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Germany promises to offtake US LNG to earn some leverage with North Stream-2

Optimism has been expressed by Peter Altmaier, the German economy minister, that two regasification terminals will be built on the northern Germany coastline “in the foreseeable future” to enable LNG imports from the United States and elsewhere. With his assurances, the minister is trying to score some political points in Washington as Berlin is looking for ways to advance the controversial second leg of the Gazprom-led Nord Stream pipeline.

Before the end of 2019, Germany will decide where to locate its first LNG import terminal and the government is currently weighing up the amount of state subsidies needed. Three sites are under consideration - Brunsbüttel, Stade and Wilhelmshaven - with the minister saying he was “confident” LNG import terminals would be built at two locations. “We are serious about the terminals,” he told U.S. energy officials during a conference in Berlin in mid-February.

Altmaier had earlier called Germany’s support for the LNG im-

port terminals “a gesture to our American friends” given that the Trump administration has been pushing to sell more North American shale gas into Europe and is fiercely opposes the rise in Russian gas flows to the EU.

At the same time, Berlin also honors its gas offtake obligations with Russia’s Gazprom, Altmaier said, calling Nord Stream-2 “a project that has a long life already and much money has been invested.” Balancing conflicting interest is what he is after.

Playing hard ball, the U.S.



ambassador to Germany Richard Grenell had warned German companies involved in Nord Stream last month they could face sanctions if they continued work on the \$9.5 billion pipeline. Though his comments had come across like political posturing of the Trump administration, it may have helped

push Berlin to give firm commitment to move ahead with the construction of LNG import terminals. The German foreign ministry even tried to win assurances from the Russian President Vladimir Putin that Gazprom will continue to export its gas through Ukraine even after Nord Stream 2 is completed.

continued on page 2

FID on Golden Pass LNG surprises analysts

Though no firm offtake agreement is in place, Qatar Petroleum and ExxonMobil have taken FID on their 15.2 mtpa Golden Pass LNG venture and announced they will jointly invest over \$10 billion in the project. Some analysts were surprised by the timing of the financial close, but it is understood the two sponsors wanted to move quickly to gain an edge on rival projects such as Venture Global’s 10.8 mtpa Calcasieu Pass LNG and Tellurian’s 11 mtpa Driftwood LNG project, both expected to reach financial close in H1-2019.

Qatar will shoulder most of the funding for the merchant-financed project, with state-owned Qatar Petroleum committing it will put in \$8 billion while ExxonMobil will come up with the remaining \$2 billion. The offtakers for the 15.2 mtpa of LNG produced by the Golden Pass terminal are still unconfirmed, but observers say Exxon could sell much of the volumes as part of its global gas portfolio.

Contemplating the reasons behind this surprise FID, Energy Aspects reckons Exxon and Qatar Petroleum made the move now as they want to use Golden Pass as an outlet to monetise their U.S. upstream assets in the global gas markets rather than the more depressed Texas gas hubs. “The decision could also be seen as a spoiler to other US-based projects,” Energy Aspects said, suggesting the

continued on page 3



AGENDA

TRADE

Shell sees 18% surge in LNG trade as coal-to-gas switch accelerates **3**

FINANCE

Goldboro LNG places shares to raise funding **5**

SUPPLY

Mexico’s CFE disputes supply deals with U.S. pipeline developers **7**

EIA sees U.S LNG export capacity level off after 2030 **7**

DEMAND

New England covers peak winter demand with LNG **9**

REGULATION

Pembina awaits new ruling on Jordan Cove LNG **11**

continued from page 1, top story

Berlin tries to balance conflicting interests

In terms of timing, Berlin's vocal support for LNG terminals on German soil comes just days after a French-German compromise silenced criticism against the Gazprom-led Nord Stream 2 pipeline within the European Union. The deal places the controversial project "under European control" in terms of ownership unbundling rules, but says these rules apply from the "territory of the member state where the first interconnection point is located". In case of the Nord Stream-2 project, the landfall is in Greifswald, northeastern Germany, leaving it up to Berlin to apply the rules.

As more and more U.S. LNG volumes are coming to the market, the American government is vocal about infrastructure constraints that are seen hamper landing more of these volumes in some of the EU's largest gas-consuming countries. "The United States is strongly committed to providing Europe with access to strategic, diverse and reliable energy supplies," said Steven E. Winberg, Assistant Secretary for Fossil Energy at the U.S. Department of Energy, claiming Russian pipelines supplies to the EU would enjoy advantages compared with LNG deliveries from the United States.

"Particularly as EU member states decrease their reliance on generation from coal to comply with emission goals, European countries are becoming more dependent on gas overall," Winberg said. "As a consequence, due to lack of supply routes and insufficient pipeline buildout, Europe is

also becoming more, not less, dependent on Russian gas."

Clearly, Germany will continue to need Russian gas and will need to import even more volumes starting from the mid-2020s as the country just decided to phase out coal. The timeline for a gradual phase-out of all coal-fired power stations, as proposed by the German Coal Commission, indicates that 3 GW of lignite and 4 GW of hard coal plants face closure by 2022, not including those already closed. Another 13 GW of lignite-fired and coal-fired plants will need to shut in the 2023-29 period, leaving 17 GW online from 2030. All plants will then have to be offline by 2038.

Coal exit to push up gas demand from 2022

This quantum-shift will make additional space for gas in the German power mix from 2022, Energy Aspects. Before the coal exit decision was taken, analysts estimated the EU power markets could add a maximum of 29 Mt of demand from a coal-to-gas switch.

