

LNG Review January 2020 - Recent issues and events - Hiroshi Hashimoto*

Introduction

In early 2020, spot LNG prices continue being assessed at their lowest level in the history. While the year 2019 saw the largest aggregated capacity of LNG projects reached FIDs (final investment decisions) and the industry is expected to have another high level in 2020, a focal point in the new year is on how those LNG projects that have already been sanctioned and those expecting new FIDs will advance to next stages, as planned by sponsors.

Japan imported 6.81 million tonnes of LNG in December 2019 following 6.27 million tonnes in November, and 77.33 million tonnes during the 2019 calendar year, or 6.7% less than it did in 2018. The three figures were the lowest for the respective periods of the year since 2010. The average landed price for the year was USD 10.00 per million Btu (calculated by the author), almost the same as 2018, but very far from the average assessed spot LNG price under USD 6 for delivery during the year. Korea imported 40.90 million tonnes of LNG in 2019, a 7.7% decrease year-on-year.

According to preliminary figures of China's trade statistics, the country imported 60.25 million tonnes of LNG in 2019, a slightly-less-than-12% increase year-on-year. The country imported 0.8% less year-on-year, or 36.31 million tonnes of pipeline gas in the year. As a total, 96.56 million tonnes of natural gas, or slightly less than 7% more than 2018, was imported. In December alone, 6.46 million tonnes of LNG was imported in China, which was smaller than 6.81 million tonnes imported in Japan in the same month.

The Australian government stated that the Australian Domestic Gas Security Mechanism (ADGSM), introduced in 2017, had helped lower domestic gas prices while contributing to more secure supplies for Australian consumers. The government will keep the ADGSM in place until 2023 and is going to consider options to establish a prospective national gas reservation policy.

* The writer belongs to Gas Group, Fossil Fuels and International Cooperation Unit. Some information pieces that some readers may consider very important may not be included due to different reasons.

[Asia Pacific]

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Tokyo Gas opened its fourth hydrogen refuelling station, capable of refuelling 20 fuel-cell (FC) buses per day. The city-gas processed at the station will be carbon neutral.

Chugoku Electric Power received at its Yanai terminal its first LNG cargo from the Sabine Pass project in the United States at sold by Total Gas and Power.

Saibu Gas shipped 15 ISO tank containers of LNG, totalling 27 tonnes, from its Hibiki LNG terminal to China's JUSDA Energy Technology (Shanghai) Co., Ltd. On trial basis.

According to figures of Korea's trade statistics, the country imported 40.90 million tonnes of LNG in 2019, a 7.7% decrease year-on-year. Korea Gas Corporation (KOGAS) introduces new pricing for power generators as part of its efforts to ensure stable supply and provide more options to its customers, the company said. The company will charge different prices to generators through negotiations. The change will apply to power utilities whose contracts with KOGAS have expired, as well as to new entrants who are set to enter the gas power market from January 2022, KOGAS said.

Tokyo Gas Engineering Solutions (TGES), Mitsui & Co., and Gulf Energy Development Public Company Limited jointly established Bangkok Smart Energy Company Limited, and will partner with One Bangkok Co., Ltd., a TCC group company, to invest in a district cooling and power distribution business in Thailand.

Cambodian Natural Gas and China's CNOOC Gas Power Group teamed up in importing LNG in containers to Cambodia.

According to NDRC (National Development and Reform Commission), China's natural gas production and consumption during 2019 were respectively 177.7 bcm and 306.7 bcm, increasing year-on-year by 11.5% and 9.4%, compared to growth in consumption by 18% in 2018, by 15% in 2017, and by 7% in 2016. The country's shale gas production apparently increased by 40% to 15.7 bcm in 2019. According to preliminary figures of China's trade statistics, the country imported 60.25 million tonnes of LNG in 2019, a slightly-less-than-12% increase year-on-year. The country imported 0.8% less year-on-year, or 36.31 million tonnes of pipeline gas in the year. As a total, 96.56 million tonnes of natural gas, or slightly less than 7% more than 2018, was imported. In December alone, 6.46 million tonnes of LNG was imported in China, only slightly smaller than 6.81 million tonnes in Japan in the month.

Cosco Shipping Energy Transportation signed a supplemental agreement with Dalian Shipbuilding Industry to upgrade a VLCC to LNG power.

