Oil and Gas News Briefs Compiled by Larry Persily July 5, 2018

Louisiana hopes trade fight does not derail LNG momentum

(The Advocate; Baton Rouge, LA; June 29) – Almost \$100 billion of liquefied natural gas projects are in various stages of construction or planning in Louisiana, representing a wave of about a dozen companies trying to cash in on global demand in the 2020s. Exactly how many projects come to pass will depend on which can land contracts and secure financing in the coming years, and whether an escalating trade war with China — perhaps the most important global market — derails the industry's momentum.

"China is the big elephant in the room," said Bill Rase, executive director of the Port of Lake Charles. "If China's not happy ... you might only have a couple more of these things be built." Regardless, experts do not expect all of the 10 or so projects that have been announced will materialize. Louisiana's access to U.S. gas production, its coastal location and its billions in tax breaks have attracted a crop of LNG mega-projects. Ahead of the proposals, Cheniere Energy is expanding its Sabine Pass terminal, and Sempra's Cameron project is under construction in Hackberry and set to open in 2019.

In all, projects under construction or approved total \$40 billion, according to Louisiana Economic Development. Another \$52 billion in projects have been announced but not yet approved. So far China has not put a retaliatory tariff on U.S. LNG, but Tulane University economics professor Eric Smith warned that may be because China is more or less forced to buy from the U.S. at the moment. Once global supply catches up, that could change. The other headwind is the steel and aluminum tariffs President Donald Trump slapped on imports. Those could spell higher costs for LNG projects, Smith said.

Qatar's low-cost LNG presents tough competition

(Rystad Energy; July 4) – In April 2017, Qatar lifted the North Field moratorium on new gas production that had been in place since 2005, looking to boost output from the world's largest gas field and export more LNG. The company plans to build three new liquefaction trains with a total annual capacity of 23.4 million tonnes, lifting the country's export capacity to 100 million tonnes. The expansion comes at a time when there are several liquefaction trains in the U.S. ready to reach final investment decision.

The Qatari expansion represents a challenge for U.S. projects as it is estimated to have the lowest breakeven price of all the planned LNG export projects in the world. Rystad Energy estimates the breakeven price for the Qatari expansion at around \$5.60 per

million Btu (including transport to Asia), about one-third less than the breakeven price of the more competitive U.S. projects of between \$7.50 and \$9.10.

Qatargas signed a front-end engineering and design contract earlier this year, sending a clear signal it will go ahead with the project. Though it has not disclosed any long-term supply deals with potential buyers, China could be especially interested in signing with Qatar since U.S. supplies could eventually be subject to tariffs if the U.S.-China trade war continues to escalate. Rystad forecasts that at least 56 million tonnes of new LNG supplies will be needed by 2025; Qatar could meet 40 percent of that with its expansion.

Japan's Inpex delays start-up at Ichthys LNG

(Sydney Morning Herald; July 4) - Japan's Inpex Corp. has delayed gas production from its giant Ichthys field off the coast of Australia just weeks after giving assurances that output would start imminently. Inpex's new CEO, Takayuki Ueda, did not give a timetable for when it would start producing at the \$US40 billion (\$A54 billion) project, located 135 miles offshore Western Australia and 510 miles southwest of Darwin. Inpex has a history of pushing back the timeline at Ichthys.

It was originally due to start production at the end of 2016, but that was pushed back to mid-2017 and then shifted to March 2018 due to delays in the installation of offshore facilities. It then pushed back its timeline to May due to poor weather and cyclones, before shifting to late September. The delays have boosted the costs of the project from its initial \$US34 billion. Wood Mackenzie's Asia Pacific director of gas and LNG research Nick Browne said the latest series of delays were always on the cards.

"A lot of people felt that the initial timeline set in May for the first LNG shipped by September was too aggressive," Browne said. At full operation, Ichthys is expected to produce 8.9 million tonnes of LNG a year, along with about 1.7 million tonnes of liquefied petroleum gas and 100,000 barrels per day of condensate. The joint venture between Inpex — as the operator of an LNG project for the first time in the company's history — includes partners France's Total, CPC Corp. Taiwan, Tokyo Gas, Osaka Gas, Kansai Electric, JERA, and Toho Gas.