More LNG from North America, Qatar but also from Russia's new Yamal venture are likely to find a home in Europe. The United States, for once, exported roughly 58 billion cubic feet of LNG to Europe in January, about 1 Bcf more than was delivered to Asian buyers, excluding India, marking the second month in a row that Europe was the premier destination for US LNG, according to Platts Analytics data. This winter to date, US gas exports to Europe have vastly exceeded deliveries last year, averaging roughly 47.5 Bcf/month, nearly four times more than was delivered to the Continent last year.

Several strong LNG sellers are seeking to land cargoes into Northwest Europe, where regasification facilities in Q4-18 received 4.2 million ton more LNG compared with the same quarter in 2017, according to Energy Aspects figures. The pace of increase kept rising throughout January - particularly as three trains of Yamal are now operating. Yamal offtakers are

seemingly "happy to see cargoes sold on a spot and forward basis into the European hubs," analysts led by Trevor Sikorski commented.

PetroChina, for once, has reportedly offered cargoes for delivery to Northwest Europe this winter, with buyers including BP, Trafigura and Vitol. Other offtakers, such as Total (20% of offtake) and project lead Novatek (40%) have been "less active in the spot markets," analysts said, "but both will have EU regas capacity, which will allow them to deliver gas from Yamal into EU hubs."

Brunsbüttel is one of the key contenders for the location of Germany's first LNG regas and import terminal. That is where German LNG Terminal, a Dutch-German joint venture, is developing the country's first regasification facility on a site on the Elbe River near the port of Hamburg. In terms of configuration, the terminal is designed with a throughput capacity of about 5 Bcm/s and one storage tank of 220,000 cbm. One Jetty will be able to receive tankers up to Q-Flex vessel size, operating with an unloading rate of 14,000 cbm per hour.

Gasunie and Vopak of the Netherlands, together with Oil-tanking, a subsidiary of Hamburg-based Marquard & Bahls, seeking the Brunsbüttel LNG venture at a cost of €450 million (\$526 million). If build, the facility would be able meet about 10% of Germany's gas demand. "The parties agreed on the commitment of a substantial part of the terminal capacity. Negotiations with other interested parties are ongoing," the company said, announcing it will now apply for permits for a terminal capacity of 8 Bcm/y of natural gas, or 6 mtpa of LNG.

RWE, second buyer book firm capacity at German LNG terminal

Commercially, the project is gaining traction as RWE in an open season on January 17 booked a "considerable part" of the terminal's total capacity. The Essen-based utility signed a Heads of Agreement (HoA) to have guaran-

teed access to substantial annual capacity.

In mid February, German LNG Terminal reached another long-term commercial capacity agreement with an undisclosed counterparty. Reacting to strong demand, developers will now apply for permits with a total terminal capacity of 8 Bcm/y of natural gas, or 6 mtpa of LNG.

Looking ahead, German LNG Terminal said that it was hopeful that a final investment decision (FID) would be taken in 2019, construction work would begin in 2020 and commercial operations are scheduled for 2022.

Competing FSRU project in Wilhelmshaven

While RWE has booked firm capacity at Brunsbüttel, its rival Uniper is engaged in the competing Wilhelmshaven floating storage and regasification project in the German region of Friesland. Situated at Jade Bay, the only German deepwater port the proposed FSRU could be reached by LNG tankers of any size without tidal restrictions. The location is close to the existing Netra pipeline and gas storage infrastructure. In terms of capacity, developers are looking at a FSRU with up to 10 bcm/a nominal send-out and 263,000 cubic metres of storage capacity.

Investment costs for a FSRU are significantly lower than for a land-based terminal and the time-to-market is also much shorter. Uniper aims to develop the FSRU as a multi user facility, also allowing for the loading of bunker barges. The Japanese ship-owner Mitsui O.S.K Line (MOL) agreed to own, finance and operate the FSRU.

In terms of supply, Uniper is drawing on volumes from Freeport LNG. Under a 2015 agreement Uniper has the right to offtake about 0.9 mtpa of LNG on a free-on-board basis from the U.S. for twenty years. Moreover, ExxonMobil in January signed a Heads of Agreement for a long-term booking of a substantial share of regas capacity in Uniper's FSRU project. The two companies said a binding agreement will be signed soon. ■

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Publisher
Stuart Fryer

Editor
Anja Karl
Tel: +44 7733 684682
anja@lngjournal.com

Layout
Vivian Chee
Tel: +44 (0) 20 8995 5540
chee@btconnect.com

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Shell sees 18% surge in global LNG trade as coal-to-gas switch accelerates in Asia

Natural gas will become the fastest-growing energy source in the coming decades, displacing coal as a fuel for power plants and heavy industries, Royal Dutch Shell said in its 2019 LNG Outlook 2019. Global energy demand will grow 18% by 2035, with gas forecast to meet 40% of that largely through expanding LNG trade.

The global transition to cleaner-burning natural gas, is largely driven by government policies aimed at curbing air pollution in China and India, or the shift from nuclear to green energy sources in Germany and Japan.

Asian LNG imports again exceeded expectations, absorbing continued supply growth last year. China, India, South Korea and Pakistan led LNG demand growth in 2018, and will likely continue to do for most of this year. Global gas demand is seen rising by 27 million tonnes to 319 million tonnes this year, and reach about 384 million tonnes in 2020.

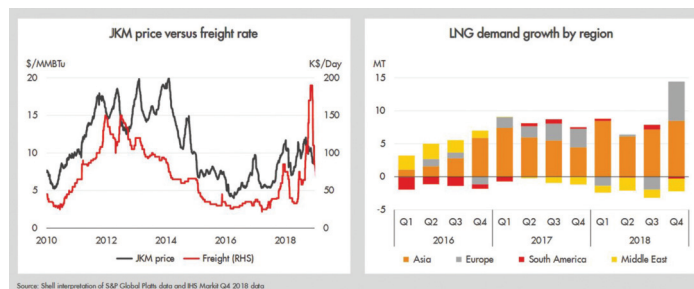
Clean air policies push up gas demand

Policymakers in Beijing have pushed through radical changes in

the Chinese energy mix in recent years, mandating an end to new-build coal power project in megacities along the eastern coastline. Strict coal-to-gas switching policies led to a 78% improvement of Beijing's winter air quality in the last 5 years.

