Oil and Gas News Briefs Compiled by Larry Persily March 14, 2019

It's gas vs. nuclear power in Pennsylvania and Ohio

(Bloomberg; March 13) - Subsidizing nuclear power is one thing in liberal states like New York and New Jersey. It's another in the natural gas bastions of Pennsylvania and Ohio. Drillers and gas-fired power plant owners are girding to fight against legislation intended to save money-losing nuclear reactors in the Keystone and Buckeye states, saying they've learned from past defeats and are better positioned to win. The debates are a test of how far shale-gas state lawmakers are willing to go to fight climate change.

Four left-leaning states have already approved bailouts for nuclear reactors in step with aggressive targets to replace coal and gas with less-polluting energy. This time fossil-fuel proponents are fighting against nuclear subsidies on their home turf. "Natural gas is very, very strong" in Pennsylvania, said state Sen. Ryan Aument, who nevertheless supports subsidizing reactors. A Republican lawmaker introduced a bill March 11 to support the state's five nuclear plants. Ohio legislators are preparing their own measure.

Reactors are struggling to stay solvent as the fracking boom has made gas cheap and abundant, pushing down wholesale electricity prices. At least six nuclear plants have closed since 2013, including in New Jersey, and Vermont. New York in 2016 became the first to throw reactors a lifeline, followed by Illinois, New Jersey, and Connecticut. In each case, fossil fuel generators fought back, saying the bailouts were an intrusion into free markets and would drive up electricity prices. But all four states have aggressive clean-energy targets and need nuclear power to avoid burning more coal and gas.

Local opposition makes it hard to build new gas lines into Northeast

(S&P Global Platts; March 13) - As the U.S. natural gas industry seeks to expand markets for its product, it needs to do a better job of getting local support for infrastructure construction, speakers at CERAWeek by IHS Markit said March 13 in Houston. This is particularly the case in markets currently underserved by long-haul pipelines, such as New York state and New England, they said.

"I think it starts with public perception, because when you start talking about pipeline development or any kind of infrastructure, such as [electric] transmission lines, you only have to block one square foot and you've blocked the project," Kenneth Medlock, senior director of Rice University's Baker Institute of Public Policy Center for Energy Studies, said on the sidelines of the annual energy conference.

Medlock said producers of Appalachian Basin are looking to expand into new markets, particularly those in Northeast population centers. But, he added, "That's going to be a difficult sell in the current environment." In recent years New York has raised a number of regulatory issues that have effectively blocked building new pipelines to move gas from the Appalachian Basin to major Northeast gas markets, such as New York City and New England. To overcome the environmental objections of many communities, companies need to improve stakeholder engagement at the local level, Medlock said.

China's war on pollution now in its sixth year

(Reuters; March 11) - China expanded its coal-to-gas and coal-to-electricity projects to 35 cities in 2018 from 12 the previous year, China's Environment Minister Li Ganjie said March 11, as the world's second-largest economy stepped up its fight against smog. China's winter heating program used to burn an estimated 400 million tonnes of coal a year and switching it to cleaner types of fuel was identified as a major part of the country's war on pollution, now in its sixth year.

The program to convert households to low-emission heating ran into difficulties last winter amid widespread gas shortages, but 4.8 million households still managed to make the switch from coal to gas and electricity last year, up from 4 million households switched in 2017, Li said. China has also installed ultra-low emissions technology at more than 80 percent of its coal-fired power generation capacity, Li added.

But Li, speaking to journalists on the sidelines of China's annual parliamentary meeting, warned that despite the strides in 2018, China's war on smog is getting harder. "The pressures are huge and it isn't easy to be optimistic about the trends," he said. "The things that could easily be done have already mostly been done, and the things that need to be done are much harder." While China cut coal's share in its energy mix to 59 percent last year, down from 68.5 percent in 2012, it is still too high, he said. And there are regional disparities in now environmental protection is enforced, he said.

