

Oil and Gas News Briefs

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Cameroon LNG expected to start up in February

(Bloomberg; Dec.14) - A week ago the central African nation of Cameroon was getting ready to jostle for space in a global liquefied natural gas market crowded with new supplies from the U.S. and Russia. Now the extra output couldn't come at a better time. France's Perenco and U.S.-traded Golar LNG will start shipments from their \$1.2 billion LNG project off the coast of Cameroon in February, according to sources. Cameroon is located on the Atlantic coast between LNG suppliers Nigeria and Equatorial Guinea.

Cameroon's gas will be just in time for a surge of almost a third in European import demand, according to consultants Energy Aspects, after a cold snap and disruptions at supply hubs in Austria, the U.K. and Norway sent gas prices to a four-year high. "It's good to see a new African exporter coming into the market," said Trevor Sikorski, head of gas and carbon research at Energy Aspects.

Cameroon enjoys a geographical advantage in the European market. It takes about 11 days to ship a cargo to Britain, while a tanker from Qatar, Europe's biggest supplier of LNG, takes about two weeks. The Cameroon project is only the second floating LNG production and storage facility to come online in the world. Malaysia was the first. The Cameroon project is a converted LNG tanker, capable of making 2.4 million tonnes of LNG a year. Russia's Gazprom has an eight-year contract to sell all the output.

Russia will assist Iran in developing its gas resources

(Financial Tribune; Iran; Dec. 16) - Gazprom will provide the National Iranian Oil Co. with the results of its technical surveys and development plans for three Iranian offshore gas fields in the Persian Gulf — North Pars, Kish, and Farzad-A and Frazad-B — by April 2018. Alexei Miller, Gazprom's CEO, made the statement on the sidelines of a signing ceremony for a deal to cooperate in Iran's natural gas development.

"Playing an active role in such development projects will give Gazprom a strong foothold in Iran's gas industry," he said noting that the company is still conducting surveys on the fields but will deliver its master development plan as soon as it can. Russia and Iran, two countries with large gas reserves, can expand cooperation in wide-ranging areas, including gas trade, research, and development of joint projects, Miller said.

One of the agreements signed Dec. 13 in Tehran focuses on potential development of Iran's first liquefied natural gas export project. Iran's oil minister said the LNG project

would cost several billion dollars to complete. Construction on the facility had started with two LNG storage tanks and a jetty completed when international sanctions in 2012 shut down the work. A Russian firm has six months to complete its technical survey on the LNG project and submit a financial proposal.

Yamal LNG overcame U.S. financial sanctions on Russia to succeed

(Bloomberg; Dec. 14) - Building the \$27 billion Yamal LNG project meant shipping more than 5 million tons of materials to construct a forest of concrete and steel more than 360 miles north of the Arctic circle in Russia. Yet the challenges weren't as tough as the U.S. sanctions imposed in 2014, forcing a complete refinancing just as construction was about to start. Jacques de Boisseson, head of the Moscow office of French energy giant Total, which has a 20 percent stake in Yamal LNG, said there were "various moments" when he thought the project may never happen. "We were too much advanced to stop."

The first loading of Yamal LNG on Dec. 8 represents a gargantuan effort from the Russian establishment to demonstrate that the sanctions would not derail one of President Vladimir Putin's flagship projects. The launch has helped spur Moscow's political pivot to China, which provided much of the financing. Russian gas producer Novatek, which controls Yamal LNG, is already talking about its next LNG project.

The timing of the U.S. sanctions against Russian shareholders in the project in 2014 couldn't have been worse. It was just embarking on one of Russia's largest-ever international financing packages, and planning to attract major investment from western banks. Yamal's partners hoped that non-U.S. banks and companies would step into the breach and provide the necessary support. But talks dragged on through 2014 and 2015 without a deal, as few were willing to risk the wrath of the U.S. government by helping fund the project. China was the only hope besides Russia's state banks.

Russia was forced to backstop the project, providing 150 billion rubles (\$2.5 billion) of funding from its National Welfare Fund, a rainy-day reserve built up to stabilize retirement provisions. In April 2016, two Chinese state banks agreed to provide \$12 billion to the project in euros and rubles. The project also received large amounts of Russian government support in the form of generous tax breaks, and the state helped to build some of the necessary, costly infrastructure including the port and airport.

Gas-exporting nations expect low prices to help spur demand growth

(Bloomberg; Dec. 14) - Demand for natural gas will continue to rise over the next two decades, stimulated by lower prices due to a surge in supplies of shale gas and other unconventional resources, according to the Gas Exporting Countries Forum. Global

gas consumption will rise 53 percent by 2040 with demand catching up with supply in the next two or three years, the group said Dec. 14 in its Global Gas Outlook 2017 report.