The Mundra LNG terminal, India's fifth and Gujarat's third, received its first LNG cargo from Qatar. The terminal is developed by Gujarat Government-run companies (75%) and Adani Group (25%). GAIL hired specialised trucks to transport imported LNG from Dahej in Gujarat to Bhubaneshwar in Odisha. India is expected to launch the 11th city gas licensing round soon, country's petroleum and natural gas minister said.

Excelerate Energy and Engro Elengy Terminal Limited (EETL) signed a Heads of Agreement (HOA) for the expansion of the terminal in Port Qasim, Pakistan. Excelerate will exchange its existing floating storage and regasification unit (FSRU) *Exquisite* with a newbuild, *Hull 2477*, under construction at Daewoo Shipbuilding and Marine Engineering (DSME) shipyard. *Hull 2477* will increase send-out capacity by more than 150 million cubic feet per day (1.13 million tonnes per year) and increase its LNG storage capacity from 150,900 m³ to 173,400 m³. Excelerate will take delivery of *Hull 2477* in April 2020, and EETL projects beginning expanded operations before winter 2020. The terminal, Pakistan's first, began operations in March 2015. EETL is a joint venture between Engro Corporation and Royal Vopak of the Netherlands. In September 2019, Excelerate and Maran Gas Maritime (MGM) signed a five-year bareboat charter agreement for *Hull 2477*. Excelerate has the option to purchase the FSRU at any time during the duration of the contract.

Qatargas delivered the first Q-Flex cargo of LNG to the 'SUMMIT LNG' floating storage and regasification unit (FSRU) offshore Bangladesh.

The Australian government said that the Australian Domestic Gas Security Mechanism (ADGSM) had helped lower domestic gas prices while contributing to more secure gas supplies for Australian consumers. Short term gas prices have fallen 46% between February 2017 and December 2019. However, the review recognised that some longer-term price offers remain high. Therefore, the government will keep the ADGSM in place until its scheduled end in 2023. In addition, the government is going to work with states and territories to consider options to establish a prospective national gas reservation policy.

Western Australia's Environmental Protection Authority (EPA) has recommended approval for the State component of a gas pipeline, part of the Scarborough Gas Field Project.

Malaysia's PETRONAS LNG signed a Heads of Agreement (HOA) with Shenergy to supply 1.5 million tonnes per year of LNG to its Wuhaogou terminal in China for 12 years starting from 2022. The deal also involves a shipping collaboration to construct and charter new mid-sized LNG vessels.

[North America]

Natural gas exports from the United States reached new highs in 2019. New LNG export facilities came online in 2019: the first train at Cameron LNG; the first and second at

Freeport LNG; and the first five Moveable Modular Liquefaction System (MMLS) units at Elba Island. Natural gas production reached new highs in 2019. Substantial new pipeline capacity supported the increased production. At the beginning of 2020, working natural gas stocks stood 20% more than a year ago and 2% more than the five-year (2015 - 19) average. Henry Hub prices were the lowest they have been at the start of the year in a decade.

According to SHORT-TERM ENERGY OUTLOOK, EIA estimates that dry natural gas production in the United States will average 94.7 billion cubic feet per day (Bcf/d) (719 million tonnes per year) in 2020, up 2.9% from 2019. Dry natural gas production set a new record in 2019, averaging 92.0 Bcf/d. In 2021, EIA's forecast production declines by 0.7% to an average of 94.1 Bcf/d.

The U.S. Department of Energy (DOE) has released its response to public comments on its 19 September 2019 report *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update ("LCA GHG Update")*. DOE's response concludes that the "LCA GHG Update, combined with the observation that many LNG-importing nations rely heavily on fossil fuels for electric generation, suggest that exports of U.S. LNG may decrease global GHG emissions. . . the LCA GHG Update is both fundamentally sound and supports the proposition that exports of LNG from the lower-48 states will not be inconsistent with the public interest. . . DOE will consider each pending and future non-FTA application as required under the NGA and NEPA, based on the administrative record compiled in each individual proceeding."

The White House and its Council on Environmental Quality (CEQ) unveiled amendments to the scope of NEPA regulations, including plans to scrap the analysis of cumulative impacts and those effects deemed to arise as an indirect consequence of a project. The proposed amendments include a one-year time limit for environmental assessments (EAs) and a two-year limit for environmental impact statements (EISs).

Based on information distributed by the Department of Energy (DOE), the United States exported 3.93 million tonnes of bulk LNG in November 2019 and 33.21 million tonnes during the first eleven months of the year, a 66% year-on-year increase.

