

LNG Review September 2020 - Recent issues and events -

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Introduction

Japan's LNG import so far in 2020 has been at the lowest levels during the last ten years. Japan's average LNG import price in August was below USD 6 per million Btu for the first time since June 2016. Although volumes arrived at average prices of around USD 5 from Southeast Asia, the Middle East, and Russia, the average price of LNG from the United States was in the USD 9s.

31 cargoes imported in Japan carried prices below USD 5 in August, compared to one in April, three in May, ten in June and nine in July. The weighted average delivered price of Qatari LNG of 0.82 million tonnes was USD 4.84, the lowest among different supply sources.

According to China's preliminary trade statistics, the country imported 5.96 million tonnes of LNG in August 2020, slightly more than Japan's 5.84 million tonnes in the same month. It was the fourth time that China took the position of the largest LNG importing country on monthly basis, following November 2019, May and June 2020. During the first eight months of 2020, China imported 42.17 million tonnes, yet smaller than Japan's 48.28 million tonnes during the same period.

More than 180 million tonnes of LNG in total was imported in the world in the first half of 2020, increasing steadily by nearly 5%. However, the growth rate was moderated from higher ones from 2017 to 2019. Although the first quarter saw an increase of more than 10%, the second quarter experienced a decrease of nearly 2% affected by the global pandemic and slowed economy.

[Asia Pacific]

Tokyo Gas announced the establishment of "TG Global Trading Co., Ltd." (TGT) on 1 September 2020.

On 16 September 2020, a naming ceremony was held at the Sakaide Works of Kawasaki Heavy Industries for Japan's first LNG bunkering vessel, Kawasaki Kisen Kaisha (K-Line), JERA, Toyota Tsusho and Nippon Yusen (NYK) announced on 18 September. Kaguya is the first LNG bunkering vessel to be operated in Japan. Kaguya will be operated by

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

Central LNG Marine Fuel Japan Corporation and will be based at JERA's Kawagoe Thermal Power Station. Kaguya will begin supplying LNG fuel to ships in October or later in 2020.

Gastech Virtual Summit opened on Monday 7 September 2020. The Summit features 200+ industry leaders and brings together over 1,500 registered delegates. Sponsors include OGI Investments; ExxonMobil; Invest In Canada; Lloyd's Register; Sempra LNG and Venture Global LNG. Singapore has over 50 companies with an LNG trading or business development presence in Singapore, Trade and Industry Minister Chan Chun Sing told the virtual summit.

Singapore LNG (SLNG) and Total Solar Distributed Generation (DG) signed an agreement for solar power to be implemented at the Singapore LNG Terminal on Jurong Island, SLNG said on 16 September 2020. Total Solar DG will finance, build and operate a 600 kilowatts peak (kWp) rooftop solar power system, which will be installed on the rooftops of several buildings at the Terminal. The installation of the solar panels is part of SLNG's slew of initiatives under its Green Strategy, and is expected to be completed by Q4 2020. This rooftop solar power system will generate around 800 megawatt hours (MWh) of renewable energy and has the potential to avoid an estimated 300 tonnes of carbon dioxide emissions, annually.

FueLNG, a joint venture between Keppel Offshore & Marine and Shell Eastern Petroleum, named Singapore's first LNG bunkering vessel, *FueLNG Bellina*, which is scheduled to arrive from the Keppel Nantong Shipyard in China by the end of 2020.

Stena Power & LNG Solutions announced on 2 September 2020 that it had agreed to a Technology License Agreement with Delta Offshore Energy (DOE) to grant utilization of its proprietary Jetty-Less LNG receiving and regas technology for the offshore LNG to power project located in the Bạc Liêu Province in Southern Vietnam. DOE announced on 8 September that it had launched Request for Proposal (RFP) for 25 years gas sales agreement. The tender is for delivery of 2.5 - 3.0 million tonnes per year over, on a delivered ex-ship (DES) or FOB basis to the offshore LNG regas facility.