Growing extraction of shale, tight gas, and coal-bed methane in the U.S. and China will “dramatically increase natural gas demand over the outlook period,” it said. “This is mainly due to lower prices resulting from higher natural gas supplies.” Gas markets have been transformed by the rise of U.S. shale and Australian exports. The market changes are expected to continue as unconventional resources almost double from 16 percent of gas supply today to more than 30 percent in 2040, according to the report.

The new supply and lower prices have spurred demand, a dynamic the forum expects will rebalance the market by 2020. “The growth of shale is good because more gas will contribute to the penetration of gas worldwide,” Secretary General Seyed Mohammad Hossein Adeli said. The forum’s members include Russia, Iran, Algeria, and Qatar, the world’s largest exporter of liquefied natural gas. Power generation will continue to drive demand growth with annual consumption expected to double between 2016 and 2040.

LNG cargoes diverted to China to help ease supply crunch

(Reuters; Dec. 14) - Liquefied natural gas is being re-exported to China from Japan and LNG tankers are being diverted from as far away as Brazil with traders rushing to find cargoes in the face of a supply crunch in the world’s No. 2 economy. Following an unprecedented drive to switch millions of households to gas from coal for heating, China’s imports of LNG have surged as utilities struggle to meet soaring demand as winter gets off to a colder start than usual.

“We expect to see many more LNG cargo diversions to China over the winter period,” said Saul Kavonic, an analyst at energy consultancy Wood Mackenzie in Singapore. “Given China’s ... limited gas storage, it will be particularly reliant on spot LNG purchases to meet demand.” Chinese imports now include cargoes re-exported from Japan, which is not experiencing the same supply squeeze as China.

China’s demand has pushed up spot LNG prices by more than 80 percent from their 2017 lows to above \$10 per million Btu. That puts spot prices significantly above LNG contract prices linked to the price of Brent crude oil, which are trading around \$8. “If you usually import under long-term deals linked to oil markets and have available (surplus) cargoes, this is the time you’d want to sell,” said an LNG trader. Heavy spot trade has boosted rates for LNG tankers. The daily rate for a tanker has shot up to \$80,000 this month from a low of \$30,000 in April, according to ship broker Clarkson and Fearnley.

China orders diversion of natural gas to home heating use

(Bloomberg; Dec. 17) - China has ordered the country's biggest oil and gas companies to cut their use of natural gas to divert more of the fuel to the north, where a hard winter is causing shortages. China National Petroleum Corp., China Petrochemical Corp., and China National Offshore Oil Corp. should reduce use of gas in their refineries, drilling sites, and liquefied natural gas plants to allow more fuel for residential use, a National Development and Reform Commission official said at a briefing in Beijing on Dec. 18.

The companies should collectively cut gas consumption for their own use, including at petrochemical plants, by more than 500 million cubic feet a day, the official said. China has been scrambling to secure more gas for residential use after the country's push to implement coal-to-gas conversion led to an unprecedented increase in consumption of the fuel and caused shortages in northern provinces. Some regions have been allowed to burn coal after gas shortages left people without heating amid freezing winter cold.

The new policy may have a limited impact on China's supply of refined fuels as the country has already produced more than it can consume, said Tian Miao, a Beijing-based analyst at Sun Hung Kai Financial. "As a result of overcapacity, China's refiners may reduce oil-product export during winter months, but domestically, I don't see any impact to the fuel market from this short-term measure," Tian said. The restriction will be lifted once winter is over and gas supply comes back to normal, she said.

Chinese supplier leases 100 trucks to deliver LNG to northern region

(Reuters; Dec.14) - China oil and gas major CNOOC has rented a convoy of 100 trucks to move liquefied natural gas the length of the country to wintry northern regions in the latest unusual, and costly, move to ease a deepening fuel crisis. The trucks, able to haul 20 tonnes apiece of LNG (about 1 million cubic feet of gas), are traveling thousands of kilometers from CNOOC's LNG receiving terminals in the south, such as the Zhuhai Jinwan and Yuedong in Guangdong province, CNOOC said in a statement Dec. 15.

Trucking LNG to industrial customers has taken off this year as China's gas sector booms. But distances are typically much shorter, highlighting the extreme steps suppliers are having to take to plug shortages in the north, where Beijing's efforts to convert homes to gas and electric heating from coal have fueled surging demand. A result of unprecedented government pressure to clean up the environment, the clamor for more gas has led to shutdowns at factories short of supply, even as residents across China's industrial northern heartland freeze without fuel for their new heating systems.

