Oil and Gas News Briefs Compiled by Larry Persily April 18, 2019

Qatar invites three bidders for LNG expansion engineering work

(S&P Global Platts; April 15) - State-owned Qatar Petroleum on April 15 invited bids for an engineering, procurement and construction (EPC) contract on its North Field gas production expansion project. The tender package has been issued to three EPC consortiums: one comprising Japan's Chiyoda Corp. and France's Technip, another comprising Japan's JGC Corp. and South Korea's Hyundai Engineering & Construction, and a third comprising Italy's Saipem, U.S.-based McDermott and Taiwan's CTCI Corp.

The EPC contract includes building four new liquefaction mega-trains, which will also produce liquefied petroleum gas (propane and butane), a helium plant and supporting infrastructure. The contract is scheduled for award in January 2020. The expansion is part of Qatar's plan to boost its LNG output to a world-leading 110 million tonnes a year by 2024 from 77 million tonnes now. Qatar is one of the most dominant suppliers in the world, though new projects in Australia and the U.S. have eroded Qatar's market share.

First output from the new liquefaction trains is targeted to start in 2023, when the LNG market is expected to be significantly tighter than it is now.

New wave of LNG construction could encounter inflation and delays

(Bloomberg; April 15) - The world's biggest energy companies are finally ready to invest in new liquefied gas export projects. Now they just need to figure out who will build them, and for how much. After four years of belt-tightening, oil and gas firms are expected to start spending again, with as much as \$144 billion of investments in new LNG developments in line for approval by the end of this year.

Meanwhile, the engineering, procurement and construction sector has been weakened by cost-cutting with shrinking order books and solvency questions. While the LNG order binge could provide a lifeline to contractors, it may see too many projects chasing too few builders, increasing risks for developers looking to control costs. In the last LNG building boom, Australian projects alone totaled \$40 billion in cost overruns.

"We have a new wave of LNG projects coming and a decimated construction sector," said Saul Kavonic, an energy analyst at Credit Suisse. "There's real risk as we go into this next wave that engineering and construction constraints mean a return of project delays and cost inflation." New LNG capacity investments this year could set a record, according to Wood Mackenzie.

A weaker construction sector could be good for the remaining EPC companies that will have more leverage when it comes to negotiating, Kavonic said. "The faster projects reach a final investment decision, the better rates they'll get from the EPC contractors," said Fauziah Marzuki, an analyst with Bloomberg New Energy Finance in Singapore.

Coal-linked LNG contract an example of Asian push for price diversity

(S&P Global Platts; April 17) - Japanese utility Tokyo Gas' new liquefied natural gas contract with Shell, which is partly linked to coal prices, underscores how Asian buyers are pushing hard for price diversification, a factor that will increasingly influence contract negotiations and renegotiations. The deal raised eyebrows because of the coal-linked pricing for probably the first time in an LNG contract. However, market participants said the bigger overarching issue is buyers willing to explore alternatives to oil-indexation.

"[T]his is another nail in the coffin of oil indexation," said Craig Pirrong, professor of finance at the University of Houston. "We are in a stage of experimentation with non-oil indexation." Pirrong once called the practice of oil-indexation a barbarous relic. The traditional oil indexation is one of three fronts in LNG contracts on which Asian LNG buyers have pushed back in recent years. The other two being destination restrictions to prevent buyers from redirecting or reselling cargoes and contract durations.

Japan's energy ministry advocated for the abolishment of destination clauses for years. Asian buyers have also gained traction in cutting contract durations with the market structure moving in favor of shorter-term contracts. Oil indexation, however, has been tougher to dislodge. "This is an example of diversification of pricing, in line with Tokyo Gas' previously stated strategy," Hiroshi Hashimoto, senior gas group analyst at the Institute of Energy Economics of Japan. The argument in favor of coal-indexation is that coal has similar end-user demand fundamentals as LNG in power generation.