Taiwan signs preliminary 25-year LNG deal with Cheniere

(Reuters; July 2) - Taiwan's CPC Corp. on July 2 announced a preliminary deal to buy liquefied natural gas from U.S. producer Cheniere Energy for 25 years, according to a statement from the Taiwanese company. CPC, a major importer of LNG, signed a heads of agreement to purchase 2 million tonnes of LNG annually from Cheniere.

The Houston-based company is gearing up to start shipments from its second U.S. export plant at Corpus Christi, Texas. The first two liquefaction trains at Corpus Christi are scheduled to start production next year. A third train is under construction. The company's first LNG export terminal, at Sabine Pass, Louisiana, started shipping gas in February 2016. It has four trains in operation there and a fifth under construction.

Japanese utility joint venture expands LNG trading business

(Reuters; July 2) - Japan's JERA has bulked up into one of Asia's biggest energy traders with its second acquisition of a key team from France's EDF Trading — its LNG business — a deal aimed at making the Japanese utility more savvy and nimble, as well as gaining better access to European markets. The signing of the deal, which follows the purchase of EDF Trading's coal business last year, brings a further infusion of the French company's more aggressive trading style into JERA, a traditional power firm.

"There are no other utilities in Japan that trade both coal and LNG," said Yuji Kakimi, president of JERA, a venture between Tokyo Electric and the Chubu Electric. "Altogether, we're a 300-strong team whereas other Japanese utilities have just a few," he said. That number for JERA Trading, a unit based in Singapore, represents an increase of about 100 employees. That includes 10 people from EDFT, 60 LNG-related staff in Tokyo while the rest will be a mix of current JERA employees and new hires.

Competitors say the combination of JERA, the world's top buyer of LNG and a leading buyer of thermal coal, with EDF's highly regarded coal and gas teams could herald big changes. "They have plentiful cash, they have global positions to allow them to move fast, and they have the personnel to act," said a trader at a major commodity merchant. The deal allows JERA to share EDFT's access to 15 LNG terminals in Europe that connect to gas hubs in Great Britain, France, the Netherlands, Belgium, and Spain.

Asian utilities look for fallback market for surplus U.S. LNG

(Reuters; July 4) - Asian utilities are increasingly striking up European partnerships and hunting for acquisitions to hedge their large multibillion-dollar purchases of U.S. liquefied natural gas supplies. In the latest example, Japan's JERA, the world's largest buyer of liquefied gas, will absorb the LNG trading desk of France's EDF Trading to gain wholesale access to European gas markets and sharpen its trading edge.

Such deals, also struck lately by Tokyo Gas and Korea Gas, give Asian giants a fallback market for U.S. supplies which they may not need and may want to sell, having rushed to commit to big chunks of U.S. liquefaction capacity in the past six years. JERA's takeover of EDFT's LNG trading desk allows it to gain access to 15 LNG terminals in

Europe, just as shale gas producers on the U.S. East Coast ramp up exports. Europe consumes more than 19 trillion cubic feet of gas per year, mostly pipeline deliveries.

The U.S. has sold more than 40 percent of its projected output of 69 million tonnes per year from five planned LNG plants, in operation or under construction, to Asia, the bulk of which will go to Japan and South Korea. Asia's thirst for U.S. LNG deals stems from its desire to strike relatively flexible contracts with new producers and wean itself off costly oil-linked supplies. But the rise of alternative fuels and, in Japan's case, the potential restart of its nuclear reactor fleet, may put a brake on demand growth there.

Indonesia's gas output predicted to decline without new investment

(Petroleum Economist; June 28) - After peaking at more than 15.5 trillion cubic feet of gas per year in 2015, production in Asia is predicted to start gradually declining in the coming decade. Indonesia, Pakistan, Thailand, Bangladesh, Myanmar — and to some extent Malaysia — will see falling indigenous production from established reserve bases. By 2030, gas production in Asia is predicted at about 13.8 tcf, according to Rystad Energy, representing an annual average reduction of 0.8 percent.

The most marked drop in domestic gas production in the region is forecast in Indonesia, Southeast Asia's largest economy. Output is forecast to fall from a peak of 2.65 tcf in 2010 to around 1.8 tcf by 2030, assuming no new investment. In recent years, falling oil prices have constrained upstream investment by Indonesia's state-owned Pertamina — Asia's second-largest gas producer after PetroChina. Also, a challenging regulatory environment has deterred oil and gas majors from exploration activities.

