

## LNG Review November 2020 - Recent issues and events -

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### **Introduction**

The first final investment decision (FID) for a large-scale LNG export project in the world in the year 2020 was announced in the middle of November from the Costa Azul project on the Pacific Coast of Mexico.

From late October to the middle of November 2020, there were notable announcements from companies on their LNG sales and purchase agreements, while media reports revealed an apparently successful medium-term LNG sales deal of LNG from the United States into China and a stalling talk on a potential deal into Europe.

According to Japan's Customs Statistics, the country's LNG import in October 2020 amounted to only 5.94 million tonnes, another decrease year-on-year after only two y-o-y increases in June and September in the year. The cumulative import during the first ten months of the year amounted to 60.72 million tonnes, a y-o-y decrease of 5.49%. The average landed price for October was USD 5.81 per million Btu, continuing the below USD 6 for three months in a row. Meanwhile, the average landed prices for October were USD 5.35 in Korea, USD 5.46 in China, and USD 4.85 in Chinese Taipei, respectively.

19 cargoes imported in Japan carried prices below USD 5 in October, following 31 in August and 47 in September. The weighted average delivered price of 0.94 million tonnes of Qatari LNG was USD 5.09, the lowest among different supply sources who supplied Japan multiple cargoes in October, following USD 4.31 in September.

The assessed spot LNG price for delivery to Northeast Asia which rose to above USD 7 in late October for delivery in December, hovered in the high of USD 6s in the first half of November. The price for delivery in January 2021 rose to the middle of USD 7s by the end of the month and has shown signs of higher trend thereafter.

### **[Asia Pacific]**

Korea Gas Corporation (KOGAS) said on 26 November 2020 that it had completed

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\* 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.

an "STS LNG shipment test" for trial operation of an LNG carrier at Daewoo Shipbuilding & Marine Engineering's (DSME) Okpo Shipyard in Geoje, South Gyeongsang Province.

According to data from China's Customs Statistics, China imported 52.93 million tonnes of LNG during the first ten months of 2020, or 11.9% more than the same period in 2019. The country consumed 262.9 bcm of natural gas during the period in 2020, or a 6.6% from a year ago.

Sinopec (China Petroleum & Chemical Corporation) announced on 5 November 2020 that it had recorded China's highest ever daily output of shale gas at 20.62 million cubic meters in its Fuling Shale Gas Field in Chongqing, China. According to Sinopec, the field maintains a stable daily output of 20 million cubic meters, producing an estimated 6.7 billion cubic meters over a full year.

CNOOC announced on 2 November 2020 that Liuhua 29-1 gas field had commenced production. The field is located in the eastern South China Sea, 86 km northeast of Liwan 3-1 gas field, with water depth of about 640 - 785 m. A new subsea wellhead has been built, with 7 development wells planned in total. The gas field will fully utilize the existing production facilities of Liuhua 34-2 gas field and Liwan 3-1 gas field. It is expected to reach a peak production of approximately 62 million cubic feet of natural gas per day in 2022. CNOOC Limited has a 25% working interest in Liuhua 29-1 gas field and acts as the operator in shallow water, while Husky Oil China Limited holds the remaining 75% working interest and acts as the operator in deep water.

Shanghai Petroleum and Natural Gas Exchange (SHPGX) on Monday 2 November 2020 executed its first international LNG tender transaction. CNOOC will purchase 65,000 tonnes of LNG to be delivered in March 2021 from Aramco Trading Singapore.

Six people were killed and three were injured at the Beihai LNG terminal in Guangxi, China following a fire incident. Local media reported that a fire broke out on Monday, 2 November 2020, at 11:45 a.m. on one of the facility's LNG storage tanks and the fire was extinguished at 11:55 a.m. According to the report, the incident was caused by maintenance personnel. Beihai LNG terminal began operation in 2016 and was initially owned by Sinopec. The terminal is controlled by PipeChina (National Petroleum and Natural Gas Pipeline Network Group). The terminal has four LNG storage tanks each with a 160,000-m<sup>3</sup> capacity. The fire reportedly broke out at the storage tank No:2.

Höegh LNG announced on 19 November 2020 that it had entered into a binding commitment to supply H-Energy with FSRU Giant in Jaigarh from as early as first quarter 2021 for 10 years with annual termination options after year five. Jaigarh is south of Mumbai in Maharashtra state, India.

Italy's Snam announced on 6 November 2020 that it and Adani had launched a

partnership which envisages exploration of the hydrogen value chain in India and internationally, as well as the development of biogas and biomethane, and of low-carbon mobility. Snam said that it had also signed an agreement with Greenko to cooperate in supporting the development of the hydrogen value chain in India. Snam said that it had also signed a Memorandum of Understanding (MoU) with Indian Oil for possible joint initiatives in the energy transition and in the natural gas infrastructure value chain, particularly for storage and regasification.