Cameron LNG starts taking feed gas for commissioning process

(Houston Chronicle; April 16) - The first production unit at Sempra Energy's \$10 billion Cameron LNG export terminal in Louisiana has reached the final stage of the start-up process known as commissioning. Working in a joint venture, contractors Houston-based McDermott International and Tokyo-based Chiyoda have started introducing pipeline gas into Train 1 of the liquefied natural gas plant. The introduction of feed gas signals the end of the construction phase and is regarded as a precursor to production.

Originally developed by Sempra as a \$900 million LNG import terminal, Cameron began commercial operations in July 2009. Working with French energy company Total, Japanese industrial company Mitsui and Japan LNG Investment, Sempra later decided to take advantage of record gas production from U.S. shale basins to redevelop the

Hackberry, Louisiana, facility into an export terminal. There are four other LNG export projects on the Gulf and East coasts that were added on to unused import operations.

McDermott and Chiyoda were awarded the export project in 2014. Cameron's three liquefaction units are expected to produce nearly 12 million tonnes of LNG per year. The Louisiana terminal is one of three facilities planned by Sempra as part of its two-coast approach to export 45 million tonnes of LNG per year by the mid-2020s. In addition to Cameron, the company is working to develop the Energia Costa Azul facility in Baja California, Mexico, and the Gulf Coast LNG terminal near Port Arthur, Texas.

Papua LNG partner says country will benefit from project

(Post-Courier; Papua New Guinea; April 16) - The recently signed Papua LNG gas agreement between the state and lead developer Total marks a significant step for the liquefied natural gas project, said Oil Search managing director Peter Botten. Botten said the agreement includes several important provisions, which together with the fiscal arrangements will result in what the company believes is a fair split of the project's expected returns to the benefit of all stakeholders. Oil Search is a partner with Total.

He said these includes a 5 percent obligation of gas for the domestic market, a "national content plan" that outlines how the local workforce and businesses will participate in the project, and a deferred-payment mechanism for the developers initially to cover the government's share of development costs, easing Papua New Guinea's upfront financial contribution associated with its equity stake in the project.

"Following this landmark agreement, the contractor selection and engineering contracting process for the upstream development will commence shortly," Botten said. Partners in the two-train Papua LNG project, the addition of a third train at the ExxonMobil-led PNG LNG project and the new gas fields to serve the expanded liquefaction operation are targeting 2020 for a final investment decision for the \$13 billion investment, putting the expansion on track to start LNG deliveries in 2024.

Papua New Guinea finance minister resigns over resources policy

(Bloomberg; April 14) - Papua New Guinea's Finance Minister James Marape has left the government, citing differences with Prime Minister Peter O'Neill over resources policy, days after the state signed a deal with France's Total on a liquefied natural gas expansion project. Marape announced his resignation in a Facebook post April 11, saying his voice was not being heard on policy-related matters, including the need to get more local participation in the gas, oil and mining industries.

"I have raised my views and concerns on those areas, yet I have come to realize that most of my advices find no traction and is non-compatible with prime minister's world view," Marape said. "Thus, it is only fitting that I exit the cabinet." O'Neill said he would assume the role of finance minister temporarily. The Papua LNG deal is part of a \$13 billion expansion of the country's LNG production capacity. The agreement with Total covers two new liquefaction trains, while a third new LNG train still requires a separate agreement between the government and plant operator ExxonMobil.

"There's clearly frustration about how the deal has played out and how the prime minister has managed negotiations," said Jonathan Pryke, director of the Pacific Islands Program at the Lowy Institute. "The PNG government has always demanded to have a slice of ownership in these projects, and that could have been a sticking point. Maybe he (Marape) felt they weren't getting enough of the pie." The government had been under pressure to get a better deal, following criticism from the World Bank and International Monetary Fund that the original LNG project delivered only limited benefits.