CNOOC didn't say how much the truck convoy will cost. But China's state majors are under political pressure to deal with supply problems stemming in part from inefficient pipeline links and storage tank capacity — there are no major pipelines connecting the

north with the south. Reuters calculated that delivering LNG by diesel truck 1,500 miles could cost more than \$7 per million Btu — about equal to the average cost of imported LNG delivered to receiving terminals this month.

First Canadian LNG arrives in China in 40-foot container

(FortisBC press release; Dec. 14) - Early Dec. 14, after a journey of more than 5,500 miles, the first shipment of liquefied natural gas from Canada arrived in China. A single 40-foot-long container of gas left FortisBC's facility in mid-November. The 46-year-old Tilbury liquefaction and LNG storage plant is across the river from Vancouver. Although the shipment is small at about 17 tonnes of LNG, fewer than 1 million cubic feet of gas, it's a turning point for BC's LNG industry.

The event is a milestone for Calvin Xu, CEO of True North Energy, which oversaw the logistics of the shipment. Since acquiring an LNG export license in 2015, True North has been eyeing the Asian market. Finally, earlier this year, came a breakthrough. "In early 2017, we signed an LNG supply agreement with the buyer from China," Xu said. He turned to FortisBC and its Tilbury LNG facility to supply the fuel.

The shipment traveled by container ship. "The main advantage of shipping LNG by ISO containers is high flexibility," Xu said. "Instead of relying on dedicated LNG carriers, exporting and receiving terminals, ISO containers enable us to utilize existing container ports, ships, trucks and rails to transport the LNG." FortisBC is expanding the Tilbury LNG facility to meet growing domestic demand and help customers like True North Energy supply overseas markets. FortisBC is looking forward to sending four more containers to China in mid-December with the prospect of more LNG in the new year.

Japanese utilities' LNG joint-venture strikes deal with French utility

(Reuters; Dec. 13) - Japan's JERA Co., a fuel-purchasing joint-venture of Tokyo Electric and Chubu Electric, has agreed with French utility EDF's trading arm to expand their existing cooperation to include liquefied natural gas. Their basic agreement on LNG would combine the French company's LNG business into JERA's existing trading agreement with EDF for coal and freight, which kicked off in April.

The deal with EDF Trading, which annually trades 3 million to 5 million tonnes of LNG, allows JERA to gain EDF's access to European LNG and gas markets. JERA is the world's biggest LNG buyer at about 35 million tonnes a year. It's critical that JERA has the flexibility to adjust to volatile LNG demand in the mid- to long-term in Japan amid the uncertainties over restarting nuclear plants and growing renewable power in Japan, said Izumi Kai, JERA general manager of the trading business development unit.

Japan's annual LNG demand is likely to fall below 70 million tonnes by about 2030 after importing more than 83 million tonnes last year, the government has said. The collaboration will let JERA share EDF's access to 15 LNG terminals in Europe that connect to six gas hubs in Great Britain, France, the Netherlands, Belgium, and Spain, Kai said. The deal will also help JERA sell its LNG offtake from the U.S. Gulf Coast Freeport project, which is expected to start operations as early as next October.

South Korea looks to greatly expand renewable power by 2030

(Reuters; Dec. 14) - South Korea aims to expand the share of renewables and natural gas in its fuel mix to gradually cut back its high dependence on coal and nuclear power over the 15 years to 2031, the energy ministry said Dec. 14. The ministry's new draft proposal — an adjustment to its power supply plan for 2017-2031 — reflects growing domestic calls for better air quality and more stringent nuclear safety.

Despite efforts to boost renewables and natural gas, South Korea's power generation mix will remain dominated by nuclear and thermal coal, which will still account for 60 percent of electricity in 2030, the plan showed, down from 75 percent this year.

Asia's fourth-largest economy generates 45 percent of its electricity from coal and about 30 percent from nuclear reactors. Liquefied natural gas meets 17 percent of power demand and renewables 6 percent. The biggest jump will come for renewables, which are to make up 20 percent of South Korea's power generation by 2030, while the gas share will rise slightly to 18.8 percent.

Israel moves closer to natural gas exports

(Jerusalem Post; Dec. 11) - Israel is poised to enter a new era of exporting natural gas to its neighbors as well as displacing coal for domestic energy production leading to a healthier future for Israel's citizens, said Binyamin Zomer, Noble Energy's vice president for regional affairs. The company operates the Tamar and Leviathan offshore gas fields.