Rising energy demand means Indonesia is likely to become a net importer of gas by 2020, as it could buy more than it sells. The country started liquefied natural gas exports in 1977. At the other end of the production story is China, where output could increase from 4.236 tcf in 2016 to around 5.29 tcf by 2030, surpassing all other Asian nations. Dominant producer PetroChina has been steadily building gas production since 2004.

BP-led \$28 billion gas project boosts supply for Turkey, Europe

(Reuters; July 2) - A BP-led international consortium started its first commercial deliveries of natural gas to Turkey from Azerbaijan's giant Shah Deniz field on June 30, BP said, part of efforts aimed at cutting Europe's dependence on Russian energy supplies. The European Union is trying to cut its reliance on Russian gas by developing the so-called Southern Gas Corridor, which is expected to bring more gas to Europe.

Russian gas has become increasingly politicized since 2014 when Moscow annexed the Crimea peninsula. Russian gas giant Gazprom holds 34 percent of Europe's gas market. The new supply for Europe will come from the South Caspian Sea Shah Deniz II field in Azerbaijan via the 1,150-mile Trans-Anatolian Natural Gas Pipeline through Turkey, the 302-mile South Caucasus pipeline extension through Azerbaijan and Georgia, and the 544-mile Trans-Adriatic Pipeline across Greece, Albania, and Italy.

With an investment of some \$28 billion, BP said the project would total at least 26 subsea wells, two bridge-linked platforms, 300 miles of subsea pipelines and flowlines, a major expansion at the Sangachal Terminal near the Azeri capital Baku, and expansion of the South Caucasus Pipeline. The Shah Deniz I field, which has been pumping since 2006, produces more than 350 bcf per year. Shah Deniz II is expected to add 560 bcf per year with about 60 percent for Europe and 40 percent for Turkey. The Shah Deniz fields also will produce up to 120,000 barrels of condensate a day, BP said.

TransCanada exec says it is getting harder to build U.S. gas pipelines

(Reuters; June 28) - The United States should help the natural gas industry overcome environmental challenges to new pipelines by adjusting regulations or adopting new laws favoring infrastructure, a TransCanada executive said at a gas conference in Washington, D.C., this week. Suppliers in the United States, the world's biggest gas producer, have had a harder time getting shipments to market as more lawsuits by environmentalists, property owners and some states have tied up pipeline construction.

"It's definitely not getting easier to build a new pipeline," said Stanley Chapman, president of U.S. gas pipelines at TransCanada. "I'm seeing more already-approved pipeline projects that are under construction get held up by a judge in lawsuits, and this has to be addressed either by FERC or with legislation," he said. The Federal Energy Regulatory Commission oversees pipeline construction. TransCanada owns about 30,000 miles of gas lines in the U.S., making it one of the country's biggest operators.

In recent weeks, environmental groups have won court orders delaying construction on the Mountain Valley pipeline at several locations in West Virginia and are now seeking a court order to stop work in Virginia. Some of the most controversial projects are directed to serve eastern states and New England. "Right now, gas from the Marcellus and Utica shale is being blocked by some of our neighboring states, which cuts off our markets in New England," said U.S. Sen. Shelley Moore Capito, a West Virginia Republican.

FERC approval close for peak-demand LNG plant in Rhode Island

(Providence Journal; RI; July 3) - The \$180 million natural gas liquefaction plant proposed by National Grid on the Fields Point waterfront in Providence, R.I., has cleared a key hurdle after federal regulators issued a favorable environmental assessment for the controversial project. The next step in the permitting will be a final order from the Federal Energy Regulatory Commission. The public has until July 25 to comment on the assessment, and the commission then will have 30 days for review.

If FERC grants approval, National Grid could start construction sometime next year. The U.K.-based company operates gas and electric utilities worldwide. In 2015 it proposed to build the Rhode Island plant to liquefy gas taken from a nearby pipeline, holding the LNG in a storage tank that has been used since the 1970s. The 127-foothigh tank is part of a backup system to channel gas to heating customers on the coldest days when demand is highest. The storage facility is currently supplied by truck deliveries of LNG imported from overseas to the National Grid terminal in Everett, Massachusetts.

