

LNG Review October 2017
- Recent issues and events -
Hiroshi Hashimoto*

Introduction

On 18 October 2017, the 6th LNG Producer-Consumer Conference was hosted in Tokyo by Japan's Ministry of Economy, Trade and Industry and the Asia Pacific Energy Research Centre (APEREC), attended by more than 1,000 industry executives and government officials, including 15 ministers from various existing and prospective LNG producing and consuming countries around the world, . Reflecting the prevailing market balance, one of the focuses of discussions was how to develop incremental LNG demand notably in Asia.

According to China's NDRC (National Development and Reform Commission), the country's natural gas production during the first nine months of 2017 was up 10.8% year on year at 108.8 bcm. Total natural gas imports during the period were 64.4 bcm, up 26.5%, with total natural gas consumption stood at 167.7 bcm, also increasing year on year by 18.4%. In line with this trend, China's LNG imports in September 2017 were 3.45 million tonnes, an increase of 36% from the 2.53 million tonnes in the same month in 2016. In the first nine months of 2017 China imported 25.63 million tonnes of LNG, 43% or 7.71 million tonnes more than the same period in 2016.

In contrast, Japan's LNG imports in September 2017 were 5.82 million tonnes, the lowest monthly total and less than 6 million tonnes for September for the first time since 2009.

[Asia Pacific]

Asian spot LNG prices crept up during October 2017 from the mid USD 8s to slightly over USD 9, thanks to buoyant winter demand in Asia and slower-than-expected production growth from new LNG production projects in the region.

Hokkaido Gas signed an LNG purchase contract with Mitsui and Company for LNG to be delivered to the Ishikari LNG receiving terminal.

Tokyo Gas will not accept new contracts for long-term purchases of LNG that contain clauses that restrict where the gas can be sold, the company's president said. The company is also considering raising its share of LNG purchased under short-term contracts or in the spot market to 20% - 30% to better respond to volatility, he said.

* The writer belongs to Gas Group, Fossil Fuels and Electric Power Industry Unit.

Pavilion Gas and Shell Trading were granted licences from the Energy Market Authority (EMA) to bring in their LNG cargoes into Singapore. The companies won the right to import Singapore's second tranche of LNG in 2016. The government lifted the moratorium on piped natural gas imports.

ENGIE renewed the regasification and storage services contract with CNOOC (China National Offshore Oil Corporation) for the coming 2017 - 2018 winter season, provided by the *FSRU GDF SUEZ Cape Ann* in Tianjin. *Cape Ann* previously provided similar services to CNOOC, from November 2013 to January 2017.

Memorandum of Cooperation on Establishing a Liquid, Flexible and Global LNG Market was signed between Japan's Ministry of Economy, Trade and Industry (METI) and India's Ministry of Petroleum and Natural Gas.

GAIL India is working toward renegotiating two more long-term deals, according to the company's chairman. GAIL has said earlier it is renegotiating its 20-year contract with Russia's Gazprom. It also has agreements with Cheniere Energy and Dominion Energy for LNG supply from the United States.

India's H-Energy, a unit of real estate group Hiranandani, will start operations at its LNG terminal near the Jaigarh port in the western Maharashtra state by May 2018, its chief executive said. The project is among the three in the country to start in 2018. The other two are one at Ennore on the eastern coast and another at Mundra in Gujarat in the west. H-Energy is also building another LNG terminal off the coast of Kolkata.

Reliance Industries (RIL) and BP submitted to the Directorate General of Hydrocarbons (DGH) a field development plan (FDP) for the MJ-1 gas find, which is located about 2,000 meters directly below the currently producing Dhirubhai-1 and 3 (D1 and D3) fields in the eastern offshore KG-D6 block, sources said.

Indian Oil Corporation (IOC) reportedly aims to have capacity to import about 13.5 million tonnes of LNG in five years. IOC holds rights to import 2.25 million tonnes per year at the Dahej terminal. It is in talks to buy about a 25% stake in the 5 million tonne per year Mundra LNG terminal, besides leasing 1 million tonnes of capacity at Swan Energy's 5 million tonne per year facility at Jafrabad. IOC is also building a 5 million tonne terminal at Ennore on the eastern coast. It has also booked 3 million tonnes of capacity at Adani Enterprises' 5 million tonne per year Dhamra LNG terminal and plans to lease 0.5 million tonnes of capacity at Petronet's Kochi LNG terminal. IOC has a long-term agreement to import 0.7 million tonnes from the Cameron LNG Project in the United States.