Cameron LNG requested that FERC grant a 72-month extension of time, until 5 May 2026, to construct and place into service the Expansion Project facilities. The JV Partners anticipate that a final investment decision (FID) could be reached with respect to the Cameron LNG Expansion Project by the middle of 2021.

Sempra Energy and Saudi Aramco announced an Interim Project Participation Agreement (IPPA) for the Port Arthur LNG project in Texas. The companies signed a heads of agreement (HOA) in May 2019 for the purchase of 5 million tonnes per year of LNG and a 25% equity investment in the project.

Freeport LNG Train 2 began commercial operation, while Train 3 remains on track for a commercial start date in May. Osaka Gas offered two LNG cargoes from the Freeport LNG project for delivery into Europe later in the year. Buckeye Partners, L.P. announced that the IFM Global Infrastructure Fund (IFM GIF) has contributed its 57.6% equity interest in Freeport LNG Development, L.P.'s Train 2 into Buckeye.

McDermott announced that it has the support of more than two-thirds of all its funded debt creditors for a restructuring transaction that will equitize nearly all the Company's funded debt. The restructuring transaction will be implemented through a prepackaged Chapter 11 process.

FERC issued an order authorizing Kinder Morgan affiliates Elba Liquefaction and Southern LNG Companies to commence service for LNG export activities from the Moveable Modular Liquefaction System No. 4. Meanwhile, Kinder Morgan said that it is unlikely to develop the Gulf LNG export project in the near future.

Annova LNG announced that it has signed a Precedent Agreement with Enbridge affiliate Valley Crossing Pipeline, LLC (VCP), providing transportation for its proposed 6.5 tonnes per year LNG facility in Brownsville, Texas. Annova LNG is scheduled to commence commissioning in 2024 and commercial operations in early 2025.

Eagle LNG selected Matrix Service for the engineering, procurement, fabrication and construction of the Jacksonville LNG Export Facility. The facility will have a production capacity of approximately 1.65 million LNG-gallons per day (1 million tonnes per year) with a marine terminal and truck-loading capabilities. Eagle LNG received both FERC authorization and DOE LNG export approvals for the facility in late 2019.

Edge LNG has been selected by an undisclosed producer to capture and liquefy gas at its stranded wells in Tioga County in the Marcellus basin. Edge LNG will deploy its mobile, truck-delivered LNG equipment clusters to the well site.

Attorneys general from 16 states, including New York, California, and Maryland, filed comments with the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) opposing the administration's proposal to authorize shipments of LNG by rail.

[Middle East]

The Sharjah National Oil Corporation (SNOC) and ENI announced a successful new discovery of natural gas and condensate onshore at the Mahani field in Sharjah. The discovery represents the first onshore discovery of gas in the Emirate since the early 1980's.

Bahrain LNG completed the mechanical construction and commissioning of the Terminal. The FSU Bahrain Spirit can redeploy on short-term trade.

Qatar Petroleum (QP) and Kuwait Petroleum Corporation (KPC) entered into a long-term Sale and Purchase Agreement for the supply of up to 3 million tonnes per year of LNG for 15 years to Kuwait. Deliveries to Kuwait's new LNG receiving terminal at Al-Zour Port will commence in 2022.

India's Oil Minister said the country needs to look into the pricing mechanism of existing long-term gas supply contracts with Qatar. Qatar's energy minister said while Qatar is not willing to renegotiate prices under its LNG contracts with India, Qatar is willing to supply more volumes of LNG to India.

Noble Energy provided an update on the startup of the Leviathan natural gas field, offshore Israel. First gas sales from Leviathan commenced on 31 December 2019. Natural gas sales have been established to Israel, Jordan, and Egypt. Gas sales to Jordan began on 1 January 2020, with gas exports to Egypt beginning on 15 January. Gas sales into Egypt are utilizing the EMG Pipeline as planned.

[Africa]

The Nigeria Liquefied Natural Gas Limited (NLNG) and Total Gas and Power (TGP) sealed a 10-year sales and purchase agreement (SPA) for 1.5 million tonnes per year of remarketed volumes from NLNG's Trains 1, 2 and 3.

Eni signed a new long-term contract for the purchase of 1.5 million tonnes per year of LNG from the existing Trains 1, 2 and 3 of Nigeria LNG Limited (NLNG), in addition to 1.1 million tonnes executed in December 2019, allowing Eni to increase its global LNG portfolio starting from 2021.