Efforts to improve air quality saw China's LNG imports surge by around 16 million tonnes in 2018, propelling the country in the position of the world's largest gas buyer with LNG imports doubling over the past two years alone. In addition, the Chinese government targets to increase the share of gas in China's power generation mix from 4% in 2010 to 10% by 2020.

The rise in global LNG trade, projected to reach 11% this year mainly due to growing demand in



China will help reduce energy-related greenhouse gas emissions on a global scale, Shell said in its 2019 LNG report. The worldwide LNG trade has expanded by 27 million tons per annum (mtpa) in 2018, with Chinese demand making up 16 mtpa of that volume.

Fuel-switching in Europe to help absorb supply glut

As flurry of new LNG supply will come to market over the next few years, as 2018 saw financial investment decisions (FID) on 21 mt of new capacity, compared with just 7 mt in the previous two years combined. Some 35 million tons of new supply is expected for 2019, on top of the last year's 37 mt of LNG capacity addition.

Europe and Asia are expected to absorb that growth - for now. Shell sees demand growth potential in particular in the European

power sector where utilisation of gas-fired power generation capacity is currently below 40%.

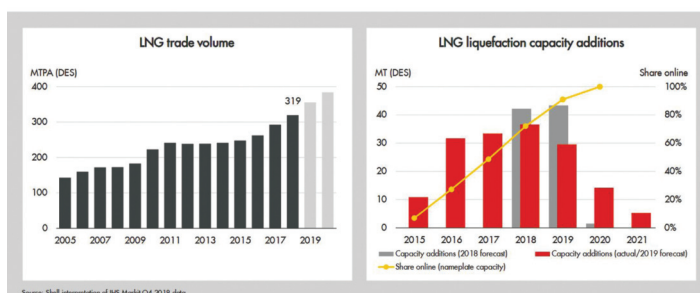
Long market expected to turn by mid-2020

From 2025 onwards, however, the currently long market is likely to turn and become undersupplied, as that not enough liquefaction and export capacity is being planned, financed and built to meet future demand growth.

Staying optimistic, Shell pointed out the duration of contracts signed last year had more than doubled to 13 years on average. "A rebound in new long-term LNG contracting in 2018 could revive investment in liquefaction projects," the Anglo-Dutch company said. "But based on current demand projections, we still expect supplies to tighten in mid-2020s."

SHELL LNG OUTLOOK 2019

More than 70% of the current wave of LNG capacity additions online



continued from page 1

Golden Pass LNG decision could be an attempt by Qatar Petroleum to make it harder for other, less-commercially advanced projects to find offtakers.

In a geopolitical context, Qatar might hope to draw some favoritism from its readiness to pour substantial amounts of money into the U.S. gas industry. "Given the current Trump administration has largely been pro-Saudi, the Qataris could be trying to score political points in Washington and earn some leverage against Riyadh, with whom Doha

continues to be locked in a diplomatic feud," Energy Aspects said.

Rick Perry, the U.S. Energy Secretary, hailed the Golden Pass project as "proof that two of the world's top energy producers can work together as allies to increase energy diversity, advance energy security, and support rather than subvert an open energy marketplace." Meanwhile, the Qatari energy minister Saad Al-Kaabi said Golden Pass LNG "represents a significant part of the plans that Qatar Petroleum has announced to invest \$20 billion in the US energy

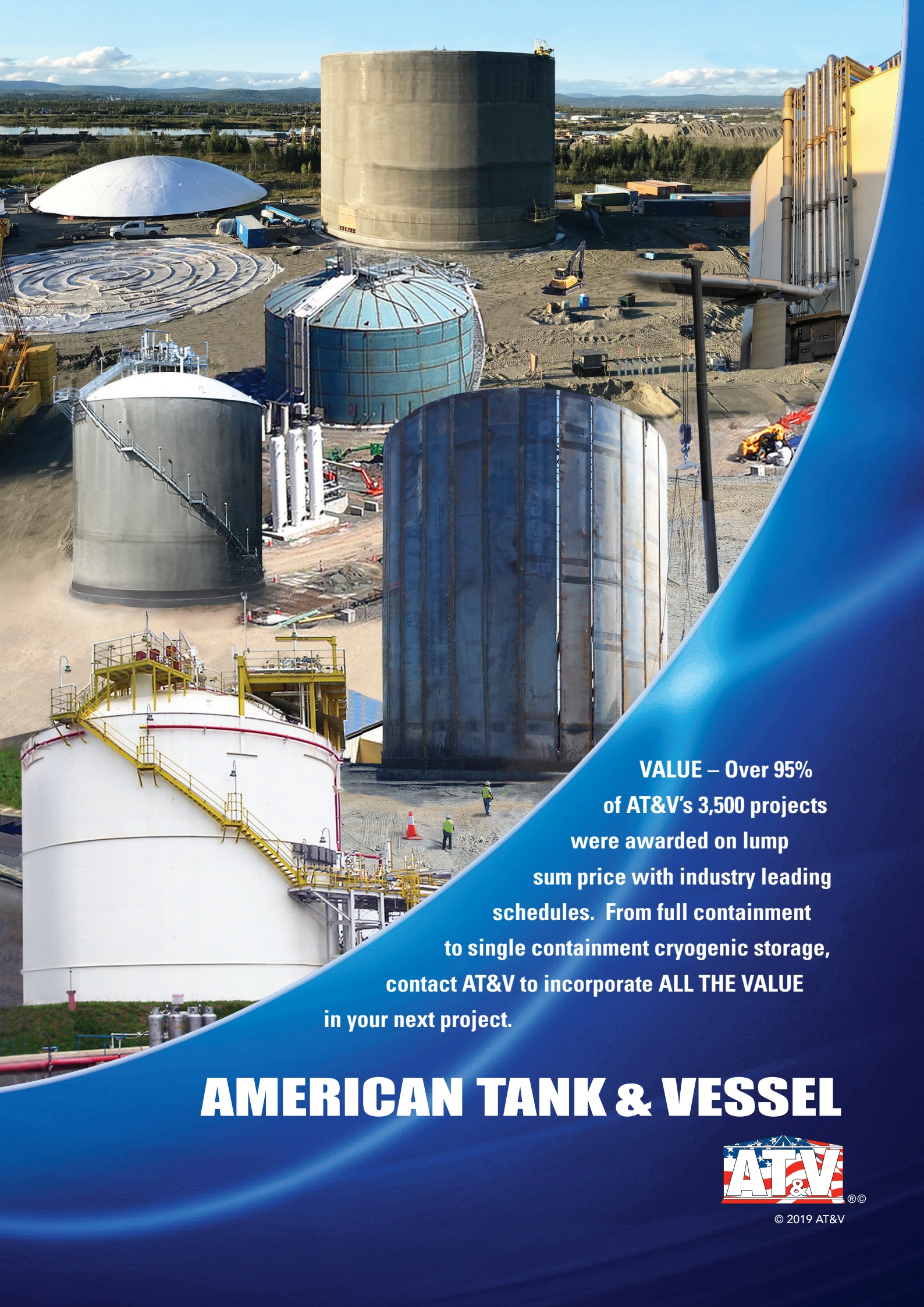
sector, which we believe would bring great benefits for both the United States and the State of Qatar."

