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China's forecasts of domestic gas production likely over-optimistic

(Radio Free Asia commentary; Sept. 30) – China appears to be counting on inflated forecasts of domestic gas production as concerns grow over the country's increasing dependence on gas imports. Gas demand has been climbing since the winter of 2017-2018, when the government prematurely ordered northern cities to switch from heating with coal to reduce smog. The government's push set off a scramble to finish pipeline networks, build storage facilities and open new liquefied natural gas import terminals.

China's national oil companies struggled to increase domestic gas production to keep up with demand after sudden price spikes and shortages left homes, schools and factories without the cleaner-burning fuel. In 2017, domestic output of gas rose 8.5 percent while consumption jumped 15.3 percent, according to official data. Last year, production increased 7.5 percent as consumption soared 18.1 percent, the National Bureau of Statistics and the National Development and Reform Commission said.

The widening gap between production and consumption has left China with much the same problem of import dependence for gas as with oil. Official figures show China relied on imports for 44.5 percent of its gas in 2018. "China's reliance on oil and gas imports is growing too rapidly with oil topping 70 percent and gas moving toward 50 percent," said Lin Boqiang, director of Xiamen University's Energy Economics Institute.

The government has predicted a 20-fold increase in shale gas output by 2035, which could require over 500 new wells a year between 2019 and 2035. The numbers suggest the government is sticking with unrealistic growth targets. "These numbers do look very, very high relative to what has been done so far in developing shale and tight gas," said Mikkal Herberg, of the Seattle-based National Bureau of Asian Research.

Coal piles up in Europe as utilities burn more gas

(Bloomberg; Sept. 26) – Coal stockpiles are surging at some of Europe's largest ports as utilities increasingly favor cleaner gas in power generation. Coal reserves at ports in Rotterdam, Amsterdam, and Vlissingen in the Netherlands rose last week to the highest levels since July. Mild weather this autumn has added to the stockpiles, while solar and wind continue taking market share from fossil fuels. "European coal burn is at a very low level because of ultra-low gas prices," said Hans Gunnar Navik, at StormGeo in Oslo.

The latest statistics are yet another sign of how economics is supporting nations that want to wean themselves off the dirtiest fossil fuel to curb emissions to slow climate change. For most of this decade it was more profitable to burn cheap coal in Germany for power sales, but that flipped early this year when the oversupply of gas cut into coal's economics. "It has made it harder for coal generators to compete economically against gas," said Joe Aldina, head of coal analytics at S&P Global Platts in New York.

In the U.K., coal-fired power generation fell below 1 percent of the total in the second quarter, the government said Sept. 26. That's the lowest since the 19th century. Coal stocks are well-above average levels for the past five years. In the gas market, a record number of liquefied natural gas cargoes to Europe this year, coupled with stable pipeline gas flows from Russia and Norway, helped fill up storage levels much earlier than usual this fall. Gas prices have plunged almost 60 percent in the past year.

Texas county approves \$373 million tax break for LNG project

(Houston Chronicle; Oct. 1) – Texas' Cameron County commissioners on Oct. 1 approved a \$373 million tax abatement deal for Annova LNG to build an export terminal at the Port of Brownsville. Some 80 supporters and 50 opponents of the controversial LNG project packed the meeting. Commissioners voted 3-2 in favor of the 10-year tax break. Under the deal, Annova will make a one-time payment of \$5.5 million for community projects and 10 annual payments of \$500,000 to the county in lieu of taxes.

The money-saving deal for Annova holds as long as it employs more than 100 people and ensures that at least 35 of them are locals. The company is one of three developers seeking to build LNG export terminals in Brownsville. Annova's project, which is awaiting approval from federal regulators, would export up to 6 million tonnes of LNG per year. But the project and those proposed by two other companies — NextDecade and Texas LNG — face stiff opposition from a coalition of shrimpers, fishermen, environmentalists, neighbors, and communities working under the banner Save RGV from LNG.

Citing environmental and safety concerns, opponents have vowed to continue the fight. "By approving this terrible tax break deal, Cameron County commissioners failed their constituents who will bear the costs of Annova LNG's polluting facility," said Rebekah Hinojosa, an organizer for the Sierra Club. Two years earlier, the commission voted 4-1 in favor of giving a similar tax abatement to NextDecade. Annova has not sold contracts for any of its planned production. The company said it needs commitments for two-thirds of the plant's output before making a final decision to go forward with the project.