The Government of Senegal granted the Exploitation Authorisation for the Sangomar Field Development. The Development concept is a stand-alone floating production storage and offloading (FPSO) facility of a production capacity of 100,000 bbl/day, with first oil targeted in early 2023. The joint venture comprises Woodside Energy, Capricorn Senegal (a subsidiary of Cairn Energy PLC), FAR Ltd and Petrosen (the Senegal National Oil Company).

[Europe / Russia]

The first live pilot to inject zero carbon hydrogen into a gas network is operational in the United Kingdom. The HyDeploy demonstration is injecting up to 20% (by volume) of hydrogen into Keele University's existing natural gas network, feeding 100 homes and 30 faculty buildings. The 20% hydrogen blend is the highest in Europe, together with a similar project being run by Engie in France.

France recorded an 87% increase in LNG inflows to 219 TWh (14.49 million tonnes), the highest in the last 10 years. Following Elengy's call for subscriptions in February 2019 for

capacity at the Fos Tonkin terminal post 2020 (Open Season Fos 2021), the company announced the terminal will continue operating the site until 2028. The proposed regasification capacity has been entirely booked, i.e. 1.5 bcm per year. This commitment has enabled Elengy to take the investment decision needed to extend the site's activity beyond 2020. In addition to the unloading and loading of LNG tankers, the terminal can offer the reloading of bunkering vessels. The company is working on the development of the loading capacities for small LNG vessels. In the future, Fos Tonkin could also become a loading point for trains to supply LNG intermediate storage sites.

Norway's Equinor launched new climate ambitions to reduce the absolute greenhouse gas emissions from its operated offshore fields and onshore plants in Norway with 40% by 2030, 70% by 2040 and to near zero by 2050. Gassco's report on transporting more gas from Barents Sea South assessed alternatives including enhanced capacity for the Melkøya gas liquefaction facility or more pipeline capacity.

Denmark's Ørsted decided to become a carbon neutral company by 2025. Ørsted also set a target to achieve carbon neutrality across the company's entire carbon footprint by 2040.

Pavilion Energy completed the transaction to acquire Iberdrola's portfolio of LNG and gas assets, to launch its Europe operations. From its new European headquarters in Madrid, Pavilion Energy commenced LNG trading operations and natural gas supplies into United Kingdom and Spain.

Greece's Gastrade launched the second phase of the Market Test for the Alexandroupolis FSRU Project. Companies that have already expressed interest in the first phase are eligible to submit binding offers. The guidelines also set out the terms under which new interested participants are allowed to enter the second phase. In the first phase, 20 companies submitted Expressions of Interest for up to 12.2 billion cubic meters (bcm) per year of reserved regasification capacity, surpassing the technical capacity of 5.5 bcm per year. The commercial operation date is planned for Q3 2022. The project is included in the European Union list of Projects of Common Interest. In December 2019, Greek gas company DEPA and Gastrade signed a final agreement for the acquisition of a 20% share in Gastrade by DEPA. In January 2020, Bulgartransgaz, the Bulgarian gas transportation company, concluded terms of an agreement for a 20% participation.

DEPA and the European Investment Bank (EIB) signed an agreement to finance with up to €20 million the construction of a new LNG bunkering vessel. The 3,000 m³ vessel will be supplied with LNG at Revithoussa LNG terminal.

TurkStream pipeline opening ceremony was held. The pipeline in the Black Sea has two strings with a combined throughput capacity of 31.5 bcm. The first string will deliver gas to Turkey, while the second string is intended for gas transit to Southeast Europe.

According to newspaper "Коммерсантъ", the 4th and last train of the Yamal LNG project is behind schedule and will not be ready before March or later. The facility with capacity of 900,000 tonnes per year was originally scheduled to open in December 2019. The fourth train is based on Russian designs and technology.

[South America]

Brazil's Energy Ministry authorized Bolivia's YPF to use the Gasbol pipeline to sell gas to other companies in Brazil rather than Petrobras, according to the official gazette. YPF will deliver Bolivian gas to Mato Grosso do Sul state in Brazil. Volumes are expected to grow from 1.2 million cubic meters per day in the first year, growing to 2.6 mcm/day in 2021 and stabilizing at 3.6 mcm/day from 2022 onwards.

Reference: Company announcements, Reuters, Bloomberg, AP, Khmer Times, Hindu Business Line, Alaska Public Media, Gulf Today, Business Today, Money Control, КОММЕРСАНТЪ, Campos Grande News, Cedigaz News Report.

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