Start-up envisaged in 2024

Over 45,000 direct and indirect full-time jobs are expected to be created during the five-year construction period. EPC works for the liquefaction terminal and adjacent infrastructure will be carried out by a joint venture of Chiyoda, McDermott and Zachry Group. Pre-construction activities

will begin before the end of March, the two sponsors said, stressing start-up of Golden Pass LNG is scheduled for 2024.

The design of the Golden Pass LNG terminal includes three liquefaction trains, each of about 5.2 mtpa, and the brownfield project will make use of existing infrastructure such as five 155,000 cu m LNG storage tanks, two marine berths capable to accommodate large Q-Max LNG carriers, and the existing 69-mile Golden Pass pipeline with access to U.S. gas transmission system.



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Goldboro LNG places shares to raise funding

Pieridae Energy, developer of the German-backed Goldboro LNG export project in the Canadian province of Nova Scotia, has entered into agreements for a private placement of shares with a group of banks and brokers and two other transactions to raise some funding.

The Calgary-based company, headed by CEO Alfred Sorensen, is on the venture list of the Toronto Stock Exchange for small commodities companies. The share placement is for 7.5 million common shares priced at C\$2 each for gross proceeds of up to C\$15.0 million (US\$11.35m), plus a further C\$5 million in a non-brokered offering, while an Alberta bank plans to make a C\$10 million strategic investment for a total of C\$30M (US\$22.7m) in transactions.

Pieridae proposes to produce 10 mtpa of LNG at the planned Nova Scotia plant. The final investment decision for the LNG venture is now expected by June 2019.

German utility Uniper is one of the Goldboro project's customers and Pieridae has also received confirmation of eligibility in principle for up to US\$1.5 billion of untied loan guarantees from the German federal government.

In addition, Pieridae signed a 20-year supply agreement with Uniper for 5 mtpa of its production and has embarked on a strat-

egy of securing feed-gas resources for liquefaction. "We anticipate using the net proceeds of the Offering for working capital and general corporate purposes. The Offering is expected to close on or about February 28, 2019," Pieridae said a statement.

Preparatory work continues with a view to taking a final investment decision (FID) on Goldboro LNG in due course, including the procurement of additional natural gas prone properties, and gas exploration and development activities.

The syndicate of Canadian banks and brokers are co-led by KES 7 Capital Inc., National Bank Financial Inc. and Laurentian Bank Securities Inc., with KES 7 and NBF acting as joint book runners. Pieridae has also granted the agents an over-allotment option, exercisable for a period of 30 days from closing, to sell additional shares representing 20 percent of the base offering at the offering price should there be demand.

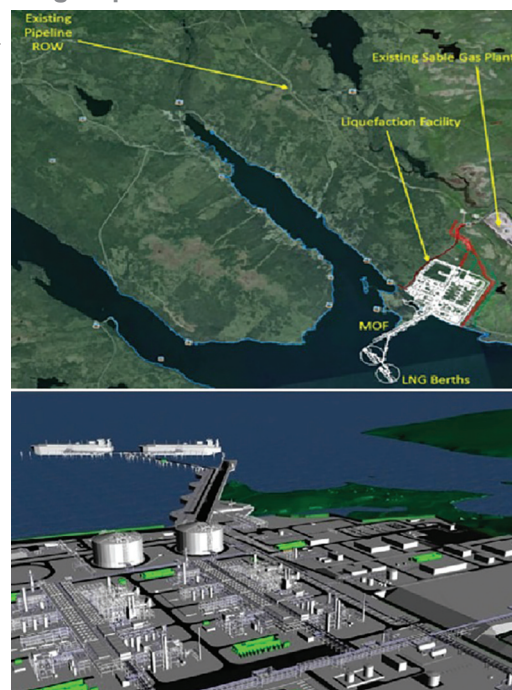
Commenting on the placement,

Pieridae said there may also be a C\$5 million share sale of common shares to insiders and other investors.

