

LNG Review February 2019 - Recent issues and events - Hiroshi Hashimoto*

Introduction

According to Japan's customs statistics, the country imported 7.547 million tonnes of LNG in January 2019, 8.7% less than a year ago. Although the average price in Japanese yen decreased month on month for the first time since September 2017, the average price in Dollar still went up for 15 consecutive months to USD 11.21 per million Btu. In contrast, spot LNG prices in Asia, which have been sliding since the beginning of the year, hovered in the USD 6s during February for the cargo delivery in March and April.

Among LNG importers in Northeast Asia, Korea imported 3.83 million tonnes of LNG in January, 8% less than one year ago. On the other hand, Chinese Taipei imported 1.99 million tonnes, increasing by 24% year-on-year and setting all-time high. China increased its LNG import by 28% year-on-year to 6.58 million tonnes. In other part of Asia, India is increasing LNG import in recent years, and its LNG import grew by 19% to 22.3 million tonnes in 2018, according to India's customs statistics.

In the United States, where this year's first final investment decision (FID) on a major LNG export project in the world was announced earlier in February 2019, several other projects are making progress toward construction, despite slight slow down in the regulatory activities.

In Africa, a land-based LNG liquefaction project in Mozambique secured several long-term LNG sales deals to underpin its investment. There have been some project implementation activities on the FLNG project on the Mauritania and Senegal maritime border on which an FID was made in late 2018.

[Asia Pacific]

According to NDRC (National Development and Reform Commission), China produced and consumed 15.3 bcm and 28.7 bcm of natural gas in January 2019, increasing by 9.7%, and 18.1% from one year earlier, respectively, keeping on growing strongly. Also according to China's customs statistics, the country imported 6.58 million tonnes of LNG and

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3.23 million tonnes of pipeline gas in January 2019, increasing year-on-year by 27.8% and 24.8%, respectively.

CLP of Hong Kong, China said expansion of the Black Point Power Station with two advanced combined-cycle gas turbine generation units enables the gradual retirement of the four oldest coal-fired units at Castle Peak Power Station. Meanwhile, CLP will construct an offshore LNG terminal that will improve the diversity, and thus the security and cost competitiveness, of future gas supplies.

In the Philippines, a couple of LNG import plans are progressing as production from the country's Malampaya field is expected to be depleting from 2024. Power producer First Gen, which operates four power plants in Batangas with a combined capacity of about 2,000 MW - all running on Malampaya gas - has applied for a permit to build an LNG receiving terminal with Tokyo Gas as its LNG partner. Phoenix Petroleum Philippines has tapped China's CNOOC as a partner.

India's Ministry of Petroleum & Natural Gas announced reforms in Exploration and Licensing Policy for Enhancing Domestic Exploration and Production of Oil and Gas, to attract private investment and increase domestic production. According to the country's customs statistics, its LNG import grew by 19.4% to 22.33 million tonnes in 2018. The average price was USD 9.44 per million Btu.

EPIK signed a Strategic Partnership Agreement with Hyundai LNG Shipping. The companies are supposed to work together in the development of FSRU projects around the globe, including EPIK's project at the Port of Newcastle, Australia. EPIK is exploring the possibility of additional gas related infrastructure in the NSW region, including potential gas-fired power and LNG bunkering facilities. With regard to other Korean company-related activities in Australia, GS Caltex of Korea joint venture between Chevron and GS Energy signed a long-term sales and purchase agreement (SPA) to receive LNG from Chevron's global portfolio starting in October 2019. Supply is mainly expected to come from Chevron's Western Australian LNG projects.

Woodside plans FIDs on Scarborough and Browse projects in Western Australia in 2020, according to the company's 2018 result announcement. In relation to these, McDermott signed a contract with Woodside to undertake a front-end engineering and design (FEED) activities for a floating production unit (FPU) for the Scarborough field gas development.

Wood and KBR secured a contract to deliver integrated front-end engineering design (FEED) for Shell Australia's Crux project to build a not normally manned (NNM) platform and gas export pipeline located approximately 600 km north of Broome, offshore Western Australia. The Crux facilities will be a source of backfill gas supply to the Prelude floating

LNG (FLNG) facility.