Details remain unresolved for India's deal to invest in U.S. LNG

(The Hindu; India; Sept. 29) - One week after it was announced with considerable fanfare at the start of Indian Prime Minister Narendra Modi's visit to the United States, several loose ends are yet to be tied up for the \$2.5 billion investment planned by LNG importer, Petronet, in developer Tellurian, which wants to build a gas liquefaction and export terminal in Louisiana. The first sign of trouble for the deal came at the signing itself on Sept. 21, when it became clear that what was signed was not the actual agreement, but only a second memorandum of understanding.

Petronet and Tellurian in February signed a memorandum for the Indian company to take 5 million tonnes a year of LNG and an 18 percent equity stake in the project. Tellurian had promised to "make a final investment decision and begin construction in the first half of 2019," and had been negotiating to complete the agreement in time for Modi's visit. Tellurian said the new memorandum was more focused, without giving details of how it differed from the previous one or why a final agreement was not ready.

"Over the coming months, we will be negotiating contract details and aim to complete documentation in March 2020," said Joi Lecznar, senior vice president for public affairs at Tellurian. Petronet stocks plunged 7 percent when Indian markets opened Sept. 21 over news of the massive investment plan. A report by Indian news agency PTI — which Petronet did not deny — said the company's board had disfavored the Tellurian deal at a meeting in May. Reasons for the board's disquiet included major price drops in LNG and a negative experience with "locking in" contracts for a long period.

Qatar says death of long-term LNG deals is 'just a myth'

(S&P Global Platts; Sept. 30) - Qatar Petroleum, the world's largest LNG producer, is poised to announce new long-term supply deals for the fuel, despite more consumers in Asia looking for spot-market cargoes, the company's CEO told S&P Global Platts on Sept. 30. Saad al-Kaabi, who is also Qatar's energy minister, said the death of long-term LNG deals was "just a myth" and that QP's percentage of volumes going to the spot market was shrinking. QP currently sells about 80 percent of its volumes to long-term buyers, but deals expected by the end of the year will help boost that percentage.

QP has embarked on a giant LNG expansion, which will boost its capacity to 110 million tonnes per year from 77 million tonnes. The North Field expansion project is targeting first gas by 2024. The company is considering potential partners in the expansion. "We have selected a few companies," al-Kaabi said. "The one that has something that will be of benefit to us will come in and, if not, we'll just continue on our own."

One scenario could involve QP taking stakes in overseas assets in exchange for an international oil company taking a share in the LNG expansion. QP intends to retain a minimum stake of 70 percent, and funds are earmarked for the project to be completely

equity financed. "We will decide by the end of this year or the first quarter [of 2020]," al-Kaabi said of any partners. In addition, QP has sought bids for dozens of LNG carriers. Shipyards from Japan, China and South Korea are taking part, with results next year.

FERC approves start of commercial service at Georgia LNG plant

(S&P Global Platts; Sept. 30) – The Federal Energy Regulatory Commission on Sept. 30 gave the go-ahead to Kinder Morgan to put the first liquefaction train at its Georgia LNG export terminal into commercial service, amid consistent production at the facility over the past two weeks. No commissioning cargoes have shipped, however, and it was unclear when the first commercial cargo would go out, now that the terminal appears to be proceeding directly to service under its long-term sales contract with Shell.

A Kinder Morgan spokeswoman declined to answer questions about the operation of Train 1, the timing of start-up for the other nine trains being built at Elba, and whether there have been any further challenges. Elba, backed by a 20-year offtake agreement with Shell, is by far the smallest of the major U.S. LNG export terminals. At full output, the terminal could load a standard LNG carrier about every 10 days. By comparison, Cheniere Energy's Sabine Pass, Louisiana, terminal could fill a standard cargo in a day.

Kinder Morgan indicated previously that all 10 trains would be in service by early 2020. The Elba terminal near Savannah will have a capacity of 2.5 million tonnes per year when completed. There are five other major U.S. LNG export terminals in operation. The same as all but one of the others, Elba Island started life as an LNG import terminal. Confronted with the steep increase in U.S. shale gas production and unused or underused LNG import terminals, the owners opted to get into the export business.

Total completes purchase of Anadarko's stake in Mozambique LNG

(S&P Global Platts; Sept. 30) - Total has closed its \$3.9 billion acquisition of a 26.5 percent operating stake in the Mozambique LNG project, the French major said Sept. 30, as it continues the rapid expansion of its global LNG portfolio. Total agreed in May to buy the African assets of Anadarko Petroleum for \$8.8 billion once Occidental Petroleum completed its takeover of Anadarko. Purchase of the Mozambique stake is the first part of the deal to wrap up. Early work has started on the gas project.