"Certain directors and executive officers of Pieridae are expected to subscribe for common shares in the non-brokered offering, either directly or indirectly," it said.

Participating in the brokered private placement, and subject to normal course closing provisions, Alberta Investment Management Corp. (AIMCo) has agreed to make a strategic investment in Pieridae on behalf of certain of its clients. AIMCo has agreed to purchase 5 million common shares at C\$2.00 for an additional C\$10 million.

"AIMCo continues to provide us



Location and render of Pieridae's Goldboro LNG project

with exceptional financial support in this very difficult commodity price environment," said Pieridae CEO Sorensen. "The investment from AIMCo and others will provide us with additional financial flexibility as we move toward a final investment decision."

Kwispaa LNG project grinds to a halt over adverse economics

Steelhead LNG has stopped construction on the Kwispaa LNG project in Sarita Bay on Vancouver Island's west coast, casting doubt on the future of the joint venture. Developers said the decision to cease work on the Kwispaa project has come down to economics and financing issues.

Record shale gas production in Appalachia, combined with limited pipeline capacity to transport gas

produced at Marcellus Shale onwards to centres of consumption have kept regional spot prices

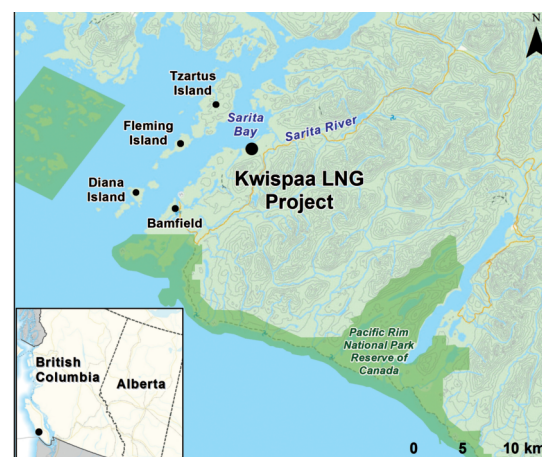
decreasing the price difference between the two.

When final data becomes available in the coming months, the Energy Information Administration (EIA) expects that US natural gas production will have reached record levels in 2018.

"Through the first 10 months of 2018, dry natural gas production in the U.S. was 11% higher in 2018 compared with the same period in 2017," it stated. "Growth has been driven by production increases in the Appalachian Basin in the Northeast, the Permian Basin in western Texas and New Mexico and the Haynesville Shale in Texas

and Louisiana."

Spikes in gas prices were also experienced in other regions in the Lower 48 states: "Daily average natural gas spot prices at the SoCal Citygate in Southern California experienced volatility throughout 2018 as ongoing pipeline capacity constraints limited natural gas supply in the region," the EIA said. In addition, a pipeline rupture on Enbridge's 2.9 Bcf/d British Columbia Pipeline on October 9 limited U.S. imports from Canada, resulting in reduced supply to the Pacific Northwest and contributing to increased prices.



Map of Kwispaa LNG project

trading at a discount to the bellwether Henry Hub since 2014. Build-out of pipeline capacity in the Appalachian continued during 2018 to bring natural gas to demand centers outside the region,



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CFE wants to alter gas supply contracts with U.S. pipeline developers

Mexico's state-run electric utility Comisión Federal de Electricidad (CFE) is aiming to renegotiate take-or-pay clauses it had agreed with North American gas pipeline developers, including TransCanada and Sempra's IEnova. CFE is the anchor customer for most new pipelines under construction but the company's new CEO Manuel Bartlett wants to focus on hydropower, diesel and coal instead of gas-fired generation.

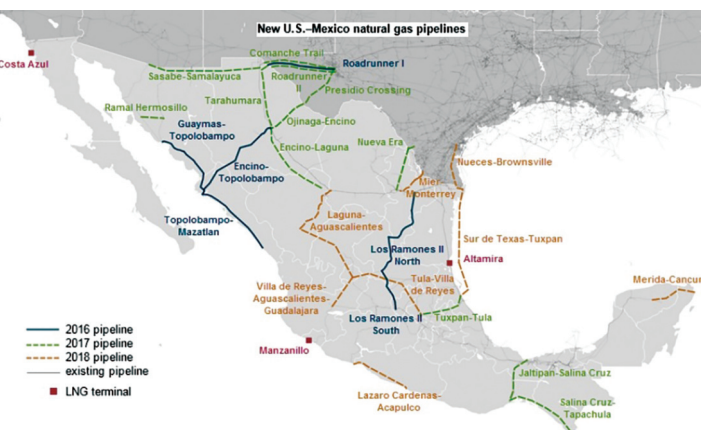
The expansion of the U.S. cross-border pipeline network into Mexico had been spurred by the country's 2013 energy reform with subsequent strong gas demand growth in the power sector, and the lower prices of U.S. pipeline gas compared with more expensive LNG imports.

However, the Mexican President Andrés Manuel López Obrador, who took office December 1, used a press conference this week to openly criticized the restructuring of CFE under the previous government. Mexico's 2013 energy reform had ended the state's monopoly over the energy sector, and CFEnnergia had been created to import natural gas from the United States for use in the Mexican power sector.

Both the Mexican President and CFE head Manuel Bartlett criticized that CFEnnergia has agreed to offtake a fixed gas capacity and make force majeure payments to pipeline developers like TransCanada, Sempra Energy subsidiary Infraestructura Energética Nova (IEnova) and Carso Energy.

Pipeline projects beset by delays

Projects of these three developers are facing delays amid legal disputes over land rights: TransCanada, for example, has postponed the targeted completion date of its Tuxpan-Tula and Tula-Villa de Reyes gas pipeline projects amid a dispute with local authorities in Hidalgo State over the routes. TransCanada confirmed that the



Mexico's gas transmission infrastructure

two pipeline projects have exceeded the estimated construction time by over 56 months, and there are costs associated to these delays.

