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Chinese investment in U.S. LNG 'at a standstill'

(Reuters; May 16) - The U.S. trade war with China has developers of liquefied natural gas export terminals scrambling to find other buyers, now that the fastest-growing market for the fuel is out of reach. U.S. shipments of LNG to China had already dropped to next-to-nothing this year, and then China announced on May 13 that it would raise tariffs on U.S. LNG imports to 25 percent on June 1 from the current rate of 10 percent, retaliating against Washington's increase in tariffs on Chinese goods.

The tariffs are discouraging Chinese customers from signing long-term deals with U.S. suppliers, analysts warned, which has made banks and investors less willing to finance projects under development. Liquefaction units are under construction at six U.S. LNG terminals, while more than a dozen others are seeking customers to satisfy potential investors before they can break ground. These projects are less likely to go ahead if tariffs remain in place for an extended period.

"Chinese investment in U.S. LNG export projects will remain at a standstill, in our view, with Chinese offtakers likely waiting on a trade deal," analysts at Barclays said. Meanwhile, Chinese buyers have started signing deals with other suppliers, including Russia. Most LNG projects are financed through long-term contracts signed well before construction begins. Rystad, a Norway-based energy research consultancy, expects China to be one of the biggest sponsors of global LNG projects in the coming years. Rystad forecasts Chinese LNG demand will almost double between 2018 and 2025.

Chinese buyers look to swap their U.S. LNG for other supplies

(Bloomberg; May 15) - Liquefied natural gas buyers in China are seeking to swap their U.S. cargoes for gas from other nations after Beijing pledged to raise tariffs amid a growing trade dispute, sources said. Some Chinese buyers have approached suppliers about trading the U.S. cargoes, which they've already committed to take, for shipments from non-tariff nations. While China's imports of U.S. gas have dropped since it slapped a 10 percent duty on the fuel in September, pressure is mounting to completely avoid the cargoes after Beijing said May 13 it would boost the tariff to 25 percent on June 1.

The trade war has derailed what should be a natural partnership, as the U.S. vies to become the world's top exporter of LNG and China is on track to become the largest buyer. While cheap shale gas had helped U.S. exporters undercut other sellers nearer

to China, the higher tariff makes American LNG uncompetitive and has discouraged long-term partnerships.

Almost all of China's imports of U.S. LNG are received at terminals owned and operated by state giants China National Petroleum Corp., China National Offshore Oil Corp., and Sinopec. The three are China's biggest LNG buyers, though their terminals are also accessible to smaller independent buyers. CNPC, the parent company of PetroChina, is the only Chinese firm with a long-term offtake agreement from a U.S. terminal. CNOOC has a long-term contract with Total, which sources some of its cargoes from the U.S.

Trade war could jeopardize or delay U.S. LNG projects

(Midland Reporter-Telegram; Texas; May 16) - Escalating trade tensions with China could jeopardize or delay some proposed Gulf Coast liquefied natural gas projects by raising construction costs while reducing the competitiveness of U.S. LNG, analysts and economists said. China's decision to slap a 25 percent tariff on U.S. LNG comes at a time when several projects are poised to make a final investment decision. The trade war adds uncertainty into long-term planning for future energy projects, said Peter Rodriguez, dean of the Jesse H. Jones Graduate School of Business at Rice University.

"It's terrible news for LNG projects under way — not that they won't finish, but I think their expectation is this is going to harm prices," Rodriguez said. "Most of these projects need to secure long-term contracts in order to get financing," said Sindre Knutsson, senior analyst at Rystad Energy's gas markets team. "China will be one of the biggest contributors in sponsoring new LNG projects over the coming years, and there will be reluctance to signing new deals with U.S. projects as long as this trade war persists."

Knutsson said the 25 percent tariff will make non-U.S. LNG more attractive and give China more bargaining power when negotiating with U.S. suppliers. But Ed Hirs, economist and energy fellow with the University of Houston, said there's still hope that U.S. producers will be able to market their LNG to other Asian countries and Europe. Yet at the same time, the U.S.-China trade war could hit LNG projects by boosting construction costs for steel needed for pipelines and liquefaction plants, Hirs said.