U.S. could lead the world in oil exports by 2024, IEA says

(CNBC; March 11) - The United States became the world's biggest oil producer in 2018, and over the next five years the nation will take aim at becoming the top oil exporter, according to the Paris-based International Energy Agency. The IEA forecasts U.S. exports of crude oil and petroleum products will nearly double, hitting about 9 million barrels per day by 2024. At that level the U.S. would surpass Russia's shipments and threaten to unseat Saudi Arabia, the current top exporter.

The forecast comes just weeks after the U.S. exported a record 3.6 million barrels per day of oil. The country is also a major exporter of petroleum products, including refined

fuels such as gasoline. Those shipments will surge in the coming years as production from the nation's shale fields continues to boom, the IEA said in its annual five-year oil outlook. The adviser to oil consumers and producers sees U.S. crude output — already at a record 12 million barrels per day — growing by an additional 4 million through 2024.

"The second wave of the U.S. shale revolution is coming," IEA Executive Director Fatih Birol said in a statement. "It will see the United States account for 70 percent of the rise in global oil production and some 75 percent of the expansion in LNG trade over the next five years. This will shake up international oil and gas trade flows, with profound implications for the geopolitics of energy." Pulling ahead of Russia and Saudi Arabia in oil exports would further erode their influence in the market.

U.S. shale drillers look to spend less while still producing more

(CNBC; March 11) - The shale drillers behind booming U.S. oil and gas output have survived a bevy of challenges in recent years, from a historic oil-price downturn to an effort by OPEC to wash them out of the market with a flood of cheap crude. Now with U.S. output at all-time highs near 12 million barrels per day, the industry is facing a new obstacle: How to keep growing output amid a wave of belt-tightening that is cutting billions of dollars from capital budgets.

Publicly traded shale drillers emerged from the 2014-2016 price downturn with a new mandate from investors to get their finances in order and start generating value for shareholders. For years drillers have spent more cash than they generated, borrowing heavily to snap up acreage and increase their output at seemingly any cost. The latest round of quarterly earnings shows many shale drillers are cutting spending to meet investors' demands. That is translating into lower expectations for oil and gas output.

But even as companies are pursuing the elusive goal of drilling at a profit, forecasters expect another big year for U.S. output. After surging by 1.6 million barrels per day last year, making the U.S. the world's biggest producer, average U.S. output is poised to grow by 1.4 million barrels per day in 2019, according to the Department of Energy. Drilling activity is down, however, and companies aren't likely to ramp up in the next few months, said Michael Cohen, head of commodities research at Barclays. "It reinforces my view that the production growth profile for this year — at least in the first half — will not be as aggressive or shocking as what we saw in the second half of 2018," he said.

TransCanada asks court to lift injunction against Keystone pipeline

(Calgary Herald; March 12) - TransCanada has asked the 9th U.S. Circuit Court of Appeals to lift an injunction on its Keystone XL pipeline by the end of this week, as it approaches an internal deadline to begin construction this year on the US\$8 billion

project. Without relief from the injunction, TransCanada could delay construction by one year on the 830,000-barrel-per-day pipeline from Alberta to Nebraska. The pipeline would expand the ability of Canadian oil producers to reach U.S. Gulf Coast refineries.

In a March 11 filing, the U.S. State Department and Calgary-based pipeline giant requested a stay of an injunction granted late last year by a federal judge in Montana, which forced the company to cease all preparatory work on the pipeline until the State Department finishes a supplemental review of the project. Up until that point, TransCanada had mowed 1,500 acres in the U.S. to prepare the pipeline right-of-way, begun constructing three work camps and prepared 11 of 14 pipe yards on the route.

The judge said he issued the injunction because the project's environmental impact assessment from 2014 was insufficient and fell short of a "hard look" at factors including a change in oil prices and cultural artifacts along the pipeline's alternative route through Nebraska. TransCanada has requested that the injunction "should be stayed in its entirety, or at least insofar as it prohibits pre-construction and construction of the pipeline outside of Nebraska." The "urgent motion" requests action by March 15.