Work will begin on floating LNG production vessel for West Africa

(S&P Global Platts; April 17) - Singaporean marine company Keppel has received final approval from Golar LNG's subsidiary Gimi MS to start conversion of a liquefied natural gas carrier as part of the Gimi floating LNG project offshore West Africa, Keppel said April 17. Keppel will convert a Moss-type LNG carrier into an LNG production and storage vessel, capable of producing 2.5 million tonnes a year of LNG in the first phase of the BP-led Greater Tortue Ahmeyim project offshore Mauritania and Senegal.

The contract is worth \$947 million. The vessel delivery is expected in the first half of 2022, Keppel said. The contract includes design, detailed engineering and procurement of the marine systems, as well as conversion-related construction. Keppel will hold a 30 percent equity stake in the Gimi MS with Golar owning the remaining 70 percent.

In February, Golar LNG entered into a 20-year lease-and-operate agreement with BP for the charter of Gimi FLNG. BP and its partners U.S.-based Kosmos Energy and Mauritania and Senegal national oil companies Petrosen and SMHPM took a final investment decision on Phase 1 of the Greater Tortue Ahmeyim venture in December. The project is expected to expand to 10 million tonnes per year in later phases. The Greater Tortue Ahmeyim project is based on an estimated 15 trillion cubic feet of gas.

FERC releases final EIS for Mississippi LNG export project

(Reuters; April 17) - Kinder Morgan's proposed Gulf LNG export plant in Mississippi took a step toward receiving federal approval April 17 when the Federal Energy Regulatory Commission released its final environmental impact statement for the

project. Construction and operation of the project would result in some adverse environmental impacts, but those "would be avoided or reduced to less-than-significant levels" if the company follows FERC recommendations, the EIS said.

Kinder Morgan has not made a final investment decision to build the plant. Gulf LNG, near the city of Pascagoula, is designed for two liquefaction trains that together would produce up to 10 million tonnes per year of LNG. It would be built next to an unused 8-year-old LNG import terminal, of which Kinder Morgan is a 50 percent owner. Gulf LNG is one of several proposals for additional LNG export capacity on the U.S. Gulf Coast, taking advantage of the country's growing natural gas production.

Novatek will move LNG reloading operation to Russian waters

(The Barents Observer; Norway; April 15) - Novatek representatives have confirmed that reloading of liquefied natural gas cargoes in the Sarnes Fjord outside Honningsvåg, Norway, will come to an end this year. The operations will instead be moved to Russian waters, most likely to an area near the island of Kildin. The reloads have been transfers of cargoes from specially built ice-class carriers that serve Novatek's Yamal LNG project in Siberia to lower-cost conventional LNG carriers for delivery to customers.

The information comes as a major storm has raged along the Norwegian Arctic coast, which has resulted in a halt to reloading operations in Honningsvåg. Up to nine major LNG carriers have been circling around the Norwegian Arctic port as strong winds have prevent reloading operations. The bottleneck created a serious situation for Novatek, which is dependent on the prompt transferring of its LNG cargoes to free up the ice-class carriers for their return to Yamal to take on another load.

However, it is not just the weather that is making Novatek move out of Honningsvåg. There is a good dose of politics to keep the business in Russia. According to the Russian newspaper Kommersant, Novatek intends to launch ship-to-ship reloading of LNG by Kildin Island before the end of 2019. Since 2018, Honningsvåg has been a core player in the export of Russian LNG, though Novatek has made clear that the ship-to-ship reloading is temporary only until a permanent base is built.

There is money to be made in LNG charters

(Reuters; April 14) - In the booming market for liquefied natural gas, the most precious commodity is the ship. As an abundance of supply has helped hold down LNG prices, the most profitable trade is in renting out vessels to transport it. Reflecting the white-hot demand for ships, over a dozen different companies, including energy majors BP and ExxonMobil, trading house Trafigura and utility Centrica are looking to charter LNG carriers for winter, according to shipping industry sources, months earlier than usual.

Energy firms are trying to avoid getting stuck without ships on winter charter, when cold weather typically drives up the trade in LNG and, consequently, transport costs. They also want to profit off less nimble rivals. Last winter spot charter rates — the cost of renting a ship to transport LNG in real-time — soared to almost \$200,000 per day in November compared to around \$40,000 in May, squeezing those companies that had not made earlier arrangements to charter vessels at lower rates.