"Israel's ability to export natural gas has provided a common interest for Israel and its neighbors, including Jordan, Egypt, and Turkey," Zomer said. "Gas puts Israel in a new position as energy suppliers and not just energy consumers." In 2013, Israel adopted a gas export policy, allowing exports of about 40 percent of newly discovered reserves. The Tamar field supplies Israel with about 65 percent of its power needs. Leviathan, estimated at up to 20 trillion cubic feet of gas, is about twice the size of Tamar.

Leviathan is Israel's largest-ever privately funded infrastructure project. Houston-based Noble Energy and its Israeli partners are investing approximately \$3.75 billion in developing the field, which is almost 30 percent complete. "We will be advancing this

project as quickly as possible,” Zomer said. The project’s production platform is being built at a shipyard in Corpus Christi, Texas. Gas output is scheduled to start late 2019.

Gas supply shortage eases in Australia

(Reuters; Dec. 13) - The shortfall in Australia’s natural gas supply has eased, the country’s consumer watchdog said Dec. 13, but warned that prices remain high due to a lack of competition in supply, limited pipeline space, and high transport costs. The nation’s gas sector has come under scrutiny as soaring prices and short supply have hurt households and threaten manufacturing jobs.

Pressure from the government on three East Coast liquefied natural gas exporters to step up gas sales to the local market has helped plug a supply gap for 2018, the Australian Competition and Consumer Commission said in its latest update. In September, the commission and Australia’s energy market operator flagged a supply gap of up to 17 percent of demand in 2018. They now see a potential surplus in the best case, with a potential shortfall of only 5 percent of domestic demand in the worst case.

“However, the gas supply-demand balance in the market remains tight,” the commission said. In a sign that pressure from regulators and the government has started working, the watchdog said gas prices offered to businesses and industrial users have fallen to between A\$8 (US\$6.05) and A\$12 from a peak near A\$16 per million Btu in early 2017.

Low oil prices, government challenges deter investment in Angola

(Wall Street Journal; Dec. 8) - Angola was once a magnet for the biggest oil companies, drawing billions of dollars in investment when prices were rising to \$100 a barrel. Now, foreign companies have all but given up on new ventures there. BP partially pulled out of an offshore block, taking a \$750 million write-down this year. Halliburton and other service companies blamed falling revenue on weak activity in regions including Angola. Total of France is shuffling personnel to cut costs. Italy’s Eni is renegotiating contracts.

Oil companies have reduced capital spending in Angola more than in any other sub-Saharan country. In an era of \$60 crude, Angola has become a challenging place for oil companies. Because of high costs for pumping from the country’s deepwater reserves, companies need to average almost \$73 a barrel for projects to break even. Companies could still invest there, but only if government leaders “make the right decision at the right time” on a series of reforms, said Guido Brusco, managing director for Eni Angola.

Companies have complained to the government about money-losing contracts, a turgid bureaucracy and slow decision-making from the state oil company, Sonangol. Angola’s

leaders say they are trying to address the concerns. Companies privately complain that requirements to buy certain supplies from select domestic firms drive up costs. They want to retain more of the oil they produce to cover their expenses and to make money from discoveries of gas, which under current Angolan law belongs to the government.

FERC allows work to resume on \$4.2 billion gas pipeline

(Reuters; Dec. 14) – The Federal Energy Regulatory Commission on Dec. 14 approved Energy Transfer Partners’ request to resume horizontal directional drilling at eight sites in Ohio and West Virginia as it works to complete part of its Rover gas pipeline by the end of the year. The approvals came as the Ohio Environmental Protection Agency sought a pause in the drilling due to repeated spills of the clay-and-water mix used to lubricate the drilling blades.

“Ohio was ... not consulted about the FERC approval to Rover. We are still very concerned about the total and continuing number of environmental impacts Rover is causing in Ohio,” Ohio EPA director Craig Butler said. Pipeline companies use horizontal directional drilling to cross under large obstacles like highways and rivers.

Once finished, the \$4.2 billion Rover will carry up to 3.25 billion cubic feet per day of gas from the Marcellus and Utica shale fields in Pennsylvania, Ohio, and West Virginia to the U.S. Midwest and Ontario in Canada. FERC banned Energy Transfer Partners from new horizontal drilling in May after a spill of about 2 million gallons into the Tuscarawas River wetland in Ohio. There were traces of diesel found in that spill — diesel was not allowed in the drilling fluid.

Colorado shale basin attracts \$2 billion in drilling deals in 4 months

(Bloomberg; Dec. 14) - It’s not exactly the Pike’s Peak gold rush of 160 years ago, but with crude oil prices on the rise explorers are returning to the oil-rich rock of Colorado as a way to expand beyond the shale plays of Texas and New Mexico. During the three-year crude-market collapse, as prices fell below \$27 a barrel, the Denver-Julesburg Basin northeast of Denver was largely abandoned as explorers tightened their budgets. Now, with prices headed toward \$60, the region is spurring renewed interest.