Freeport LNG targets July for first export cargo from Texas facility

(S&P Global Platts; March 11) - Freeport LNG should be ready to ship its first export cargo in July, nearly two years after flooding from Hurricane Harvey helped cause the Texas facility's most recent start-up delay, CEO Michael Smith said March 11. Smith said in an interview with S&P Global Platts on the sidelines of the CERAWeek conference in Houston that Freeport LNG is expected to begin flowing feed gas to the plant in April or May with first LNG ready to load in July.

Approximately five to 10 commissioning cargoes will be shipped before Freeport begins commercial deliveries this September, Smith said. T he commercial timing, announced last year, amounted to a nine-month delay from the previous target. The delay was attributed in part to flooding at an equipment yard following Hurricane Harvey in August 2017, and also to contractor execution delays. At full production, the three-train plant will have capacity to make 15 million tonnes of LNG per year.

"We're cautiously optimistic that they're going to meet the current schedule, based on the progress they've made to date," Smith said. "There's still a lot to do. ... I would not ever say there isn't a risk that it could be delayed." The number of operating U.S. liquefaction terminals is set to double to six this year, putting added pressure on projects under construction to begin exports as soon as possible, especially with a second wave of developers angling for market share and eager to break ground.

Timor says it could turn to China to help develop gas project

(Australian Financial Review; March 12) - Timor-Leste will turn to Chinese capital to develop its multibillion-dollar Sunrise gas project only if its "friends" in Australia, the U.S., Japan, and South Korea decide against the investment and leave it no choice, the island nation's ambassador to Australia said. Abel Guterres voiced confidence in developing Sunrise, despite reluctance from Woodside, operator of the offshore field, to invest in an onshore LNG plant that Timor-Leste wants to build on its southern coast.

Shell and ConocoPhillips, longstanding partners in the venture, will not be involved, having agreed to sell their stakes to the Timor-Leste government in separate deals worth a combined US\$650 million. "If our American, Australian, Japanese, and Korean friends don't come on board then ... we have no choice, the Chinese have got the capital," Guterres told The Australian Financial Review. The Sunrise field holds an estimated 5.1 trillion cubic feet of gas. Timor's population is about 1.35 million people.

The comments come after Timor-Leste's surprise move late last year to buy out Conoco and Shell from Sunrise, setting up the government to take control of the troubled project in a strategy to press forward with an onshore LNG plant, which the existing partners opposed as too risky. The partners had said they would prefer to pipe the gas to feed existing liquefaction plants in Australia, rather than pay the cost of building a new LNG plant in Timor and crossing a deep ocean trench to reach the onshore site.

CNOOC opens LNG import terminals to third-parties

(S&P Global Platts; March 13) - China National Offshore Oil Corp. has moved to open up its liquefied natural gas import terminals to third-parties — a first in the country after two trial runs late last year. Each third-party user must take in a minimum four cargoes per year over 10 years, according to the Shanghai Petroleum and Gas Exchange. That requirement may be increased in multiples of four cargoes, market sources said.

The initiative comes amid a series of market reforms and against the backdrop of the government's push to form a national pipeline company by combining assets of state energy companies, intended to spur private investment and boost use of cleanerburning gas. Broader access to the country's 20 or so receiving terminals — all built by state majors except for a few owned by private firms — would likely boost LNG imports into China, which has been the world's second-biggest buyer of LNG since 2017.

While the initiative opens the way to allow more independent LNG buyers to enter the international market, there has been concern over third-party terminal uses having to lock in cargoes at term prices for the next 10 years, a source said. Parties will have to submit their expressions of interest to CNOOC by March 31. Negotiations are planned for April and May on pricing and delivery details, according to sources.