Gas flows into all six U.S. LNG export terminals

(S&P Global Platts; May 15) - Gas flowed into all six U.S. liquefied natural gas export facilities on May 15, the first time that has happened as America is poised to increase its share of the global supply, S&P Global Platts Analytics data showed. Four of those facilities are currently operating, following Cameron LNG's start-up May 14 in Louisiana,

and two more are taking gas and preparing to begin production — Kinder Morgan's Elba Island LNG in Georgia and Freeport LNG in Texas.

Combined, total LNG feed gas demand from the six LNG terminals at full operations could be upwards of 11.3 billion cubic feet of gas per day, Platts Analytics data showed. U.S. LNG supply growth will depend on the utilization of those facilities, as well as the success of a dozen other second-wave projects actively being developed for service in the early- to mid-2020s. The increased activity will provide new outlets for gas supplies from U.S. shale drillers in key Gulf Coast, Midcontinent, and Northeast basins.

U.S. midstream operators also will benefit as pipeline volumes are expected to get a lift. In addition to Cameron, Elba Island, and Freeport, LNG export terminals in full operations are Cheniere Energy's projects at Sabine Pass, Louisiana, and Corpus Christi, Texas, and Dominion Energy's Cove Point in Maryland. Construction started this week at Golden Pass LNG in Texas, a partnership of ExxonMobil and Qatar Petroleum.

FERC approves expansion at Freeport LNG in Texas

(S&P Global Platts; May 16) - The Federal Energy Regulatory Commission on May 16 granted approval to a fourth liquefaction train at the Freeport LNG export terminal in Texas that would add up to 5.1 million tonnes per year of production capacity to the facility. For the fourth time this year, FERC voted 3-1 to advance an LNG facility with Democratic Commissioner Cheryl LaFleur joining Republicans to back the project despite her ongoing concerns about FERC's approach to greenhouse gas emissions.

LaFleur also said the commission's decision to prepare an environmental assessment, rather than a more extensive environmental impact statement, heightened the legal risk in this case. Unlike the others LNG projects approved this year — Venture Global's Calcasieu Pass and Tellurian's proposed Driftwood LNG in Louisiana, and Sempra Energy-led Port Arthur LNG in Texas — the May 16 approval for Freeport LNG was an add-on to an approved facility rather than an entirely new project.

FERC staff previously found the Freeport expansion would not constitute a major federal action significantly affecting the environment and therefore did not require a full EIS. The first three trains at Freeport are under construction with first production expected by this fall. Freeport CEO Michael Smith said the FERC approval "brings us one significant step closer to our goal of moving ahead with Train 4 construction later this year." The first three trains will total 15 million tonnes annual capacity.

Mozambique estimates government take from LNG at \$95 billion

(Bloomberg; May 16) - Mozambique's government expects to reap \$95 billion in revenue over 25 years from liquefied natural gas projects in the country — more than seven times more than its gross domestic product. ExxonMobil's Rovuma LNG project, for which the cabinet approved the development plan this week, is expected to generate \$46 billion for the state, according to a statement posted on the government's website May 16. That adds to the \$49 billion of anticipated revenue from other LNG projects being developed nearby by Eni (offshore plant) and Anadarko Petroleum (onshore).

The Eni project is under construction; the Anadarko-led venture is expected to announce an investment decision next month; and the Exxon-led project is scheduled for an investment decision later this year. The three projects would initially total more than 30 million tonnes annual capacity and will be transformational for the world's sixth-poorest nation, which is still recovering from a civil war that ended in 1992. Mozambique's GDP was less than \$13 billion in 2017, according to the World Bank.

Mozambique's economy has struggled since the government defaulted on \$2 billion of debt in 2017, the bulk of which the authorities hid from the International Monetary Fund. The government is in restructuring talks with holders of its \$727 million Eurobonds and has reached an early agreement to pay them 5 percent of its revenue from the Eni and Anadarko projects, up to a maximum \$500 million. It has reached a similar preliminary deal with Russia's VTB Capital for another of the loans that made up the \$2 billion.

East Timor enlists China's help in LNG project

(Bloomberg; May 16) - East Timor, the tiny island nation between Australia and Indonesia, has enrolled China's help to push forward a liquefied natural gas export project abandoned by global oil majors as too challenging. The nation recently signed an engineering and construction agreement with a state-backed Chinese firm and is targeting a final investment decision as soon as late next year, Timor GAP, the government-owned energy company, said May 15. It expects production start-up 2025.