Gunvor and Gas Natural Fenosa put in the lowest bids in a tender to supply four LNG cargoes in January 2018, according to Pakistan LNG Limited's website. The country's second floating import terminal in Port Qasim, the BW Integrity, is due to start operation in

late November. Meanwhile, ExxonMobil reportedly pulled out of an LNG terminal project in Pakistan due to differences among the six-member group behind the project.

Petrobangla signed a basic agreement for using a regasification terminal with a consortium of local Hong Kong Shanghai Manjala Power Limited (HSMPL) and Malaysia's Global LNG and Petronas LNG. This will be the third to set up an LNG floating terminal in Bangladesh. The country's first LNG terminal constructed by Excelerate Energy, is expected to be commissioned in April 2018. A second one built by Summit Group is expected to be operational by the end of 2018.

Increasing LNG exports coupled with higher prices for thermal coal and other commodities should see Australia's overall resource and energy export earnings increase 2% in the year to June 2018, to a record AUD 211 billion (USD 165 billion), the Department of Industry, Innovation and Science said.

Australia Pacific LNG (APLNG) will supply a further 41 petajoules (PJ) (3/4 milliontonnes) of natural gas to the Australian domestic market under a sales agreement with Origin. The 14-month contract starts in November 2017 and comprises 4 PJ in 2017, and 37 PJ in 2018. The new contract increases APLNG's total domestic contracted supply commitment for 2018 to over 186 PJ (3.4 million tonnes). This represents almost 30% of Australian east coast domestic gas market demand.

The first shipment of LNG departed from the Wheatstone Project at the end of October 2017. The cargo was delivered to JERA in November. At full capacity, the Wheatstone Project's two train LNG facility is expected to deliver 8.9 million tonnes per year for export. The Project's domestic gas plant also has the capacity to produce 200 terajoules per day (1.34 million tonnes per year). The facility is located 12 kilometres west of Onslow and processes natural gas from the Wheatstone and Iago fields. The project is a joint venture between Chevron (64.14%), Kuwait Foreign Petroleum Exploration Company (KUFPEC) (13.4%), Woodside Petroleum (13%), and Kyushu Electric Power (1.46%), together with PE Wheatstone Pty Ltd, part owned by JERA (8%). Chevron holds an 80.2% interest in the offshore licenses containing the Wheatstone and Iago fields.

In the meantime, Chevron has acquired exploration interests in three offshore blocks located in the Northern Carnarvon Basin. Blocks WA-528-P, WA-529-P and WA-530-P cover 23,170 square kilometres (km²) and are located approximately 220 km northwest of Dampier off the coast of Western Australia. Chevron will be operator with a 50% interest and Woodside will hold the remaining 50% interest.

Add Energy, an international energy consultancy provider, partnered with Transborders Energy (TBE) and joined forces with TechnipFMC and MODEC to create a unique and fast deployment business model for the FLNG (floating LNG) industry that will

free up small-scale stranded resources (0.5 - 2 tcf) around the world.

JERA entered into a Heads of Agreement (HOA) with Malaysia LNG. JERA plans to purchase up to 2.5 million tonnes per year for three years beginning in 2018. JERA considers the destination clause in this HOA to be in line with the Survey on LNG Trades report released by the Japan Fair Trade Commission in June 2017.

Tokyo Gas and Development Bank of Japan, through a newly established joint venture, acquired 33% shares of gas distributor PT Panji Raya Alamindo in Indonesia, a subsidiary of PT Rukun Raharja Tbk.

Indonesia agreed with Inpex to extend the company's contract to operate the Masela natural gas field by up to 27 years once it expires in 2028, the energy ministry said. The Masela block is 65% owned by Inpex and 35% by Shell.

Indonesia's Maritime Affairs Coordinating Minister said the country will buy LNG from Qatar at a price of USD 7.16 per million BTU. Meanwhile, Energy and Mineral Resources Minister said his ministry would allow the import of LNG from Qatar if the price was lower than that of LNG produced in Indonesia. He explained that the LNG from Qatar was planned to be used to supply power plants in North Sumatra, which were jointly developed by state-owned electricity firm PLN and a Qatar state-owned company.

[North America]

API released a new study showing that increased exports of LNG could support 220,000 - 452,000 additional jobs and add up to USD 73 billion to the economy by 2040. The study, conducted by ICF International, also concluded that increased LNG exports would have a minimal impact on the natural gas prices.

Cheniere Energy Partners announced that Substantial Completion of Train 4 of the Sabine Pass liquefaction project was achieved on 9 October 2017. Under a 20-year sale and purchase agreement (SPA) with GAIL, the date of first commercial delivery for Train 4 is expected to occur in March 2018.