First Gen Corporation's subsidiary FGEN LNG Corporation secured the approval of the Department of Energy (DoE) to build an interim offshore LNG terminal in Batangas City, Batangas province, on 23 September 2020. In early October, FGEN LNG engaged Australia's McConnell Dowell as its engineering, procurement and construction (EPC) contractor for its interim LNG import terminal project. Tokyo Gas signed a Joint Cooperation Agreement (JCA) with First Gen. The two companies will develop a floating storage and regasification unit (FSRU) project, with the aim of introducing LNG as early as in the second half of 2022.

According to China's NDRC, the country's natural gas consumption during the first eight months of 2020 was 205.87 bcm, increasing by 3.2% from the same period in 2019.

Centrica announced on 30 September 2020 that it had agreed a binding 15-year Sales and Purchase Agreement (SPA) to supply 0.5 million tonnes per year of LNG to Shenergy. Deliveries are expected to commence in 2024. The SPA follows a Heads of Agreement (HOA) that was concluded in January 2020 and represents the first long term supply contract for Centrica in China.

CTCI announced on 11 September 2020 that it had been awarded an engineering, procurement, construction and commissioning (EPCC) contract to build an LNG receiving terminal for Taichung Power Plant, owned by Taiwan Power Company (Taipower).

According to PPAC's Snapshot of India's Oil & Gas data, consumption of natural gas from April to August 2020 was 24.1 bcm, lower by 9.5% compared with the corresponding period of 2019. LNG import from April to August 2020 was 12.9 bcm, lower by 5.5% compared with the corresponding period of 2019.

Australia's Department of Industry, Science, Energy and Resources released the September 2020 edition of the Resources and Energy Quarterly. This REQ reviews the impacts the COVID-19 economic downturn has had on Australia's resource and energy commodities, and forecasts market developments over the next two years. Sharp price falls for energy commodities are expected to result in significantly lower earnings for coal, LNG and oil exports.

Santos announced on 30 September 2020 that it welcomed the New South Wales Independent Planning Commission's (IPC) decision to green light the Narrabri Gas Project with conditions. While the company waits for the approval of the Federal Minister for the Environment as well as other subsequent approvals, Santos will commence planning for workover activities on existing wells under its current exploration tenures. Once all approvals are in place, the company plans to commence a 12 to 18-month appraisal drilling program.

Warrego Energy announced on 28 September 2020 that it had signed a binding Gas Sales Agreement (GSA) with Alcoa, for the long-term supply of a total of 155 petajoules (PJ) (2.85 million tonnes) of natural gas from the West Erregulla gas field. The GSA will commence on 1 January 2024, subject to a positive project Final Investment Decision (FID) by Warrego expected in 1H 2021. Chevron announced on the same day the signing of an agreement with Alcoa for the delivery of natural gas from Chevron's domestic gas portfolio across the Wheatstone, Gorgon and North West Shelf facilities. Commencing in January 2024, Chevron will supply Alcoa with an additional 37 petajoules (0.68 million tonnes) of equity domestic gas over a multi-year term, further to an existing agreement signed by Chevron and Alcoa in December 2018 for the supply of 64 petajoules (1.18 million tonnes) of equity domestic gas.

Chevron on 3 September 2020 advised additional time would be taken to complete

repairs of propane heat exchangers on LNG Train 2 at the Gorgon plant. Chevron expects the repairs to the heat exchangers, where weld quality issues were discovered during scheduled maintenance in July 2020, to be complete and to restart production at Train 2 in October.