Closing talks are still ongoing in relation to Anadarko's assets in Algeria, Ghana, and South Africa, Total said. "Mozambique LNG is one-of-a-kind asset that perfectly fits with our strategy and expands our position in LNG," Total CEO Patrick Pouyanne said. The \$20 billion-plus project — expected to come online in 2024 — includes development of the Golfinho and Atum fields in Mozambique's Offshore Area 1 and construction of a two-train liquefaction plant with a capacity of 12.88 million tonnes a year.

Total said Mozambique LNG was "largely derisked," with almost 90 percent of the output sold through long-term contracts with key buyers in Asia and Europe. Partners in Offshore Area 1 are Total (26.5 percent), Japan's Mitsui (20 percent), Mozambique's national oil company Empresa Nacional de Hidrocarbonetos (15 percent), India's ONGC Videsh (10 percent), India's Beas Rovuma Energy Mozambique (10 percent), India's BPRL Ventures Mozambique (10 percent), and Thailand's PTTEP (8.5 percent).

Developer applies for offshore LNG export terminal in U.S. Gulf

(S&P Global Platts; Sept. 27) - West Delta LNG has asked the U.S. Maritime Administration (MARAD) for permission to build a deepwater port for a liquefied natural gas export project about 12 miles off Louisiana, with capacity of up to 6.1 million tonnes per year of LNG. The fixed-platform project, offshore Plaquemines Parish, would join a slew of Gulf Coast LNG exports proposed to enter service by the mid-2020s.

On its website, LNG 21, the parent company of West Delta LNG, said federal waters offshore Louisiana offer the advantage of streamlined permitting over land-based terminals that go through the Federal Energy Regulatory Commission. Offshore components of the project include an LNG production and storage unit, a loading platform and marine berth, along with support facilities including a 30-inch-diameter subsea pipeline, West Delta LNG said in its application to MARAD, filed Sept. 26.

Onshore, the project includes a gas pretreatment plant in Plaquemines Parish capable of processing about 900 million cubic feet a day of feed gas. The gas would be shipped from the plant via a proposed pipeline that runs onshore for 4.3 miles and then extends 15.5 miles to terminate at the offshore deepwater platform.

Head of Oil Search in Alaska will take over as managing director

(Sydney Morning Herald; Oct. 1) - Energy explorer and producer Oil Search's outgoing boss Peter Botten said Papua New Guinea's government was showing "pragmatism" in dealing with resources companies after it came to power in May promising to secure more revenue from the country's natural resources. The Australia-listed company on Sept. 30 confirmed that Keiran Wulff, who heads its Alaska operation, would be its next managing director, succeeding Botten, who has spent 25 years leading Oil Search and building relationships in Papua New Guinea considered vital to the company's success.

Oil Search faced uncertainty following the ousting of the resource-rich but impoverished country's prime minister Peter O'Neill in May. The new government, led by James

Marape, promised to increase the country's share of revenue from resources projects. That includes \$14 billion in two liquefied natural gas projects led by Oil Search, Total, and ExxonMobil. The government gave the Total-led project the go-ahead last month and will work next with Exxon. Botten said that approval showed the government was listening to resources companies and that there was "pragmatism on all sides."

"It's always possible that there will be policies and directions in the country — any country, actually — that can result in challenges to the resources sector," Botten said. "We're working our way through that in PNG right now." Oil Search said Wulff, who serves as executive vice president of Oil Search Alaska, will take the reins as managing director in February next year. All of Oil Search's revenue comes from its operations in Papua New Guinea, though it branched out into Alaska early last year.

Argentina continues its entry into LNG export trade

(S&P Global Platts; Sept. 26) - Argentina's YPF is filling its first full-size load of liquefied natural gas produced at a floating liquefaction facility, while looking for buyers to take the cargo in October, a company official said. The loading operation is moving about 90 million cubic feet of gas per day as LNG, which could take a month at that rate to fill a full-size LNG carrier. Exporting LNG is a new business for state-backed YPF as it seeks to offload a growing supply of gas from the country's Vaca Muerta shale play.

The floating liquefaction terminal, which was installed early this year, has already made one shipment on the spot market as a test run. YPF's plan is to broaden its sale of LNG to avoid a glut of gas supply as production outpaces domestic demand. Vaca Muerta, one of the world's biggest shale plays, has led a recovery in Argentina's gas production to 5 billion cubic feet per day in July from a 16-year low of 4 bcf per day in 2014.

As production increases — the government forecasts it could double by 2023 — Argentina is looking to build its export sales. "If we want a large development of Vaca Muerta for gas, we clearly need a liquefaction plant," YPF CEO Daniel Gonzalez said of a proposed large-scale LNG operation. A decision on proceeding with a four- to fiveyear, \$5 billion LNG terminal could be made in 12 to 18 months, depending on factors including the future of LNG prices, he said.