More than \$2 billion of drilling deals have been announced in the past four months in the DJ Basin. In addition, Colorado has seen more than \$1.8 billion in pipeline deals and extensions this year, according to data compiled by Bloomberg. “With higher oil prices you get more confidence from the operators that they’ll be increasing activity over time, so we’ve seen some acquisitions to bolster their inventory position,” said Chris

Stevens, a New York-based analyst at Keybank Capital Markets.

Although the sprawling Permian Basin of Texas and New Mexico has attracted much of the attention for U.S. shale production and acquisitions, this year's resurgence in oil prices has drillers casting their eyes further afield. They're looking at the layers of shale and similar types of oil-rich rock in the DJ Basin. Drilling activity in the region has almost doubled to 23 rigs since the middle of last year, helping to lift Colorado's oil output to a record high of 397,000 barrels a day, up roughly 100,000 barrels a day year-to-date.

Private-equity firms pour billions into U.S. shale oil producers

(Reuters; Dec. 14) - Financiers keep pouring cash into shale oil, providing producers with a path to keep U.S. output rising through the middle of the next decade. The United States is on track to deliver up to 80 percent of the world's oil production gains through 2025, the International Energy Agency estimates, fueled in part by easy access to capital. Rising U.S. output is undermining OPEC's attempts to curb global supply and boost prices, forcing the oil cartel to continue restraining output through the end of 2018.

Hedge funds and private-equity firms have given U.S. producers a range of new and traditional financial levers they can pull as needed to keep shale rigs drilling, according to interviews with more than a dozen financiers, advisers, and executives. The money continues to flow despite rising pressure from some investors for drillers to prioritize better profit margins over expanded production.

Producers holding land in prime fields are having little trouble financing their fracking projects, said Buddy Clark, co-chairman of the energy practice at Haynes Boone law firm in Houston. "If you've got the rocks, you can get the money." Through the third quarter of this year, private-equity firms have put \$20 billion into energy-related deals, 36 percent more than all of 2016, according to financial data provider Preqin. Producers are touting efficiencies of new well designs and efforts to shed less productive acreage.

Longer horizontal wells create need for new pump systems

(Bloomberg; Dec. 11) - Imagine trying to slurp a thick chocolate shake through a J-shaped straw four miles long. That's the challenge the North American shale industry must overcome to prolong a record boom in oil output. By drilling extra-long wells that go down and then sideways at different angles, engineers can capture a lot more crude than from a vertical hole. But the difficulty of sucking fluid from so far underground is overwhelming pump systems that have changed little in decades.

The mismatch is causing more well failures, rising costs and a scramble for new ways of maintaining flows. Producing oil is usually easy at first as it gushes to the surface. But that quickly fades as the pressure eases, so producers rely on pumps that slowly extract the bulk of the reserves over years or even decades. Yet some of those reserves may get stuck underground if the pumps keep failing, which boosts costs for shale deposits.

“There is no one favorable solution for the problem,” said Cem Sarica, director of a research group at the University of Tulsa that is trying to develop alternatives with funding from companies including ExxonMobil and BP. One workaround engineers have used is to shove natural gas into the hole to lighten the oil and make it easier to pump to the surface. Another is placing an electric-submersible pump down in the well. While both work during the early life of a well, they often aren’t as effective after output falls.

Crowley launches second LNG-powered cargo ship

(Jacksonville Business Journal; Dec. 7) - Crowley Maritime's second liquefied natural gas-powered ship capable of carrying containers and roll-on, roll-off cargo launched Dec. 6 from Pascagoula, Miss. The ships are among the first of their kind in the world. The Taino was built by VT Halter Marine and will join El Coqui, its sister ship, in U.S.-Puerto Rico trade out of Jacksonville, Fla. The Taino, named for an indigenous group in Puerto Rico, will continue in construction and testing before beginning service in 2018.

The Taino and El Coqui will each be able to transport up to 2,400 containers and a mix of nearly 400 cars and large vehicles. The ships can accommodate a variety of container sizes and up to 300 refrigerated containers. LNG-powered ships operate with reduced emissions, including 100 percent less sulfur oxide and 92 percent less nitrogen oxide. The vessels also emit 35 percent less carbon dioxide per container compared to fossil fuels. Crowley and its partner Eagle LNG are finishing up testing of LNG storage tanks and delivery systems at the new fuel terminal in the Port of Jacksonville.