The 444-km-long Kochi-Mangaluru natural gas pipeline project is ready for commissioning, according to a senior GAIL official. India also plans to set up 1,000 LNG stations in three years to create infrastructure for using LNG as a fuel for long-haul transportation.

LNG Easy said in its statement on 27 November 2020 that it had signed a memorandum of understanding (MOU) for transportation of LNG via ISO tanks with Karachi Port, Pakistan Railways and an international oil company.

Australian Industrial Energy Pty Ltd (AIE) announced on 13 November 2020 that it had signed a lease for up to 25 years with NSW Ports for the Port Kembla Gas Terminal (PKGT). AIE, part of Squadron Energy Group, is also pursuing the associated development of a dual fuel - LNG - Hydrogen 800MW power station in the Illawarra to be initially fuelled by gas from the PKGT. The lease agreement includes a 10-year initial term with options to extend up to a maximum 25-year term. Construction of the PKGT is forecast to take only 18-20 months.

Venice Energy announced on 4 November 2020 that it had signed a project agreement with Flinders Ports that set out the framework to support the development of a proposed LNG import facility in Port Adelaide. Venice Energy said that the facility was expected to bring around 80 Petajoules per year of LNG into South Australia.

EPIK announced on 10 November 2020 that it plans to include LNG bunkering services as part of its Newcastle GasDock LNG import terminal development.

The Australian Trade Minister announced on 19 November 2020 that the government had selected a consortium led by the University of New South Wales (UNSW), Deloitte and Baringa Partners as the Australian partners to deliver the 'German-Australian Supply Chain Feasibility Study of Hydrogen produced from Renewables'.

Origin Energy announced on 17 November 2020 that it would conduct a AUD 3.2 million feasibility study into building an export scale green hydrogen and ammonia plant in Tasmania's Bell Bay.

Australia's energy infrastructure company Jemena announced on 23 November 2020 that it had signed an agreement with Sydney Water to generate biomethane at the

Malabar Wastewater Treatment Plant, in South Sydney. The initial capacity is expected to be 95 Terajoules of renewable green gas per year with potential to be scaled up to 200 Terajoules (3,675 tonnes) per year.

Santos announced on 1 December 2020 new emissions reduction targets that include by 2030 to reduce Scope 1 and 2 absolute emissions by 26%-30% on 2020 baseline, by 2030 to actively work with customers to reduce their Scope 1 and 2 emissions by >1mtCO<sub>2</sub>e per year by 2030, and by 2040 achieve Scope 1 and 2 absolute emissions net-zero. The company said that to achieve global emissions reduction goals it is vital to focus on making hydrocarbon fuels cleaner and eventually zero emissions.

Woodside indicated in the Investor Briefing Day 2020 on 11 November that it was assuming selling down a 50% stake in the planned second train of the Pluto project. The company expects the timing to be right for final investment decisions on Scarborough and Pluto Train 2 in the second half of 2021. The Scarborough Joint Venture is on track for first LNG in 2026, according to the company. Earlier, Woodside announced on 9 November 2020 that the Scarborough Joint Venture had received offers for the grant of petroleum production licences in respect of the WA-1-R (Scarborough) and WA-62-R (North Scarborough) titles from the Commonwealth and Western Australian Joint Authority.

Strandline Resources announced on 5 November 2020 that it had appointed Woodside Energy (LNG Fuels and Power) Pty Ltd and EDL LNG Fuel to Power Pty Ltd in joint venture (WEJV) as preferred contractor to supply LNG to Coburn's power generation facilities as part of the Coburn mineral sands project in Western Australia. LNG will be supplied via road train from Woodside's Pluto LNG Truck Loading Facility. The proposed LNG supply contract is over a 10-year term (with appropriate pricing review and adjustment mechanisms).

McDermott International announced on 10 November 2020 that it had been awarded a contract to provide front end engineering and design (FEED) services for the INPEX-operated Ichthys LNG Field Development. The award is for a booster compression module FEED with optional engineering, procurement and construction (EPC) for the project. The booster compression module will be added to the Ichthys LNG offshore central processing facility, located off the northwest coast of Western Australia.

Saipem confirmed on 25 November 2020 a contract award to conduct booster compression module (BCM) front end engineering and design (FEED) services for the INPEX-operated Ichthys LNG energy development. It is planned to install the BCM onto the Ichthys Explorer central processing facility.

Santos announced a new gas sales agreement to supply natural gas to Western Australian energy solutions provider, Kleenheat, part of Wesfarmers Chemical, Energy and

Fertilisers (WesCEF). Santos will supply more than 16 petajoules of gas (294,000 tonnes) from its Varanus Island processing operations over three years from 2021.