U.S. firm will build and operate Philippines' LNG import terminal

(Reuters; Sept. 27) - U.S.-based Excelerate Energy will proceed with its floating LNG import terminal project, Luzon LNG, after receiving the go-ahead from the Philippines. "Excelerate will develop, design, permit, construct, finance, and operate the terminal," the company said after reporting a notice to proceed from the Philippines government. It will also arrange the supply of liquefied natural gas to the terminal. The facility will be

set up in the Bay of Batangas on the main island of Luzon, near power plants running on Malampaya natural gas, the country's Department of Energy said Sept. 27.

The terminal should be up and running by the third quarter of 2021, Energy Secretary Alfonso Cusi said. The Southeast Asian country will rely on imported natural gas to feed some of its power plants currently running on gas from the country's Malampaya field, which is expected to be depleted within the next decade. The Philippines also is looking at approving three more LNG import operations to help meet demand for the fuel.

Bangladesh puts together supplier list for 2020 LNG imports

(Reuters; Sept. 29) - Bangladesh has shortlisted 17 companies it will turn to next year as it plans to buy about 1 million tonnes of liquefied natural gas to capitalize on lower prices for the fuel, two company officials said. Petrobangla, in charge of LNG imports into the South Asian country, plans to sign sales-and-purchase agreements with the shortlisted companies after it receives Cabinet approval, the officials said.

"We are moving ahead with plans to import LNG through the spot market by shortlisting 17 companies out of a total of 43," one of the Petrobangla officials said. The companies shortlisted are Mitsui, Marubeni, Osaka Gas, AOT Energy, Diamond Gas, Summit Oil & Shipping, Excelerate Energy, JERA, Gazprom, Vitol, Trafigura, Woodside Petroleum, Eni, Petronas, CNOOC, Cheniere, and Chevron, the official said.

Asian spot LNG prices are their lowest in years due to new supply entering the market, and as demand growth slows in major economies. Traders that sign agreements with Petrobangla will be able to participate in bidding when the importer orders a cargo. The nation of 160 million people is expected to become a major LNG importer, alongside Pakistan and India, as its domestic gas supplies fall short. Bangladesh's annual LNG imports could nearly triple to 10 million tonnes over the next three to four years, Tawfiq-e-Elahi Chowdhury, energy adviser to Bangladesh's prime minister, said Sept. 26.

Thailand plans large boost in LNG import capacity

(S&P Global Platts; Oct. 2) - Thailand's Map Ta Phut Phase 3 liquefied natural gas import terminal expansion has focused attention on Southeast Asia's demand growth potential and future balancing role in global markets for the fuel, as oversupply concerns extend into the mid-2020s. Thailand's Gulf PTT Tank Consortium signed a 30-year contract with the Industrial Estate Authority of Thailand (IEAT) on Oct. 1 to add 5 million tonnes per year of import capacity by 2025.

Map Ta Phut, Thailand's only LNG import terminal, has a capacity of 10 million tonnes per year and received half that in 2018 with S&P Global Platts Analytics forecasting the country's consumption to rise to nearly 10 million tonnes by 2022. Thailand is the biggest LNG consumer in Southeast Asia, followed by Singapore, Indonesia, and Malaysia, while emerging buyers like Vietnam and the Philippines will enter the market in the coming years as they seek reliable energy sources for their growing economies.

The growth of Southeast Asia, the world's third most populous region and fastestgrowing LNG demand center, is so significant that the end of LNG market oversupply is likely, in part, to be determined by how quickly these new demand centers absorb the excess volume. The region's demand is set to more than double from 12 million tonnes in 2018 to 25 million tonnes a year by 2025, driven by upstream output declines, limited pipeline connections and growing consumption from the power and industrial sectors.

U.S. sanctions hit Yamal LNG shipping joint venture

(Reuters; Sept. 30) - U.S. sanctions on two units of Chinese shipper COSCO hit the liquefied natural gas tanker industry on Sept. 30 as U.S.-listed Teekay LNG said its shipping joint venture in Russia had been "blocked" because of its ties to COSCO. The U.S. imposed sanctions on COSCO Shipping Tanker Co. and subsidiary COSCO Shipping Tanker Seaman & Ship Management Co. for allegedly carrying Iranian oil.