Currently, spot rates are around \$40,000 per day while rates covering next winter are between \$70,000 to \$80,000 a day, two shipping industry sources said. Nearly 50 LNG carriers were launched last year, bringing the global fleet to around 550, but with LNG trade growing quickly, the margins on shipping rates can be eye-popping. Last year U.S. LNG supplier Cheniere made deals in spring and summer for more than 10 vessels to cover its winter need. Some ships were chartered at around \$70,000 a day and rented out in winter at around \$90,000 a day, an industry source said. That trade has become a sector legend and sources said others were trying to replicate it this year.

Unusual LNG market creates profit opportunity for at-sea storage

(Bloomberg New Energy Finance; April 15) – Liquefied natural gas carriers can make a profit just sitting offshore at present because the spread between the price of LNG for delivery next winter and month-ahead prices is so wide they can make money from storage alone. This so-called "cash and carry" arbitrage is a typical consideration for storable commodity markets but is unusual for LNG, though this spring's low prices for LNG — under \$5 per million Btu last month — has created the opportunity.

The forward curve for Platts' Japan-Korea Marker, the Asian LNG benchmark, suggests higher prices ahead and that a time arbitrage has opened up for long-cycle floating LNG storage. Because of the discount of nearby futures prices to far-dated futures, it is theoretically profitable to buy prompt-delivered LNG, simultaneously sell that LNG for forward delivery at a future date, then pay the cost of storing the LNG on tanker for several months until the delivery period of the forward sale.

According to Bloomberg New Energy Finance, LNG volumes loaded to a tanker in the beginning of May and then delivered in January 2020 would allow for a net profit of \$0.86 per million Btu of gas. However, ship owners still could make more money by operating their LNG carriers for continuous delivery runs, where the gas customer takes the price risk and the ship owner collects the charter fees.

Large-volume gas flaring continues in Nigeria

(Punch; Nigeria; April 14) – A significant amount of natural gas produced in Nigeria is still being wastefully flared despite many deadlines set by the government to end it.

Nigeria has Africa's largest gas reserves at more than 190 trillion cubic feet but inadequate distribution has led to shortages in the country over the years. The government has said that gas flaring costs it roughly \$1 billion a year in lost revenue if the gas could be marketed for power plants, industry or exported.

Oil and gas producers flared a total of 282 billion cubic feet in 2018, compared to 288 bcf in 2017, according to data from the Nigerian National Petroleum Corp. (NNPC). Of the total gas production of 2.83 trillion cubic feet last year, 430 bcf was commercialized for the domestic market while 1.23 tcf was exported, according to the company. The NNPC data showed that reinjection, fuel gas, and flaring accounted for a total of 1.17 tcf.

The Associated Gas Reinjection Act of 1979 set a deadline of 1984 to end flaring, but it continues 35 years later. President Muhammadu Buhari inaugurated the Nigerian gas commercialization program in 2016, aimed at reducing flaring by harnessing the gas to stimulate economic growth, drive investments and provide jobs in the Niger Delta. In December 2017, the government said it had commenced verification of flaring across the country and discovered there were at least 178 flaring sites.

Chevron takeover of Anadarko could spur other deals

(Reuters; April 12) - Oil major Chevron's \$33 billion deal on April 12 to acquire Anadarko Petroleum has some investors and industry executives asking whether it is time for other U.S. shale oil and gas producers to consider selling themselves. Anadarko has been one of the pioneers of the shale revolution, which turned the United States into the world's biggest oil producer, overtaking Russia and Saudi Arabia. The Houston-based company's willingness to ink a sale, rather than capitalize on oil prices rebounding, illustrates the significant challenges facing many U.S. shale producers.

These challenges include exploration and production becoming more expensive as the easier-access oil and gas gets scarcer and existing wells turn less productive. Deeppocketed majors such as Chevron can better cope with these costs, because they can get cheaper drilling rates by committing to longer contacts and afford cutting-edge technology to get more out of wells.