Only one U.S. LNG cargo has gone to China this year

(Reuters; March 12) - Only one liquefied natural gas vessel that left the United States in 2019 has gone to China, Reuters shipping data show, as the eight-month trade war between the two nations starts to cool. The governments of the world's two largest economies have been locked in a tariff battle as Washington presses Beijing to address longstanding concerns over Chinese practices around technology transfers, market access and intellectual property rights.

The only vessel to head to China from the United States this year has been the Adam LNG, which left Cheniere Energy's Sabine Pass export terminal in Louisiana on Jan. 30. The data shows a handful of LNG vessels from the United States currently in the Pacific Ocean, some of which could end up in China. In 2018, 27 LNG cargoes went from the United States to China, down from 30 in 2017. Most of those, however, left U.S. ports before the trade war started in mid-2018.

The U.S. and China started imposing tariffs on each other's goods in July. As the dispute heated up, China added LNG to the list and imposed a 10 percent tariff on U.S. gas in September. The United States is the world's fastest-growing exporter of LNG, while China is the fastest-growing importer as the government weans the country off coal to reduce pollution. In 2017 China imported about \$447 million, or about 15 percent, of the LNG shipped from the United States, making it the third-biggest buyer.

Taiwan plans third LNG import terminal to boost supplies

(Reuters; March 12) - Taiwan's state energy firm CPC could start building its third liquefied natural gas import terminal by the middle of this year once it obtains all the required permits, a senior company official said March 12. The proposed terminal at Taoyuan in northwestern Taiwan could start operations in early 2023 with an initial capacity of 1 million tonnes per year, Jane Liao, chief executive of CPC's LNG business, said on the sidelines of the CERAWeek conference in Houston.

The project's first phase will be used by state utility Taipower. Taiwan is the world's fifthlargest LNG importer with an import volume of 16.8 million tonnes in 2018. The island is boosting its LNG imports as it phases out nuclear and coal to generate electricity in the next decade. Taiwan aims to have LNG import capability of 10 million tonnes per year each in the country's north, centra, and south by 2027, Liao said, adding that CPC also will continue to expand its two existing terminals.

CPC is currently the only LNG importer in Taiwan and has long-term supplies from Australia, Qatar, Papua New Guinea, and Malaysia. To diversify supplies, the company will start receiving LNG from the United States in 2021 after CPC inked a 25-year deal with Cheniere Energy last year. The company prefers long-term contracts, although spot cargoes account for about 15 percent of its annual imports, Liao said.

Chinese investor in B.C. industrial park could profit from LNG project

(Vancouver Sun; March 10) - Developers of a nascent business park just outside of Terrace, British Columbia, hope their day has arrived. LNG Canada needs to corral people and material to build its multibillion-dollar liquefied natural gas plant at Kitimat, B.C., and a 416-mile gas pipeline to feed the plant. The Skeena Industrial Development Park at nearby Terrace has 2,400 acres that its owners and the city of Terrace are angling to fill with industrial customers, from the LNG industry or otherwise.

"Since LNG Canada announced their (final investment decision) in October, we have had a barrage of calls from ... across Canada (and) the U.S.," said Danielle Myles, city economic development manager. "Lots of companies are coming for investor tours and visits." Construction contractors, suppliers such as pipe-coating firms, steel fabricators, and work camp services are among the companies that have stopped by to check out the area, Myles said. Terrace, population 11,600, is about 25 miles from Kitimat.

The industrial park was initially spurred by an \$11.8 million investment in 2014 by Taisheng International Investment Services, which bought a big chunk of the land. Taisheng represents the interests of companies that operate in China's Qinhuangdao Economic Development Zone east of Beijing. The company's initial ambitions were to create a focal point for Qinhuangdao's companies to do business in the province, and B.C. companies to link with opportunities in China. It has spent \$30 million on the land, which includes civil engineering, said Richard Zhang, Taisheng's managing director.