Teekay LNG said its 50-50 Yamal LNG Joint Venture had been deemed a "blocked person" under the sanctions because its partner, China LNG Shipping, is 50 percent owned by COSCO. "As a result ... the Yamal LNG Joint Venture also currently qualifies as a 'blocked person'," Teekay said, referring to the U.S. Treasury Department's Office of Foreign Assets Control. "Teekay Group has not traded and will not trade with Iran and will not act in contravention of any trading sanctions," Teekay said.

The joint venture owns Arc7 ice-class LNG carriers capable of navigating through Arctic ice, making them key to transporting gas from Novatek's Yamal plant in northern Russia. The LNG plant is surrounded by thick ice during the winter. The Arc7 tankers take LNG westward to Europe in winter and eastward to Asia in summer when ice along the Northern Sea Route dissipates sufficiently to allow passage. Teekay said it was working with its partners to resolve the issue.

Israel will sell more gas to Egypt under 15-year deal

(Reuters; Oct. 2) - Israel is significantly increasing the amount of natural gas it plans to export to Egypt under a landmark deal, Israeli energy companies said Oct. 2. Partners in Israel's Leviathan and Tamar offshore gas fields agreed last year to sell \$15 billion

worth of gas via an existing pipeline to a customer in Egypt in what Israeli officials called the most significant deal to emerge since the neighbors made peace in 1979.

The amended agreement sees a 34 percent increase in exports to about 3 trillion cubic feet over 15 years, averaging 550 million cubic feet per day and with its highest volumes starting in a few years. Texas-based Noble Energy, Israel's Delek Drilling and Ratio Oil own Leviathan. Noble, Delek Drilling, Isramco, and Tamar Petroleum are leading partners in the Tamar field. The customer in Egypt is a private firm, Dolphinus Holdings, that plans to supply large industrial and commercial consumers in Egypt.

The deal will give Israel a new export market for the gas it discovered in the eastern Mediterranean. It will also help Egypt position itself as an energy re-export hub for gashungry Europe. Despite impressive gains in domestic gas production and resumption of liquefied natural gas exports, Egypt still needs more gas. Its domestic demand for gas will steadily rise about 30 percent over the next two decades, causing a supply shortage within five years, according to Wood Mackenzie, a U.K.-based energy research firm.

U.S. shale oil production growth starting to slow down

(Wall Street Journal; Sept. 29) - The U.S. shale boom is slowing as oil field innovation plateaus — and just when shale's importance in global markets has reached new highs following an attack on the heart of Saudi Arabia's oil infrastructure. U.S. oil production increased by less than 1 percent during the first six months of the year, according to the Energy Department, down from nearly 7 percent growth over the same period last year.

Unlike several years ago, when shale production fell due to a global price collapse, this year's slowdown is driven partly by operating issues, including wells producing less than expected after being drilled too close together and sweet spots running out sooner than anticipated. It raises the prospect that technological and engineering gains that allowed shale companies to unlock record amounts of oil and gas have begun to level off.

U.S. oil output is on track for an average of 12.2 million barrels a day this year, up from last year's average of 11 million barrels a day, the Energy Department said. But activity has slowed recently, said a September report by the Dallas Federal Reserve. "We're getting closer to peak production and we are reaching the peak of the general physics of these wells," said James West, a managing director at Investment bank Evercore ISI.

Some forecasters still believe U.S. shale has many years of growth ahead. Consultant Rystad Energy estimates shale production will peak at roughly 14.5 million barrels a day around 2030. One factor is the increasing shale footprint of majors such as Chevron and ExxonMobil, which are among the fastest-growing producers in the Permian Basin of Texas and New Mexico, investing heavily in factory-style shale production.

Ecuador wants to boost oil output, so it will quit OPEC

(Reuters; Oct. 1) - Ecuador, one of the smallest members of the Organization of the Petroleum Exporting Countries, said Oct. 1 it will leave the 14-nation bloc on Jan. 1 due to the country's fiscal problems. The Andean nation is attempting to increase its crude production to raise more income and has on multiple occasions broken its output quota fixed by OPEC. "The decision is based on the issues and internal challenges that the country must take on related to fiscal sustainability," the energy ministry said.

Ecuador produces about 545,000 barrels per day of crude but is struggling with tight liquidity because of its deep fiscal deficit and hefty foreign debt. It reached a \$4.2 billion deal with the International Monetary Fund in February that allowed it to receive an immediate disbursement of \$652 million and opened the door for an additional \$6 billion in loans. Ecuador had in February asked OPEC for permission to produce above its quota, but the government never confirmed if the organization responded to the request.

The country's exit will cause barely a ripple for OPEC, the organization's former secretary general told Reuters. "This won't cause any problem for OPEC," said Rene Ortiz, who is also a former Ecuador energy minister. "This is more a political issue."