Many investors say Chevron's deal will embolden them to grill companies in the sector whether it is time to throw in the towel and sell. "If you have large acreage positions like Pioneer and Concho, or lesser but more contiguous positions like Parsley Energy, and you're a pure-play Permian producer, there's no doubt that you are on the radar screen for these majors," said Rob Thummel, portfolio manager at Tortoise Capital Advisors. The majors "are eventually going to run out of inventory," said Pioneer CEO Scotts Sheffield. That could drive them to buy up other companies with acreage to drill.

Novatek starts shipping LNG from small-scale Baltic plant

(Reuters; April 17) - Novatek, Russia's largest privately owned natural gas producer, has started to export liquefied natural gas from its newly built, small-scale LNG plant in Russia's Baltic Sea port of Vysotsk, Refinitiv Eikon shipping data showed. Novatek, along with Gazprombank, has built but not yet officially launched the Vysotsk plant, which has a capacity of 660,000 tonnes of LNG per year.

According to Refinitiv Eikon data, Novatek shipped seven small cargoes between March 31 and April 16 from Vysotsk. Three cargoes went to Lithuanian, two to Finland, and two to Sweden. The LNG went to an assortment of customers, including a power generation utility, a gas utility, a fertilizer manufacturer and a supplier for the marine transportation industry. The Baltic LNG export operation is less than 5 percent the size of Novatek's \$27 billion Yamal LNG terminal in the Arctic, which opened in December 2017.

Major U.S. shale plays could hit record 8.46 million barrels a day

(Reuters; April 15) - U.S. crude oil output from seven major shale formations is expected to rise by about 80,000 barrels per day in May to a record 8.46 million, the U.S. Energy Information Administration said in its monthly drilling productivity report April 15. The largest change is forecast in the Permian Basin of Texas and New Mexico, where output is expected to climb by 42,000 barrels per day to a new peak of about 4.14 million in May.

In North Dakota's Bakken region, shale production is estimated to rise by about 11,000 barrels per day to about 1.39 million, easing from a record 1.41 million hit in January. In the Eagle Ford region, output is expected to edge higher by 7,000 barrels to about 1.43 million, which would be the highest monthly output since January 2016. Production growth in the Permian and other key shale basins have slowed as oil prices fell in the fourth quarter and many shale companies cut spending in the face of investor pressure.

Prices have rebounded this year, but drillers are expected to remain cautious. Some shale producers are turning to workforce cuts as investors step up demands for returns. Separately, U.S. gas output was projected to increase to a record 79.8 billion cubic feet per day in May, the EIA. That would be up 0.9 bcf per day over the April forecast and mark the 16th consecutive monthly increase. A year ago in May, output was 67.4 bcf a day. The EIA projected gas output would increase in all the big shale basins in May.

<u>Drought will force Yukon to burn more diesel and LNG for power</u>

(CBC News; Canada; April 17) - Some parts of Yukon saw less snow than usual this past winter, and that means Yukon Energy likely won't generate as much hydro power this year. Instead, the power producer will likely rely more on its liquefied natural gas and diesel generators to meet demand and could be urging Yukoners to conserve power if dry conditions continue through the summer.

"One of the reasons why we have these LNG and diesel generators around is they're not only for peaking during the winter, but also to cover off this downside scenario, where we do have a drought condition," said Andrew Hall, CEO of Yukon Energy. According to the Yukon government's April snow survey report, the snowpack was well below the historical median through most of southern and central Yukon.

Warm weather in March meant a lot of the thin snow cover melted quickly, and precipitation for the month was also "well below" normal in central and southcentral Yukon, the report said. "Droughts don't happen very often. I mean, the last one we had was back in the 1990s," Hall said. The company estimates that anywhere from 10 to 20 percent of Yukon's power next fall and winter could come from its thermal generators. Hall said it depends on how much rain Yukon sees this summer.