Cheniere aims to file an application with the Federal Energy Regulatory Commission (FERC) in early 2018 seeking permission to change the design of its Corpus Christi LNG expansion project, switching from two large-scale liquefaction trains to seven mid-scale trains. The capacity of the Stage 3 will increase slightly from 9 to 9.5 million tonnes per year, boosting the plant's overall capacity to 23 million tonnes per year.

A naming ceremony for an LNG carrier, jointly owned by Mitsui O.S.K. Lines (MOL) and Tokyo LNG Tanker was held at the Tsu Shipyard of Japan Marine United (JMU). The *Energy Liberty* will be the eighth LNG carrier owned and managed by Tokyo LNG Tanker. MOL will directly manage six of those vessels, including the newbuilding

vessel, which will transport LNG from the Cove Point Project in the United States.

BP is taking delivery of six new LNG tankers to support its global LNG portfolio. BP's finance partners KMarin and ICBC Leasing are investing over USD 1 billion in the tankers. The vessels will help service a 20-year liquefaction contract with the Freeport LNG facility in Texas, as well as other international LNG projects.

According to Kinder Morgan's third quarter 2017 report, the Federal Energy Regulatory Commission (FERC) on 18 September 2017 authorized KMI to install 10 modular liquefaction trains for the Elba Liquefaction Project at the existing Southern LNG facility at Elba Island near Savannah, Georgia. The project is supported by a 20-year contract with Shell. Initial in-service is expected in the middle of 2018. Final units coming on line by the middle of 2019 will bring total liquefaction capacity to approximately 2.5 million tonnes per year. Elba Liquefaction Company, L.L.C. (ELC), a KMI joint venture with EIG Global Energy Partners as a 49% partner, will own 10 liquefaction units and other ancillary equipment comprising approximately 70% of the project. Certain other facilities associated with the project are 100% owned by KMI.

Rio Grande LNG, a proposed 27 million tonne per year LNG export project being developed by NextDecade near Brownsville, Texas, agreed with Cameron County, Texas to receive local tax incentives for its project.

The Honghua Group awarded a USD 12 million front-end engineering design (FEED) contract to Wood for a planned "world's first offshore platform-based" LNG platform development in the West Delta area of the Gulf of Mexico. Wood has completed pre-FEED work on the plant which will be able to produce 4.2 million tonnes per year.

JERA agreed to acquire a 50% equity interest in Linden Cogen Holdings LLC, the owner of a 972MW natural gas-fired thermal power cogeneration complex in New Jersey. Linden produces approximately 10% of New York City's power demand.

Woodfibre LNG's construction decision on a small-scale LNG export plant in British Columbia was pushed back to 2018. A spokeswoman said that a dual front-end engineering process by KBR and JGC was complete, and that the company would be moving to the next stage of engineering, procurement and construction (EPC) with KBR.

Mexico Pacific Limited LLC (MPL), the owner and developer of an LNG project at Puerto Libertad in the state of Sonora on the Gulf of California, received an investment from AECOM Capital's Infrastructure fund to advance development of its LNG liquefaction complex. The project targets operations by 2022. MPL is a joint venture of DKRW Energy Sonora Holding LLC and AECOM Capital.

[Middle East]

Bahrain is building its first LNG terminal. Saudi Aramco could potentially use the terminal with a gas pipeline, Bahrain's oil minister said. The terminal is expected to be completed in 2019. The terminal project is jointly owned by Bahrain's Oil and Gas Holding (Nogaholding) and a consortium of Teekay LNG Partners, Gulf Investment Corporation and Samsung C&T.

Qatari Minister of Energy and Industry Mohamed bin Saleh al-Sada said "The illegal and unjustifiable blockade imposed on the State of Qatar since last June, has not prevented it from honouring its contractual commitments and time schedules, without missing on even one shipment to its 'valued customers worldwide', including supplies to one of the blockading countries."

Belgium's Exmar is reportedly in negotiations for the use of its floating LNG vessel Caribbean FLNG (CFLNG) for an Iranian export project. The National Iranian Oil Company (NIOC) said in a statement on its website it would supply natural gas for the project, led by Norway's IFLNG, and that it expected to use the Caribbean FLNG vessel.

Kuwait Minister of Oil unveiled that talks are going on between the Kuwaiti and Iraqi governments over a proposal to barter the remaining war compensations for Kuwait with gas supplies from Iraq.

[Africa]

Eni finalized the sale of a 30% stake in the Shorouk concession, where the Zohr gas field is located, to Rosneft. Eni now holds a 60% stake, Rosneft 30% and BP 10%. Zohr was discovered by Eni in August 2015. Its start-up is scheduled by the end of 2017.

Golar LNG's FLNG Hilli Episeyo (scheduled to be used at the Cameroon's FLNG project) departed Singapore on 12 October 2017.