LNG Canada says nothing will stop project

(Bloomberg; March 11) - The head of LNG Canada said he doesn't "see a single scenario" that would stop the nation's largest infrastructure project from getting built, dispelling concerns that the C\$40 billion liquefied natural gas development is at risk from opposition by pipeline foes. Shell and its four Asian partners in October approved the LNG project in Kitimat, British Columbia, after obtaining the support of the province and 20 First Nations. But it continues to face a legal challenge disputing the provincial environmental approval as well as protests by a group of indigenous hold-outs.

"I do not see a single scenario that would cause the construction of this pipeline to be stopped," Andy Calitz, LNG Canada's chief executive officer, said in an interview in Vancouver. TransCanada is planning to build the pipeline that will carry gas from northeastern British Columbia's prolific Montney shale to the coastal export plant. The entire project is within British Columbia and was authorized by the provincial regulator.

But a private citizen in Smithers, B.C., filed a legal challenge, arguing that the pipeline requires National Energy Board approval. The federal regulator agreed in December to consider the jurisdictional challenge and will hear arguments later this month. Any

decision by the NEB could be appealed in the courts. "What I am clear about is that this pipeline, by the time that happens, will be in advanced construction," Calitz said.

Officials dispute artifacts found at B.C. gas pipeline work site

(The Canadian Press; March 11) - Indigenous artifacts found at the construction site of a contentious gas pipeline project were likely not in their original location, said British Columbia's energy regulator. The Unist'ot'en clan, a hereditary house group of the Wet'suwet'en First Nation that opposes the project, complained last month that their supporters found two ancient stone tools and observed other artifacts at the site where TransCanada is building a pipeline to serve the LNG Canada project in Kitimat, B.C.

The company suspended work while the B.C. Oil and Gas Commission investigated. The commission said investigators found stone artifacts on top of frozen clay soils and the B.C. Forestry Ministry is working to return the items to Indigenous communities. "The soils upon which the artifacts were found would not typically contain any such cultural artifacts and this was likely not their original location," the commission said. "However, a definitive determination on their exact location of origin cannot be made."

The commission said the area had been logged twice, prepped, and replanted, and all soil layers where cultural artifacts would typically be found had been removed and were at some distance from where the items were found. The Unist'ot'en clan said an archeologist from the Smithsonian Institution estimated one of the tools dates back as far as 3,500 years. The Unist'ot'en clan said March 11 the artifacts were recovered from a site that "had been heavily disturbed" by pipeline construction bulldozers.

U.S. exports totaled 330 LNG carrier cargoes in 2018

(Houston Chronicle; March 11) - The number of U.S. LNG export cargoes grew to nearly 500 shipments in 2018, Department of Energy data shows. Four LNG facilities owned by three companies exported a combined 483 shipments in 2018, marking an 84 percent increase from the 262 cargoes in 2017. Three of the facilities exported 330 cargoes using large-volume carriers in 2018. The fourth facility sent out 153 shipments in smaller tanks, often 40-feet long, known in the industry as ISOs, the data shows.

Nearly 82 percent of the U.S. LNG carrier exports in 2018 went to 10 nations. South Korea took the most at 73, followed by Mexico with 53 shipments and Japan with 37 cargoes. There were only two destinations for LNG export cargoes using ISO containers in 2018. The Bahamas received 102, while Barbados received 51 shipments.

Combined, the exports totaled nearly 1.1 trillion cubic feet of gas, equal to 14 percent of the 7.5 tcf produced in Texas during 2018. Cheniere Energy accounted for 282 of the larger LNG cargoes in 2018 from its terminals in Louisiana and Texas. Dominion Energy accounted for 48 cargoes from its LNG terminal in Maryland. American LNG Marketing sends out gas in ISO tanks from its small facility in South Florida. Exports are scheduled to start this year from three more terminals in Texas, Louisiana, and Georgia.