The move comes six months after Shell and ConocoPhillips sold out of the project, originally known as Sunrise LNG, named for the offshore gas field between Australia and East Timor that would feed the venture. The development has been stalled over the government's insistence on building the liquefaction and export facilities onshore to boost the local economy, rather than in nearby Australia or aboard a floating platform. Building in East Timor requires an undersea pipeline across the Timor Trough, a plan seen by Shell and Conoco, as well as operator Woodside, as difficult and expensive.

Even with China's help, East Timor's timeline for bringing gas to market is ambitious. Woodside, which has a 33 percent stake in the project, lists Greater Sunrise in its "Horizon 3" investment pipeline, meaning production is not expected before 2027 at the

earliest. Timor GAP last month signed a US\$943 million construction contract with China Civil Engineering Construction Corp., a unit of China Railway Construction Corp., to build facilities at the port of Beaco to support an LNG plant. The Timorese company is now focused on confirming partners and securing financing for the project, it said.

Storing LNG at sea until fall could be profitable

(Bloomberg; May 17) - With so much cheap liquefied natural gas, traders are looking at tankers to store the fuel in the hope of better prices. Though a long-established practice in oil trading, the complexity and cost of storing LNG at sea for extended periods meant it wasn't widely used until last fall, in anticipation of a surge in Chinese demand and prices. Some of those bets backfired when a mild winter lessened demand, forcing traders to offload LNG and release the ships, which caused a fall in spot charter rates.

While it's a gamble as weather-driven demand is unpredictable, price signals indicate the option to store LNG in vessels later this year is again becoming attractive, not only in Asia but also in Europe. The price premium for later contracts, or contango, is building up for both spot Asian LNG prices and the U.K. benchmark, leaving traders weighing how to profit should they choose to store gas at sea.

Prices in Asia for December delivery are about \$2.30 per million Btu above September contracts, a premium of \$7.6 million for a full-size LNG carrier. How much profit can be made is strongly dependent on the cost of renting the ship and keeping the LNG at minus 260 degrees Fahrenheit. With the price gap and at a cost of storing LNG at 60 to 75 U.S. cents a million Btu per month, "current freight rates allow for floating storage opportunities in September, October, and November this year in both northeast Asia and Atlantic," said Nick Boyes, a gas analyst at Swiss utility and trader Axpo Group.

New York state denies permit for \$1 billion gas pipeline

(Bloomberg; May 16) - New York state has denied a key permit for a \$1 billion Williams Cos. shale gas pipeline, dealing a critical blow to a project that would deliver fuel to customers in New York City and Long Island. The state Department of Environmental Conservation said May 15 that the pipeline would result in water quality violations, including those caused by kicking up hazardous metals and disturbing seabed habitats. The denial was "without prejudice," meaning the company can reapply.

Williams said the state had raised "a minor technical issue" with the application, which it will resubmit quickly. The decision comes as states tussle with the White House over pipelines designed to carry shale gas to the Northeast from Pennsylvania, Ohio, and West Virginia. President Trump has taken action to speed up approval of interstate gas

lines, and last month signing an executive order that aims to short-circuit state regulators that have held up projects by denying permits amid environmental concerns.

Pipeline construction has failed to keep up with demand for the heating and power-plant fuel — Consolidated Edison is not taking applications for new gas service in New York's Westchester County. Northeast Supply Enhancement, which would add pipeline segments in New York, Pennsylvania, and New Jersey to an existing system, joins a slew of proposals in the region that have faced delays. Another proposed Williams pipeline, Constitution, is stalled after failing to obtain a water permit from New York.

Total insisted on new pipeline to reduce gas flaring in Permian

(S&P Global Platts; May 17) - Before agreeing to invest in Tellurian's Driftwood LNG export terminal in Louisiana, the CEO of French energy giant Total pushed the developer to build its own pipeline from the Permian Basin to reduce flaring and allow exporters to take advantage of low U.S. natural gas prices. Total has a roughly 20 percent stake in Driftwood LNG. The \$27 billion project received federal regulatory approval in April and is waiting on an investment decision by its development partners.