The Mexican conglomerate Carso Energy, another developer, has just pushed back the planned in-service date of its 472 MMcf/d Samalayuca-Sasabe pipeline from December 2018 to May 2019. Carso Energy is awaiting a court ruling on a right-of-way dispute over the pipeline in Chihuahua and Sonora states.

"If the pipelines can't be built, as is happening with seven large gas pipelines, we have to pay the [developers], even though there is no gas," the Mexican President

said. "There are seven delayed gas pipelines that will mean an outlay over the medium term of \$21 billion by the CFE."

If the take-or-pay contracts continue, especially with the agreed force-majeure penalties, "CFE would truly be in a situation of collapse," Bartlett said. The CFE chief executive stressed these gas import and transmission contracts need to be renegotiated, to "allows the transmission of [U.S. shale] gas to our country, but without these prices and these sanctions that are absolutely absurd."

EIA sees U.S LNG export capacity level off after 2030

Rapidly evolving exports of LNG and liquid fuels will turn the United States into a net energy exporter next year. As gas demand grows in Asia and Henry Hub prices remain competitive, US LNG export capacity is expected to rise further before leveling off after 2030, when rival supplies are set to enter global markets.

"After 2030 additional suppliers [will] enter the global LNG market and U.S. LNG is no longer as competitive," reads the Reference case of EIA's newly released Annual Energy Outlook (AEO).

The difference between U.S. natural gas exports and imports will rise throughout the AEO forecasting period and reach a high of 23 billion cubic feet per day (Bcf/d) in 2050.

The United States' gas trade includes shipments by pipeline from and to Canada and to Mexico as well as LNG exports to far-flung destinations. Pipeline gas exports to Mexico, meanwhile, are a result

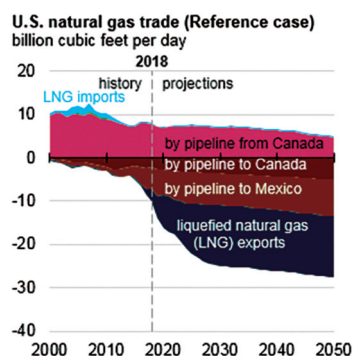
more pipeline infrastructure to and within Mexico to help local utilities bring more gas-fired generators onstream.

Net energy exporter by 2020

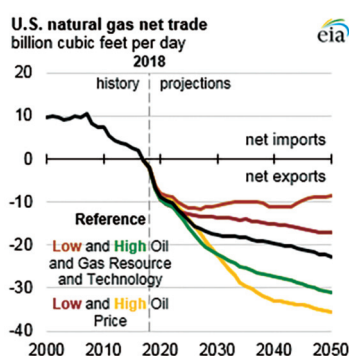
In the AEO Reference case, which reflects current laws and regulations, the United States begins exporting more energy than it imports on an annual basis in 2020 and maintains that status through 2050.

For coal and coal, the U.S. has been a net exporter for decades. The trade balance also shifted for natural gas in 2017, when exports

exceeded imports for the first time. From 2020, rising production of crude oil, natural gas, and natural gas liquids is forecast to outpace domestic demand starting for the first time since the 1950s, according to EIA projections.



Declining domestic demand for oil-derived products will help turn the U.S. into a net oil exporter, although near the end of 2020 this trend is expected to reverse amid a rebound in gasoline use and falling U.S. crude oil production.