U.K. industry group says shale gas could fully meet demand by 2030s

(Bloomberg; March 11) - Britain's shale gas production has the potential to be as good as the best performing shale basin in the U.S. — the Marcellus. That's the central finding from the body responsible for promoting onshore gas exploration, which tested levels at three sites across the north of England. The industry group U.K. Onshore Oil and Gas (UKOOG) has increased its estimate of shale well productivity to 5.5 billion cubic feet per lateral well, up 72 percent from a 2013 estimate by a different group.

The U.K.'s progress on hydraulic fracturing has been painstaking, however, held back by tight government controls and fervent public opposition. Closest to commercially producing gas is Cuadrilla Resources, which has said it is sitting on top of a high-quality resource but can't do anything until regulations are relaxed. The rules halt fracking if a seismic event of 0.5 or above is detected. Cuadrilla has had to halt drilling several times under the rules. The government has said it has no plans to review the regulations.

"The potential is enormous," said Ken Cronin, chief executive officer of UKOOG. "We know that the U.K. is now beginning to rely on LNG and Russian gas. Now is the time to look at what's beneath our feet." If Britain rolled out 100 shale gas sites across the country, net gas imports would almost be eliminated and the country could see annual gas production peak at 1,400 billion cubic feet by the early 2030s, UKOOG said.

Opponents challenge floating LNG import terminal in Croatia

(Reuters; March 13) - Residents and municipal authorities on the Croatian island of Krk, a major tourist destination, have vowed to fight construction of a floating liquefied natural gas import and storage terminal due to begin in a few weeks. The government decided in January to co-finance the terminal at the town of Omisalj, splitting the cost of the roughly \$250 million project with the European Union. The intent is to reduce Croatia's dependence on Russian gas imports.

Omisalj Mayor Mirela Ahmetovic said the terminal violates urban planning rules, which come under the control of municipal authorities. The government had also not

conducted a proper environmental study, she said. The town has asked the Constitutional Court to assess whether a law the government recently approved to accelerate the project is unconstitutional, she added. Environmentalists in Omisalj managed to halt plans to build a port at the town for Russia's oil exports 15 years ago.

Croatian Energy and Environment Minister Tomislav Coric insists the project will not harm the environment. The terminal is due to start operating on Jan. 1, 2021, despite weak initial demand for its services. So far it has received binding bids for just one-fifth of its LNG import capacity. The terminal targets southeastern and central European markets besides Croatia.

India wants flexible terms for U.S. LNG

(Reuters; March 13) - GAIL India has called on U.S. liquefied natural gas producers to offer more flexibility in contract terms as the state-owned gas distribution company hunts for new supplies starting the middle of the next decade. India last year was the fifth-largest importer of U.S. LNG. The country is looking to double the share of gas in its energy mix by 2030 as India's oil-fired power plants convert to the cleaner fuel.

Shri B.C. Tripathi, chairman of GAIL India, said at the CERAWeek energy conference on March 13 in Houston that his company is in discussions with U.S. gas exporters for new supplies starting 2024-2025. "Traditional suppliers like Qatar or Russia have shown a lot of flexibility in recent past where they have modified their contracts, renegotiated their contracts, aligned them to the market," Tripathi said. "However, U.S. contracts are purely a tolling model," charging a fixed fee for liquefaction, regardless of the market.

As much of the world's LNG from outside the United States is priced against oil, U.S. LNG becomes less competitive when oil prices drop, he said. The company has 20year contracts to buy 5.8 million tonnes per year of U.S. LNG, split between Dominion Energy's Cove Point plant in Maryland and Cheniere Energy's Sabine Pass facility in Louisiana. GAIL currently sends up to 75 percent of its U.S. LNG supplies back to India, Tripathi said, and sells the rest on the spot market. He said 100 percent of the U.S. LNG will be shipped to India when more gas pipelines and regasification terminals are ready.