Ophir Equatorial Guinea (Block R) has awarded the upstream construction contract for the Fortuna FLNG Project to Subsea Integration Alliance, which is a partnership between OneSubsea, a Schlumberger company, and Subsea 7.

Anadarko reached a 20-year Sale and Purchase Agreement (SPA) for 2.6 million tonnes of LNG per annum with PTT of Thailand. The SPA is pending approval by the Government of Thailand.

[Europe / Russia]

Shell agreed to buy NewMotion, one of Europe's largest electric vehicle (EV) charging providers.

Production at the Groningen gas field will be lowered by 1.5 billion cubic metres

(bcm) per year from the current cap of 21.6 bcm by 2021, the incoming Dutch government said.

Gas4Sea partners - ENGIE, Mitsubishi Corporation and NYK - have been selected by Statoil to be its LNG marine fuel supplier in the port of Rotterdam, in the Netherlands, for four crude shuttle tankers, which are to come into service in early 2020.

Total is expanding in the residential gas and power distribution market in France with the introduction of *Total Spring*, a natural gas and green power offering that is 10% cheaper than regulated tariffs.

Sojitz reportedly plans to acquire a local investment fund in Spain that has a 15% equity stake in the Reganosa LNG receiving terminal. The terminal is expected to expand its supply sources, including the United States, from current 1 million tonnes to 2.6 million tonnes per year. Gas at the terminal is mostly destined to the Spanish domestic market, while in the future Asia may be included as final destinations.

Wärtsilä reached an agreement to acquire Puregas Solutions, the Sweden based provider of turnkey biogas upgrading solutions. Puregas is a leading player in its field with subsidiary companies in Germany, Denmark, the United Kingdom, and the United States. The company utilises a unique CAPure process to convert raw biogas to biomethane and renewable natural gas.

Wärtsilä was awarded a turn-key contract with Hamina LNG Oy to supply an LNG receiving terminal to be built in Hamina, Finland with a full containment storage tank with a combined net volume of 30,000 m³. The LNG terminal is scheduled to be operational in August 2020. The port of Hamina will be the first LNG receiving terminal in Finland connected to Finnish gas grid.

Volvo Trucks is introducing Euro 6-compliant heavy duty trucks running on LNG or biogas. The new trucks have the same performance, driveability and fuel consumption as Volvo's diesel-powered models. Furthermore, the new trucks' CO₂ emissions are 20-100% lower compared with diesel, depending on choice of fuel.

Denmark's Dong Energy shareholders approved at an Extraordinary General Meeting on 30 October 2017 a change of the company name to Ørsted. Over the past decade, the company transformed from an energy company based on coal and oil to a global leader in renewable energy.

Malta's Minister for Energy and Water Management said that the gas pipeline interconnector project with Italy's Sicily is a strategic one, both at national and European levels. He remarked that the gas project has been labelled as a 'Project of European Common Interest'.

Russia's Novatek has signed an agreement with the Kamchatka Territorial

Government to build an LNG facility for reloading LNG from Arctic ice-class tankers to conventional LNG tankers. Earlier Novatek said that the firm intends to expand its Yamal LNG project with one more liquefaction train, adding an additional one million tonne capacity. Novatek also intends to build a comparable plant on the Gydan Peninsula. The Yamal LNG project will ship the first two cargoes in November 2017, followed by another four in December, Russia's customs service said.

Gazprom and Saudi Aramco signed a Memorandum of Understanding (MoU) for international cooperation in the gas sector.

Investors from Japan and Middle East have shown interest in Gazprom's Baltic LNG project, a Gazprom top official said. Baltic LNG is due to start producing 10 - 15 million tonnes of LNG per year in 2022 - 2023.

[South America]

Shell signed an agreement with Cosan Limited to sell all of its 16.8% interest in Companhia de Gas de São Paulo (Comgás) to the latter. Comgás is a gas distribution company in the São Paulo state and the largest gas distributor in the country with over 14,000 km of pipeline and over 1.7 million customers with Cosan currently a 63.4% shareholder. In the meantime, Brazil joined the IEA (International Energy Agency) as an Association country.

[Global issues]

While gas markets are currently well supplied, the transformation of natural gas markets from regional systems to more globalized and interdependent markets is creating new security challenges, according to the International Energy Agency's latest assessment of global gas security.

Reference: Company announcements, Reuters, Bloomberg, AP, Press Trust of India, Dhaka Tribune, Daily Sun Bangladesh, Gulf Times, Kuwait Times, Malta Independent, Maritime Executive, Cedigaz News Report.

Contact: report@tky.ieej.or.jp