The Waitsia Gas Project Stage 2 proposal has been recommended for environmental approval by the Environmental Protection Authority (EPA) of Western Australia, subject to strict conditions on water management, flora and greenhouse gas emissions, EPA said on 7 September 2020. AWE Perth Pty Ltd, under the Mitsui E&P Australia brand, proposes to construct and operate a conventional gas facility about 16 kilometres southeast of the Dongara-Port Denison town sites. Hydraulic fracture stimulation does not form part of this proposal, which will further develop the Waitsia gas field. EPA said this was the second proposal the EPA had assessed under its new greenhouse gas emissions guidance, which was released in April 2020.

bp received regulatory approvals for drilling of the Ironbark-1 exploration well in the WA359-P offshore northwest Australia, partner Cue Energy announced on 22 September 2020. The exploration permit WA-359-P is located in the Carnarvon Basin, offshore Western Australia, approximately 50 km from existing North West Shelf LNG infrastructure.

BHP announced on 4 September 2020 that it had awarded the world's first LNG-fuelled Newcastlemax bulk carrier tender, with the aim of reducing greenhouse gas (GHG) emissions by more than 30% per voyage to Eastern Pacific Shipping (EPS), for a five-year time charter contract for five LNG-fuelled Newcastlemax bulk carriers to carry iron ore between Western Australia and China from 2022. The LNG bunkering supply contract is expected to be awarded in October 2020.

SapuraOMV Upstream announced on 3 September 2020 stable production from its operated Bakong gas field project under the SK408 Production Sharing Contract (PSC). This follows the production from SapuraOMV's Larak gas field which started in December 2019 and the start-up of the Shell-operated Gorek field in May 2020. With this first production from Bakong field, Phase 1 of the SK408 development is entirely on stream. Under a long-term agreement with PETRONAS, SapuraOMV, Sarawak Shell and PETRONAS Carigali will supply gas from these fields to the PETRONAS LNG complex in Bintulu, Sarawak.

PETRONAS announced on 8 September 2020 that it had launched the Virtual Pipeline System (VPS) solution via the Regasification Terminal in Pengerang, Johor. The VPS solution delivers LNG using trucks to off-grid customers. PETRONAS Dagangan Berhad (PDB) announced on 25 September that it had started providing LNG using road trucks.

[North America]

Blackstone announced that private equity funds managed by Blackstone Energy

Partners had closed the sale of their approximately 42% stake in Cheniere Energy Partners, L.P. to Brookfield Infrastructure and funds managed by Blackstone Infrastructure Partners.

Dominion Energy on 30 September 2020 provided updates related to the sale of its gas transmission and storage assets to Berkshire Hathaway. Dominion expects the transaction, exclusive of Questar Pipelines, to close around 1 November 2020. Dominion expects to complete the sale of Questar Pipelines upon receipt of Hart-Scott-Rodino (HSR) clearance in early 2021.

Sumitomo Corporation announced that on 4 September 2020, it closed a transaction to sell Marcellus Shale Gas development project and its relevant assets (the Project) in the state of Pennsylvania.

Both the Sabine Pass and Cameron LNG plants were affected by Hurricane Laura in late August 2020. Although both facilities survived the storm with minimal damage, damage to the electrical and marine infrastructure around the Cameron facility persisted until early October. The first LNG carrier ship since then departed on 7 October, according to ship-tracking data.

FERC (Federal Energy Regulatory Commission) granted Freeport LNG extension of time to complete the construction of the Train 4 project until May 2026, according to FERC on 10 September 2020.

The Office of Fossil Energy (FE) of the Department of Energy (DOE) gave notice of receipt of an application, filed on 14 August 2020, by Golden Pass LNG. Previously DOE/FE authorized Golden Pass LNG to export LNG to any country with which the United States does not have a free trade agreement (FTA). The application requested an amendment to increase the approved export volume from 808 billion cubic feet (16.81 million tonnes) per year to 937 Bcf/yr (19.50 million tonnes).

Glenfarne Group asked FERC to extend the deadline to complete the Magnolia LNG project on Friday 11 September 2020. The company is now targeting 2021 for sanctioning the project, with in-service in April 2026. When the project was approved by FERC in 2016, it was ordered to be placed in service by April 2021.