At the Core of LNG

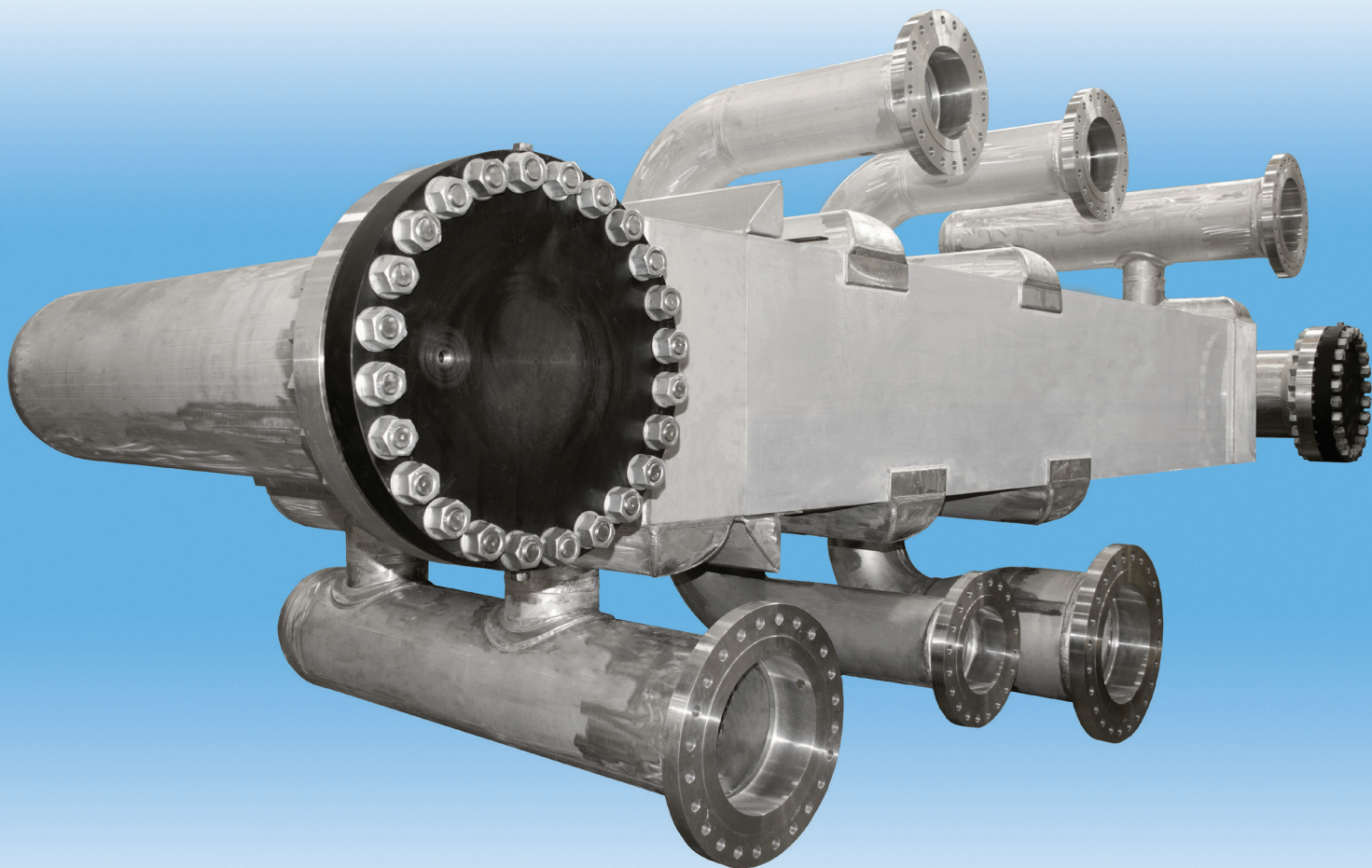


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New England covers peak winter demand with LNG

Seasonal imports of LNG help meet peakload gas demand in New England's industrial and power sector. During a freeze in the first week of February, more than 800,000 million cubic meters per day of gas was imported via Exceleerate Energy's Northeast Gateway Deepwater Port floating regas facility, situated offshore Boston.

This peak send-out flow rate was reached on February 1, 2019, and was "a first" for Northeast Gateway, Exceleerate Energy pointed out. The peak gas import volumes were handled by two Exceleerate's FSRUs, the "Exemplar" and the "Express", discharging in parallel.

New England has been suffering from natural gas delivery constraints over the past few winters, when power generators can be mandated to switch from gas to burning fuel oil in the interest of conserving fuel for the residential heating sector.

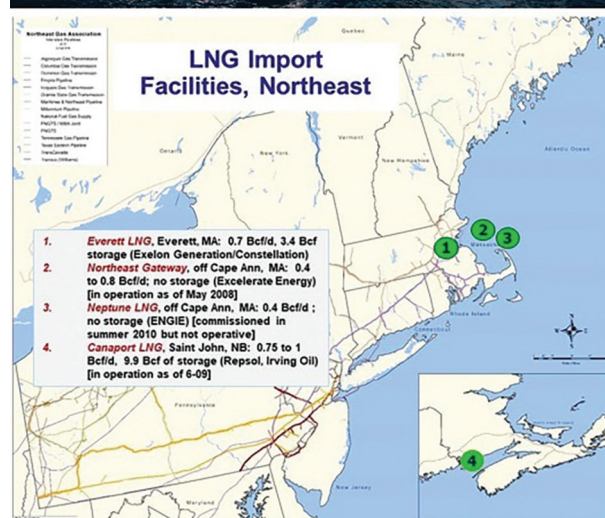
"This year, LNG imports from the Northeast Gateway facility have complemented the system by supplying energy during this peak demand, allowing generators to continue burning natural gas," Exceleerate pointed out. At a flow rate of 800,000 MMBtu/d, daily LNG imports equal approximately the average gas demand of power generators in the region during the recent January-February winter peak demand period.

"Exceleerate's Northeast Gateway has helped New England prepare for the winter months by supplying natural gas

to meet the increased energy demand of the region," said Exceleerate Energy's managing director Steven Kobos. "Deliveries of LNG directly into the Algonquin pipeline system helps bring much-needed market stability and fuel security to the Northeast."

Situated some 20 km offshore Boston, the Northeast Gateway LNG import terminal was first set up and commissioned more than 10 year ago. It consists of a dual submerged turret-loading buoy system which allows for the connection of the FSRUs that have been specifically designed to meet the conditions of the North Atlantic.

From Northeast Gateway, the regasified LNG can be fed directly into the existing subsea HubLine pipeline operated by Enbridge's Algonquin Gas Transmission. Apart from the 0.8 Bcf/d Northeast Gateway terminal, LNG supply can also reach the U.S. Northeast through the 0.7 Bcf/d Everett LNG terminal and the 0.4 Bcf/d Neptune LNG terminal off Cape Ann. All three facilities are located in close vicinity to the northeast of Boston, Massachusetts. ■



Sino-U.S. tariffs barely impact energy demand growth

Though trade tensions with the U.S. affected China's GDP figures in the fourth quarter, demand growth in China's gas and electricity sector is still "phenomenal," Wood Mackenzie says. Total electricity demand in 2018 is estimated to have fallen by just 0.5%, or 32 TWh, based on tariffs on US\$34 billion of goods with effect from July.

And while the escalation of tariffs to US\$200 billion of goods in September has put pressure on power demand growth, the stronger-than-expected rebound in exports will dampen the impact, forecasts Wood Mackenzie's Frank Yu.

The escalating tariffs caused little harm in China's energy sector for three reasons: "First, the majority of China's manufacturing is weighted towards domestic markets not exports. Second, the US remains small in China's export mix for many commodities

and China is developing alternative markets. And, finally, the US is primarily targeting high value-add industries," Yu argued. Hence, "it is an easier win for the US, but it also lowers the disruption to China's

power demand."

