FSRU vessel. Bangladesh, one of the poorest nations in Asia, is trying to develop its economy by building infrastructure to cover basic energy needs for industry and electricity for its largest cities.

PetroBangla executives have said that the country needs at least two more LNG import terminals and in January 2016 sought expressions of interest from international and regional companies.

The two additional LNG import facilities were outlined by PetroBangla in its initial tender documents and will be near the ports of Cox's Bazar and Payra.

PetroBangla has said that after the FSRU is brought into service it would prefer two land-based LNG terminals.

The country is initially aiming to increase natural gas supply through LNG imports to reduce power blackouts.

It would also be seeking to extend a memorandum of understanding signed with Qatar to supply LNG to a terminal from around 2017.

Bangladesh does produce quantities of natural gas with official output from onshore sources put at 710 billion cubic feet.

LNG and natural gas developer Delek posts record sales from East Med field

Delek Group, the largest Israeli energy operator in the East Mediterranean with stakes in the Tamar and Leviathan natural gas fields and LNG project plans, said the Tamar field reached peak production with record sales to Israel of 8.3 billion cubic metres in 2015, three years after coming on stream.

Delek's subsidiaries Avner Oil and Delek Drilling own stakes in the prolific Tamar and Leviathan fields with main partner, Noble Energy of the US.

The Israeli group also said in its latest earnings that it managed to return a small net profit compared with a loss of 765 million shekels (\$204M) in 2014.

Delek said the Leviathan field partners submitted a revised development plan with increased maximum capacity of 21 Bcm of natural gas per annum from 16 Bcm previously and signed a first agreement with a local off-taker for the supply of natural gas for power plants.

That's despite Leviathan development plans for an estimated 22 trillion cubic feet of resources offshore Israel suffering a setback when the Israeli High Court on March 27, 2016, rejected part of a regulatory framework supported by Prime Minister Benjamin Netanyahu.

However, the partners in the East Med's largest field said the Is-

raeli court ruling that blocked the government's proposal to regulate the natural gas industry would delay but not end the Leviathan development plans.

The Leviathan field has the potential to supply customers in Israel, Jordan, the Palestinian Authority and Egyptian LNG processing plants.

"This year will be marked by the advancement of the development plan of Leviathan, as well as continuing to identify opportunities and making strategic investments in the international energy market," said Assi Bartfeld, President and Chief Executive of Delek.

BOC set to open first LNG fueling unit for trucks at UK M6 motorway service station

Our Europe editor

BOC of the UK, a subsidiary of Germany's Linde Group, is set to open its first LNG fueling unit for trucks on an existing fuel forecourt in Britain and with full public access.

The UK operator said its LNG refueling unit for heavy-goods vehicles would be sited at Exelby's Golden Fleece Service station on Junction 42 of the M6 motorway south of the city of Carlisle in Cumbria.

Pioneer

"Exelby Services pioneered fuel bunkering, a contract diesel refueling system that allows haulage companies to make large savings on the cost of diesel," BOC said.

Now Exelby is one of the largest independent bunkering suppliers in the country, handling over 140 million litres of diesel each year through its five fuel sites in the North of England.

BOC explained that the company's sites were designed with



BOC said its LNG sites were designed with trucks in mind

trucks in mind and store fuel for most of the major transport, distribution and fuel card companies in the UK.

"The addition of BOC's LNG refuelling unit represents an important step into the low-carbon fuel market for Exelby Services and will significantly add to its offering at its Golden Fleece, Carlisle service station," the UK company said.

The BOC LNG refueling unit uses cryogenic cooling to "temperature-condition" the fuel just prior to dispensing, and also incorporates the unique "zero loss" refuelling technology, developed by the company.

BOC said its LNG technology uses nitrogen to keep the liquid LNG in the fuel tank at a constant super chilled temperature and this prevents the liquid from turning into a gas.

The result is a "zero loss system" that allows no harmful greenhouse gases into the atmosphere. The same system can draw warm gas from a vehicle tank and return that back to a liquid form.

Managing Director Michael Exelby, whose father Ron established Exelby Services in 1976, commented: "Low carbon is an important part of Exelby Service's environmental agenda and we are

delighted to be able to offer LNG fuel to our HGV customers."

BOC pointed out that diesel produces around 2.6 kg of CO₂ for every litre burned, whereas LNG when used with diesel in a dual-fuel vehicle typically reduces CO₂ emissions between 10 and 14 per cent.

LNG also produces virtually no sulphur dioxide (SO₂) emissions, less nitrogen oxide (NO_x) emissions and less solid particle emissions than other fuels.

Mark Lowe, LNG Business Manager, BOC, said: "BOC is proud to be working with Exelby as a partner on this important, environmentally friendly alternative to diesel.

"Our partnership with Exelby further demonstrates BOC's long-term commitment to play an active part in the transition to low-carbon transport.

"This is the first part of our plan to provide LNG on-road fuelling across the UK's HGV road network."

Air Products of US will stick to LNG after taking \$1Bln hit for UK waste-energy project

Air Products, the world's leading equipment maker for LNG liquefaction plants, has decided to exit the energy-from-waste business and will take a hit of up to \$1 billion on a UK project as it pledged to concentrate in future on its core natural gas industry sector.

Air Products said it expected to record a pretax charge in the range of \$900 million to \$1Bn for discontinued operations, primarily to write down assets associated with the energy-from-waste segment.

In previous public comments, Air Products management explained the challenges with the UK project near the city of Hartlepool in the northeast of England.

"Testing and analysis completed during the company's fiscal second-quarter indicated that additional design and operational challenges would require significant time and cost to rectify," the US company said.

"Consequently, the board has decided that it is no longer in the best interest of the company and its shareholders to continue the project.

"Exiting will allow the company to direct its resources to its core business of Industrial Gases," Air Products stated.

The Lehigh Valley, Pennsylvania-based company most recently posted said first-quarter 2016 sales of \$2.35 billion, a fall of just

8 percent from the same three months in 2015 as it was managing to weather the storm in the energy sector.

Air Products has won contracts for ongoing LNG ventures around the world. They include Semptra's Cameron LNG project on the US Gulf Coast, the Cove Point plant in Maryland, the Ichthys project in Australia and the first Floating LNG venture in the world being developed by Malaysia's Petronas.

Air Products had temporarily halted work on the energy-from-waste project site at Port Clarence, near Hartlepool, in November 2015, resulting in 700 construction workers being laid off.

The initial plan was for the

plant to generate energy for about 100,000 homes by burning domestic and commercial waste which would otherwise have been sent to landfill sites.

"We pushed very hard to make this new EfW technology work and I would like to thank the team who worked so diligently," said Seifi Ghasemi, Chairman, President and Chief Executive of Air Products.

"We appreciate the hard work of our employees and contractors at the site, and certainly understand their disappointment in this decision. We are also disappointed with the outcome," Ghasemi stated.