Repsol (45%) and partners PETRONAS (45%) and MOECO (10%) made the largest gas find in Indonesia in 18 years in the Sakakemang block in South Sumatra. The KBD-2X well in South Sumatra provides preliminary estimation of at least 2 TCF of recoverable resources.

[North America]

Based on data from the Department of Energy (DOE), the United States exported 22.46 million tonnes of LNG in bulk in 2018. A record high 36 cargoes of 2.55 million tonnes was exported in December. 11.64 million tonnes, more than half of the yearly exported volumes in 2018, was directed to the Asian LNG importers, including Japan, China and Korea.

Dominion Energy, the owner of the Cove Point LNG facilities, announced an initiative to reduce methane emissions from its natural gas infrastructure by 50% over the next decade, based on 2010 levels.

At the Golden Pass LNG project in Sabine Pass, Texas, on which Qatar Petroleum (QP) and ExxonMobil made a positive final investment decision (FID) in early February 2019, the joint venture among Chiyoda Corporation, Zachry and McDermott has been awarded an Engineering, Procurement and Construction (EPC) contract to build an export project, including LNG liquefaction and export facilities with a production capacity of around 16 million tonnes of LNG per year (5.2 x 3 trains) scheduled to be operational in 2024.

Among activities by those LNG production projects heading toward their respective investment decisions, Tellurian signed a Memorandum of Understanding (MOU) with Petronet LNG exploring the possibility of the latter's investment in the Driftwood project. Driftwood LNG and Driftwood Pipeline have received the final Environmental Impact Statement (EIS) from the Federal Energy Regulatory Commission (FERC), and Tellurian expects to make a final investment decision (FID) in the first half of 2019. FERC issued the Order Granting Authorizations the Venture Global Calcasieu Pass LNG export facility and associated TransCameron Pipeline in Cameron Parish, Louisiana. With binding 20-year sale and purchase agreements (SPAs) with several companies, the project says it plans to immediately commence construction activities.

FERC issued notices reopening the public comment periods for draft environmental impact statements (EIS) issued for three projects - Kinder Morgan's Gulf LNG in Pascagoula, Mississippi; Exelon's Annova LNG in Brownsville, Texas and Eagle LNG Partners' Eagle LNG in Jacksonville, Florida, after the partial federal government shutdown prevented some federal agencies from participating in the process.

Pointe LNG signed an engineering and technical services agreement with KBR to

provide Pointe LNG with front end engineering design (FEED) submittals and services as required to obtain FERC approval for the LNG liquefaction facility to be located in Plaquemines Parish, Louisiana. Construction is expected to begin in the first quarter of 2021 with initial operations expected in the first quarter of 2025.

In Canada, Pieridae Energy is targeting a final investment decision (FID) on the Goldboro LNG facility after having lined up buyers mainly in Europe. Germany's Uniper has secured half of the project's planned capacity for 20 years and Swiss trader Axpo has taken 1 million tonnes of capacity from train 2.

On the Pacific coast of Mexico, KBR was awarded a pre-Front End Engineering Design (Pre-FEED) contract by Mexico Pacific Limited (MPL) for a mid-scale LNG project in Puerto Libertad. The work will be performed utilizing the ConocoPhillips Optimized Cascade® technology.

[Middle East]

In the next few weeks, Bahrain is expected to receive its first import of LNG, becoming the fifth country in the Middle East to import LNG. The terminal will have a capacity of 6 million tonnes per year and will utilize an offshore floating storage unit (FSU) and a separate regasification platform connected via undersea pipelines to an onshore receiving facility located in the Khalifa bin Salman Port. An FSU vessel called Bahrain Spirit, with a storage capacity of approximately 173,000 m³, will serve the project under 20-year term charter.

Russia's Gazprom and Inter State Gas Systems of Pakistan signed a Memorandum of Understanding (MOU) for a joint feasibility study regarding gas supplies from the Middle East to South Asian countries.