Tellurian is building the 625-mile Permian Global Access Pipeline to connect West Texas gas supplies with the export terminal south of Lake Charles, Louisiana. Permian producers burn off several hundred million cubic feet of gas per day. "The only request I had to them was: We want to have a pipeline between Driftwood and the Permian," Total CEO Patrick Pouyanne said May 16 at an event in Washington. Pouyanne said Permian oil producers "flare and flare and flare, more and more."

The lack of pipeline capacity has pushed West Texas prices into negative territory at times — as oil producers are forced to either pay to offload their associated gas or get state permits to burn it by flaring. As part of its deal with Tellurian, Total agreed to make a \$500 million equity investment that gives it the right to lift 1 million tonnes of LNG per year from Driftwood for the life of the project. It also agreed to buy 1.5 million tonnes a year under a long-term deal, based on the benchmark price for spot LNG in Asia.

<u>Declining reserves may push Colombia to import more LNG</u>

(S&P Global Platts; May 17) - Colombia could be forced to sharply increase liquefied natural gas imports between 2021 and 2023 amid declining domestic gas reserves and production eclipsed by double-digit growth in domestic consumption. "Natural gas is a fundamental fuel for energy transformation, however, for every trillion cubic feet produced," the country is adding only 700 billion cubic feet to its proven reserves, Energy Minister Maria Fernanda Suarez said May 14.

"Work continues on offshore exploration and other alternatives that the country has, [especially] unconventional through fracking," she said. If new sources or reserves are not found, imports could be required at double the domestic cost to meet residential demand in parts of the country, Suarez warned in a series of Twitter posts.

According to BP's Statistical Review of Energy, Colombia produced just enough gas to cover its domestic needs in 2017. An estimated 75 percent of the gas consumed in the country comes from three fields, all experiencing production declines and adding pressure to find and produce new gas resources. Colombia already imports some LNG through a regasification plant in Cartagena. Colombia's gas reserves have fallen 2.9 percent to 3.782 trillion cubic feet due primarily to increased consumption, Suarez said.

Entrepreneurs say compressed natural gas offers delivery alternative

(The West Australian; May 14) - Maurice Brand's Australia-based Global Energy Ventures wants to move the gas that LNG and pipelines cannot by simply squeezing it into pipes stacked inside a ship. Chairman Brand and long-time collaborator, director Garry Triglavcanin, joined the board of TTE Petroleum in late 2016. Within six months the two had renamed the company, put its exploration and production assets up for sale and pivoted to developing ships to transport compressed natural gas.

Currently, gas is moved to market in pipelines or by supercooling it at great expense and shipping liquefied natural gas. Compressed natural gas (CNG) gets much less fuel into a ship than LNG, but it is cheaper to produce, simpler to move and does not involve burning about 8 percent of the gas to run the liquefaction plant. The idea is decadesold, but a CNG delivery ship has never operated.

In 2017, Global bought Canadian company SeaNG and its design for a ship with CNG storage pipes stacked inside its full length. In January the American Bureau of Shipping approved the design, and Global's next step is to sign up a shipyard. Brand said the ships are best suited to transporting smaller quantities of gas up to about 1,200 miles. Triglavcanin said gas associated with oil production that is now flared or reinjected for lack of a market could be exported without costly offshore modifications.

Merrill Lynch says oil could be as high as \$90 or as low as \$50

(Reuters; May 17) - De-escalation of a trade war could result in a weaker dollar and stronger global growth, which along with International Maritime Organization (IMO) changes to shipping fuel rules could raise Brent crude to \$90 a barrel, Bank of America Merrill Lynch said. "The new shipping fuel rules by IMO could result in the largest ever surge in middle-distillate demand. ... The net result will likely be a large bump up in oil demand from the global power generation sector," the bank said in a May 16 note.

The IMO's mandated switch for the maritime industry, due to take effect next year, will require fuels to have a sulfur content below 0.5 percent, compared with 3.5 percent now. Regardless, benchmark prices could dip to \$50 per barrel if the U.S.-China trade war hurts consumer sentiment, which could eventually lead to an economic downturn, the bank said. Oil rose to \$73 a barrel on May 17, supported by a host of supply cuts and concern about further disruptions to Middle East shipments as tensions rise.

"With military tensions rising in the Middle East and trade tensions rising between the U.S. and China, we believe that chances of a tail event driving Brent crude to these price extremes (are) higher than what option markets are currently pricing," the bank said, explaining the factors in a \$90 oil world.