Carnival Cruise Line's LNG-powered XL-class newbuild Mardi Gras headed out to sea trials on Monday morning 28 September 2020, Finland-based shipbuilder Meyer Turku said. The first North American cruise ship powered by LNG is set to debut from Port Canaveral, Florida, on 6 February 2021.

Canada's Pieridae Energy announced on 29 September 2020 that it had signed a services agreement with Bechtel related to Pieridae's 2-Train Goldboro LNG Facility. Bechtel is scheduled to conduct a detailed review of the scope and design of the Goldboro LNG Facility and develop a comprehensive engineering, procurement, construction and

commissioning ("EPCC") execution plan by March 2021, deliver a final lump sum, turnkey EPCC contract price proposal by May 2021, and conduct a meaningful engagement with the Nova Scotia Mi'kmaq First Nations including their participation in the construction of a large-scale work camp at the LNG site.

Cryopeak LNG Solutions Corporation, a Richmond BC based portfolio company of BP Energy Partners, LLC, and Sumitomo Corporation signed a Memorandum of Understanding to jointly develop an LNG bunker-fuels supply chain in North America's Pacific Northwest ports, such as Vancouver, Fraser River Port, Roberts Bank and Prince Rupert, Canada. Cryopeak is developing a proprietary design for a 4,000 m³ LNG bunkering barge to be used in an articulated tug and barge configuration (ATB), with plans to be in operation in 2023.

[Middle East]

Baker Hughes announced on 29 September 2020 an order with Qatar Petroleum (QP) to supply multiple main refrigerant compressors (MRCs) for QP's North Field East (NFE) project, executed by Qatargas. The total award is part of four LNG "mega trains," representing 33 million tonnes per year of capacity. Each MRC train will consist of three Frame 9E DLN Ultra Low NOx gas turbines and six centrifugal compressors across four LNG "mega trains" for a total scope of supply of 12 gas turbines to drive 24 centrifugal compressors.

Chevron Corporation announced on Monday 5 October 2020 that its acquisition of Noble Energy had been completed following approval by Noble Energy shareholders.

[Africa]

Golar LNG Limited announced on 1 October 2020 that Gimi MS Corporation, a subsidiary of Golar, had confirmed a revised project schedule with BP Mauritania Investments Limited for the Greater Tortue Ahmeyim project. The revised project schedule will result in the target connection date for the converted floating LNG vessel Gimi, previously scheduled for 2022, being extended by 11 months.

[Europe / Russia]

The Oil and Gas Authority (OGA) announced on 28 September 2020 that it had for the first time expanded its benchmarking to the flaring and venting of greenhouse gases on the UK Continental Shelf (UKCS) - detailing flaring and venting activity levels in the North Sea. The volume of gas flared and vented in offshore upstream oil and gas production in 2019 was equivalent to 3% of all the natural gas produced in the year.

Total announced on 29 September 2020 that it had signed the acquisition of 'Blue

Point London' from the Bolloré Group. With this transaction, Total is taking over the management and operation of Source London, the largest electric vehicle charging network citywide, which includes more than 1,600 on-street charge points.

The world's largest LNG bunker vessel was named at a ceremony held in Rotterdam on Friday 18 September 2020. The 18,600 m³ GTT Mark III Flex membrane vessel was named "Gas Agility". The vessel is owned by Emerald Green Maritime Limited, a wholly owned subsidiary of Mitsui O.S.K. Lines (MOL) and is chartered by Total Marine Fuels Global Solutions (TMFGS).

The CMA CGM Jacques Saadé joined CMA CGM Group's fleet to become the largest LNG-powered container ship in the world. The new flagship is the first of a series of nine 23,000 TEU container ships. The ship joins the French Asia Line, CMA CGM Group's most emblematic line between Asia and Northern Europe.

Belgium's Zeebrugge LNG terminal conducted the first LNG loading to a container at the facility for rail transport from the port.