Over the first 10 month of 2018, electricity demand surged 8.7% year-on-year, mainly driven by the industrial sector which contributed 55% of the total growth until October. The four energy-intensive industries - ferrous and non-ferrous metallurgy, construction materials and chemicals - alone accounted for 20% of the total growth.

China's clean air policy and subsequent close scrutiny of new coal-fired power projects resulted in fewer curtailments for renewables. The government is moving away from the feed-in tariff system to competitive auctions for new solar and wind projects. To

support this, China aims to implement long-overdue renewable portfolio standards (RPS) starting from 2019, after three rounds of extensive public consultation.

Market-based power sales reached 28% of the total output in Q4, though most transactions were intra-province.

"We expect these restrictions to gradually disappear and the government seems committed to ending the equal-share generation quota system," Mr. Yu said.

Key things to watch in 2019, in his view, will be the implementation of the RPS, day-ahead power trading in Guangdong and the readiness of the national carbon market launch. ■



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Pembina awaits new ruling on Jordan Cove LNG

Pembina Pipeline Corp., the Canadian owner of the Jordan Cove LNG export project reported progress on the US liquefaction venture and expects a decision from the U.S. federal energy regulator before year-end. The company received a Notice of Schedule that indicates FERC will provide a decision not later than November 2019," Pembina said when posting solid earnings.

"Pembina continues to progress its proposed Jordan Cove LNG project that will transport natural gas from the Malin Hub in southern Oregon to an export terminal," the company said when posting a 45% increase in 2018 full-year earnings to \$1.3 billion.

The Jordan Cove LNG plant is proposed for Coos Bay in Oregon and would comprise five small-scale liquefaction Trains (1.5 mtpa each) for a total of 7.8 mtpa. It will also include two full-containment

LNG storage tanks with a total capacity of 320,000 cubic metres, gas treating facilities, an export terminal and access to more than 25 Bcf/d of gas supply from Western Canada and the US Rockies.

Keen to bring the gas to market, Pembina said it is working to conclude off-take agreements in the first quarter of 2019. "We continue to anticipate first gas in 2024, pending the receipt of the necessary regulatory approvals, a positive final investment decision

and other requirements," the company said.

FERC had previously rejected Pembina's venture due to a perceived lack of market interest. However, Jordan Cove confirmed in May 2018 that it had signed preliminary LNG supply deals with Jera and Itochu of Japan.



Render of the Jordan Cove LNG terminal

FERC prepares EIS for second LNG project near New Orleans

US regulators are advancing with the Pointe LNG project proposed for the East Bank of the Mississippi River, which would be the second riverbank export facility in the south of New Orleans. The Federal Energy Regulatory Commission (FERC) launched a public consultation as it prepares environmental impact statement (EIS) for the project.

The regulator said the EIS would discuss the effects of the Pointe LNG plant and associated pipelines to be sited near river mile 46 of the Mississippi in Plaquemines Parish, Louisiana.

Pointe LNG had asked the FERC for permits in September 2018 for a site comprising about 600 acres of leased property with more than 6,500 feet of river frontage. The project has a proposed in-service date of the second quarter of 2025 and would consist of three LNG liquefaction Trains, each with a nameplate capacity of 2 million tonnes per annum, and with connections to major regional pipelines.

The project calls for the construction of two 36-inch-diameter gas supply laterals to interconnect with the nearby existing pipeline infrastructure. One pipeline is proposed to be built to enter the facility from the north, connecting with High Point Gas Transmission's system. The second pipeline would enter the facility from the south and connect with the Tennessee Gas Pipeline system.

The project site includes a 250-acre area where Parallax Energy, a company started by former BG Group executive Martin Houston, had proposed in 2015 to build a riverbank project.

The people behind the Pointe venture are two US Gulf Coast energy veterans, former Duke Energy executive Jim Lindsay and former tanker captain Tom Burgess. As founding partners in an original Mississippi River LNG venture, Lindsay and Burgess had sold the project to Houston and his then partner Cheniere Energy, whose Chief Executive at the time had been Charif Souki.

A second export project is currently planned by another company, Venture Global, for the same area of Louisiana but on the opposite bank of the Mississippi. Venture Global is proposing that its Plaquemines LNG plant is constructed on 630 acres near river mile-marker 55 on the West Side of the Mississippi, 30 miles south of New Orleans.



Location of proposed Pointe LNG terminal at the Mississippi River near New Orleans

The FERC said it issued a notice on February 5 to open up the scoping process for Pointe LNG when Commission staff will gather input from the public and interested state and federal agencies. "By this notice, the Commission requests public comments on the scope of the issues to address," the regulator said, adding that all comments should be specific and focus on the potential environmental effects, reasonable alternatives and measures to avoid or lessen environmental impacts.

To ensure that all comments are timely and properly recorded, FERC asks for them to be submitted in Washington, DC on or before 5:00pm Eastern Time on March 7, 2019.

FERC ends plans for Puerto Rico LNG expansion

"Aguirre Offshore GasPort requests that FERC vacate its 2015 order authorizing the construction and operation of LNG import terminal facilities along the southern shore of the Commonwealth of Puerto Rico near the municipality of Salinas," FERC said, adding: "In its request to vacate, Aguirre stated that it no longer intends to proceed with the project, that no construction has been undertaken, and that no facilities are in service."

The Aguirre project company filed its last status report in June 2018 to the regulator to keep its permit process up to date, but later gave notice that the venture was not proceeding. The FERC notice has finally pulls the curtain down for now on plans for LNG expansion in Puerto Rico.

Excelerate Energy had previously agreed to provide a floating storage and regasification unit (FSRU) for the Aguirre project in 2019, but was forced to cancel its contract with the bankrupt Puerto Rico Electric Power Authority. The FSRU was to have been deployed offshore Salinas and would also have had a 6.4 kilometres pipeline to provide regasified LNG to the Aguirre power station.



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