National Grid said tapping into the pipeline that runs through Providence will ensure a more secure and potentially cheaper gas supply from U.S. shale fields. The facility would be able to liquefy and store 20 million cubic feet of gas per day. Opponents have objected and have said it means increasing Rhode Island's dependence on shale gas recovered through hydraulic fracturing that can taint drinking water supplies, lead to leaks of methane, a potent greenhouse gas, and cause other environmental damage.

Minnesota approves Canadian oil pipeline project

(The Canadian Press; June 29) - Canada's oil patch is eagerly anticipating higher prices and profits after the Minnesota Public Utilities Commission on June 28 approved Calgary-based Enbridge's \$9 billion project to upgrade its deteriorating Line 3 oil line through the state. The replacement pipe is to restore Line 3's capacity to 760,000 barrels per day, adding 375,000 barrels of export capacity into the U.S. when it comes on stream in late 2019 or early 2020. The line runs from Alberta to a pipeline hub in northern Wisconsin.

The extra capacity is expected to help relieve a transportation bottleneck that has increased the discount on Canadian oil prices versus U.S. benchmarks. Canada will still need the Trans Mountain pipeline expansion to the West Coast and the Keystone XL pipeline into the U.S., said Chris Bloomer, CEO of the Canadian Energy Pipeline Association. "From our perspective, this was the best news that the Canadian oil and gas industry has received for a long time," said analysts at Desjardins Capital Markets.

Construction of the pipeline is crucial to ensure access to the U.S. Midwest, which imported 2.3 million barrels per day of Canadian crude in 2017, said Nancy Berard-

Brown, manager of oil markets and transportation for the Canadian Association of Petroleum Producers. The company estimates the pipeline will be in service in the second half of 2019, although analysts cautioned it may take until the first quarter of 2020 if substantial civil disobedience delays construction.

Australian government warns LNG import economics may not work

(Reuters; July 2) - Plans to import liquefied natural gas to Australia, the world's second largest LNG exporter, could help cap soaring local gas prices, although the economics might not work, the Australian government said July 2. Over the past two years, four projects to import LNG have been proposed following the opening of three new LNG export plants on Australia's east coast that have sucked gas out of the southeastern market and nearly tripled wholesale gas prices.

Australia's energy market operator recently wound back a forecast for a near-term deficit, saying it no longer expects a gas shortfall in southeastern Australia before 2030 due to new production and government pressure on exporters to boost local supply. But LNG import plans are advancing anyway and could still be justified as gas produced in Queensland state is expensive, piping it south to where the gas is needed is costly, and imported LNG from the spot market could be cheaper, the government said in a report.

The report said the main challenges to imports will be to find cheap LNG beyond 2022, when global demand is expected to start outstripping supply, and to line up enough local gas demand to underpin import projects. The report found that U.S. gas at around current prices could be delivered to Asia for \$8 per million Btu, or A\$10.10 per gigajoule, roughly in line with current gas prices for industrial users. However, regasification, including capital costs, would add between A\$1.30 to A\$2.60 per GJ to the cost.

Poland wins price arbitration case against Gazprom

(Reuters; June 30) - A Swedish arbitration court ruled that Poland's dominant gas company, PGNiG, can demand a lower price for the gas it buys from Russia's Gazprom, PGNiG said June 30. PGNiG buys from Gazprom most of the gas it resells, and it said it pays more than its western European peers. New prices, still to be determined by the arbitrators, should apply retroactively from Nov. 1, 2014, when PGNiG asked that the prices be revised, PGNiG said in a statement.

PGNiG filed for arbitration of its complaints in May 2015 to the Arbitration Institute of the Stockholm Chamber of Commerce, a neutral body that resolves international commercial disputes. The arbitrators initially agreed with PGNiG. The decision does not rule out PGNiG reaching agreement with Gazprom over pricing, the company said.

Poland wants to reduce its reliance on Russian gas and does not plan to extend its deal with Gazprom when it expires in 2022. Under the contract's take-or-pay formula, PGNiG has to buy 300 billion cubic feet of gas annually. Separate from its arbitration case, PGNiG has been buying more liquefied natural gas to replace gas from Russia. Poland also plans to build a pipeline to Norway, which would give it access to North Sea gas.