[Africa]

BP announced first gas production from the second stage of its West Nile Delta development offshore Egypt. The project produces gas from the Giza and Fayoum fields. The West Nile Delta development includes five gas fields across the North Alexandria and West Mediterranean Deepwater offshore concession blocks. Stage one of the project, which started producing in 2017, included the Taurus and Libra fields. The third stage will develop the Raven field. Production is expected in late 2019.

At the Tortue FLNG project on the Mauritania and Senegal maritime border, on which an FID was made in December 2018, Golar LNG's subsidiary Gimi MS entered into a 20-year Lease and Operate Agreement (LOA) with BP for the charter of an FLNG unit, Gimi. Expected to commence production in 2022, the FLNG Unit is designed to produce an average

of approximately 2.5 million tonnes of LNG per year, using the Black & Veatch "Prico" liquefaction process. A subsidiary of Singapore's Keppel Capital may acquire a 30% share of FLNG Gimi. LNG carrier Gimi has been relocated from layup to Keppel Shipyard in Singapore. Kosmos Energy, a minority partner of the project, intends to sell down its position to less than 10%.

In Mozambique, Anadarko Petroleum announced that Mozambique LNG1 Company signed a Sale and Purchase Agreement (SPA) with a subsidiary of Bharat Petroleum Corporation (BPCL) for 1 million tonnes per year for 15 years and another with Pertamina for 1 million tonnes per year for 20 years, following earlier sales to China's CNOOC's subsidiary, Tokyo Gas / Centrica, and Shell. The project has secured more than 9.5 million tonnes per year under long-term SPAs.

Total made a significant gas condensate discovery on the Brulpadda prospects, located on Block 11B/12B in the Outeniqua Basin, 175 kilometers off the southern coast of South Africa. The Block 11B/12B is operated by Total with a 45% working interest, alongside Qatar Petroleum (25%), CNR international (20%) and Main Street, a South African consortium (10%).

[Europe / Russia]

German LNG Terminal GmbH, the joint venture driving forward Germany's first LNG terminal in Brunsbüttel, said it had reached another long-term commercial capacity deal with a global LNG player. Negotiations with other interested parties are ongoing. The terminal will apply for permits with a total terminal capacity of 8 bcm per year. The venture plans to make the final investment decision (FID) in late 2019, with the terminal being fully operational by the end of 2022.

The world's first LNG-fueled icebreaker, Polaris, received LNG fuel in January 2019 from the Pori LNG import terminal and in February from the Manga LNG terminal located in the Röyttä Harbor in Tornio, Finland.

Repsol signed an agreement (a letter of intent) with Brittany Ferries to deliver LNG to its Spanish operations. Repsol will install a fixed quayside LNG storage and supply system in one of Brittany Ferries' two Spanish ports - Santander or Bilbao, to supply LNG bunker fuel to Brittany Ferries' new LNG-powered cruise ship, from 2022 after the ship's entry into service.

France's Foreign Ministry said, "The revision of the EU Gas Directive is aimed at applying the rules of the third energy packet on all pipelines with third countries entering EU territory. The revised directive would apply to the Nord Stream 2 project. France intends to support the adoption of such a directive."

Russia's Gazprom increased its share of the European gas market in 2018 to a record high 36.7% despite rising imports of LNG into Europe, the company said. The company also said it would aim to retain a market share in Europe of no less than 35% in coming years. Meanwhile, Novatek's Yamal LNG has shipped ten million tonnes of LNG since December 2017 by the end of January 2019. The company said it plans to raise its 2030 LNG output target to 70 million tonnes per year.

[South America]

EXMAR's Floating Liquefaction Unit (FLNG), to be renamed Tango FLNG, has berthed in Bahía Blanca, Argentina where it will stay and produce LNG for export for YPF over a ten-year period. After contract signing in November 2018, the unit was transported from China to Argentina on-board a heavy lift vessel. Departure of the first fully-loaded conventional LNG carrier is expected in the second quarter of 2019.

Reference: Company announcements, Reuters, Bloomberg, Cedigaz News Report.

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