According to company presentation on 30 September 2020, Total's strategy aims to transform itself into a broad energy company by growing energy production from LNG and electricity. In the next decade, Total's energy production will grow by one third, roughly from 3 to 4 Mboe/d, half from LNG, half from electricity, mainly from renewables. Total LNG sales will reach 50 million tonnes per year by 2025 and will double over 2020 – 30, it said.

Equinor announced on 2 September 2020 that it had awarded Aibel a front-end engineering and design contract (FEED) for modification of the Hammerfest LNG plant. The FEED work will cover two sub-projects under the Snøhvit Future development: onshore compression and Hammerfest LNG electrification. There was a fire incident at a turbine at the existing LNG facility on 28 September.

A 6000 m³ LNG bunker vessel was launched and named Optimus on 8 September 2020 in the shipyard of the Dutch shipbuilding company Damen. The vessel is expected to start operation in the first quarter of 2021. The service area of the LNG bunker vessel will be the eastern part of the Baltic Sea, especially the Gulf of Finland.

The first fast ferry in the world for passengers and cargo powered by natural gas internal combustion engines, Baleària's Eleanor Roosevelt, was launched on Friday 18 September 2020 at the Armon shipyard in Gijón, the company announced on 22 September. The ship is scheduled to begin operations in the first quarter of 2021.

GAZ-SYSTEM, the Port of Gdansk Authority and the Maritime Office in Gdynia signed on 23 September 2020 a letter of intent regarding cooperation in construction of a floating LNG terminal (FSRU) in the Bay of Gdańsk.

PGNiG announced on 28 September 2020 that under a contract with Energy

Resources of Ukraine (ERU) PGNiG will supply natural gas to Gas TSO of Ukraine. This will be the first time that PGNiG will supply natural gas to Gas TSO of Ukraine.

MVM's (Hungarian Electricity Works) gas trading unit had signed an agreement with Shell to purchase an 250 million cubic metres (0.18 million tonnes) per year of LNG at the LNG terminal in Krk, Croatia from January 2021 to 1 October 2027, Hungary's Minister of Foreign Affairs and Trade said on Friday 4 September 2020.

Russia's Gazprom announced on 25 September 2020 that it was constructing a spacecraft assembly facility (SPKA) in Shchelkovo, Moscow Region with support from Roscosmos (State Space Corporation). In addition to communication satellites, the facility will produce SMOTR optical remote sensing satellites. SMOTR-B, the first satellite out of six, is planned to be launched in 2024. The satellite will be provided with equipment for greenhouse gas emissions monitoring.

On 7 September 2020, NOVATEK announced that its joint venture Arctic LNG 2 entered into long-term charter agreements on 14 Arc7 ice-class LNG tankers with SMART LNG (a joint venture between NOVATEK and PAO Sovcomflot), with the LNG tankers to be built at the Zvezda Shipbuilding Complex. The signing of the charter agreements allowed SMART LNG to conclude the corresponding contracts with the VEB.RF Group and Zvezda Shipbuilding Complex LLC for the construction and lease financing of these vessels.

[South America]

On 16 September 2020, Excelerate Energy reached a send-out capacity of 1.06 billion cubic feet (BCF) of natural gas on its floating storage and regasification unit (FSRU) Experience - an industry record. The operation was completed during a performance test at the Guanabara Bay terminal in Rio de Janeiro, Brazil. The test was conducted as a requirement for authorization to expand the terminal's operational capacity.

Keppel Offshore & Marine (Keppel O&M) announced on 22 September 2020 that it had clinched a contract for conversion of an LNG carrier to a Floating Storage and Regasification Unit (FSRU) bound for the Port of Acajutla, El Salvador to be used for its first integrated LNG-to-power project. The contract was inked with FSRU Development Pte Ltd, a joint venture company between BW Gas Limited (BW LNG) and Invenergy Investment Company LLC (Invenergy). The project represents Keppel's fifth FSRU conversion.

Reference: Company announcements, Reuters, Cedigaz News Report.

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