PETRONAS announced on 5 November 2020 its aspiration to achieve Net Zero Carbon Emissions by 2050. The company said that it would continue to intensify its efforts toward reducing Scope 1 and Scope 2 Green House Gas (GHG) emissions from its assets and would also pursue new avenues of revenue creation via investments in nature-based solutions as well as establish greater accessibility to cleaner energy solutions. The company also launched its new brand positioning, Passionate about Progress that demonstrates the company's commitment to continue developing winning, progressive and sustainable solutions.

PETRONAS announced on 11 November 2020 that it had officially launched its LNG bunkering business by completing its first LNG bunkering operation at Pasir Gudang, Johor. Through a collaboration with Titan LNG, the operation involved a ship-to-ship LNG bunkering transfer from MV Avenir Advantage, PETRONAS' first LNG Bunkering Vessel (LBV) to SIEM Aristotle.

Tokyo Gas announced that its subsidiary Tokyo Gas Asia acquired 33.4% of the shares of an Indonesian gas distribution company, PT Super Energy Tbk (SE) from its parent company PT Super Capital Indonesia on 25 November 2020. On 24 November, Tokyo Gas Asia acquired approximately 18% of the shares of PT Energy Mina Abadi, a subsidiary of SE which also operates gas distribution business. SE is a gas distribution company group mainly based in Java that refines and compresses unutilized gas such as associated gas produced from oil wells and natural gas from small-scale gas fields, and supplies the gas in the form of compressed natural gas (CNG) to industrial customers.

According to Oil Search's investor day presentation on 19 November 2020, the ExxonMobil-led PNG LNG expansion project and the Total-led Papua LNG project are no longer to be combined.

### **[North America]**

Cheniere Energy, Inc. reported net loss of USD 463 million for the third quarter of 2020. During the three and nine months until September, the company recognized USD 171 million and USD 932 million, respectively, in revenues associated with LNG cargoes for which customers had notified the company that they would not take delivery. Corpus Christi Train 3 and Sabine Pass Train 6 are expected to be substantially completed in 1Q 2021 and 2H 2022.

Dominion Energy announced on 2 November 2020 that it had closed on the sale of the majority of its gas transmission and storage assets to Berkshire Hathaway. These

operations include more than 5,500 miles (8,851 km) of interstate gas transmission pipelines, about 775 billion cubic feet (Bcf) (16.13 million tonnes) of gas storage that the company operates and an operating 25% stake in Cove Point. The sale of the company's interests in the Questar Pipelines is expected to be completed in early 2021 following receipt of Hart-Scott-Rodino clearance.

On 3 November 2020, the LNG carrier Diamond Gas Metropolis, owned by NYK and the Mitsubishi Corporation, was delivered. The vessel was built at Hyundai Samho Heavy Industries in Korea. The new ship will transport LNG from the Cameron LNG project in Louisiana, as well as from other locations around the world. The ship is equipped with a WinGD-made dual-fuel slow-speed diesel engine (X-DF) that can operate on marine gas oil or boiloff gas (BOG). The ship also features a BOG reliquefaction system. It is a 174,000 m<sup>3</sup> cargo capacity membrane-type ship that will make use of advanced insulating materials to suppress the boil-off rate.

NextDecade announced on 17 November 2020 that it had selected Great Lakes Dredge & Dock Corporation (Great Lakes) to perform improvements to the Brownsville Ship Channel for LNG carriers to NextDecade's Rio Grande LNG facility. In the meantime, Engie will not finalize its contract to import LNG, the company confirmed to Le Monde newspaper on 3 November, ending discussions with NextDecade.

Venture Global LNG announced on 10 November 2020 the arrival of the first two liquefaction trains at the company's Calcasieu Pass LNG export facility in Cameron Parish, Louisiana. The 0.6 million tonne per year LNG trains were fabricated in factories and delivered within 15 months after the project's final investment decision (FID). The two modular liquefaction trains and mixed refrigerant compressor skids were shipped to Louisiana from Baker Hughes's manufacturing facility in Avenza, Italy. The trains will be connected to their respective Chart brazed aluminum heat exchangers, or cold boxes, eight of which are already installed on site.

Based on the information on Venture Global LNG's website, Venture Global Plaquemines LNG's (in Plaquemines Parish, Louisiana) financial close is scheduled in the middle of 2021. Meanwhile, Venture Global LNG announced on 23 November that KBR had been awarded the engineering, procurement and construction (EPC) contract as lead contractor for Phase 1 of the Plaquemines LNG project. KBR will integrate modularized, owner-furnished equipment for the 10 million tonne per year facility, identical to the systems being delivered and installed at Venture Global LNG's Calcasieu Pass project.

EOG Resources has made a large natural gas resource play discovery on its Dorado prospect located in Webb County, Texas. A total of 21 trillion cubic feet (Tcf) of estimated net resource potential is contained in 700 feet of stacked pay in the Austin Chalk and Eagle Ford

Shale formations.

Chart Industries completed the acquisition of the Microbulk cryogenic tank intellectual property, equipment, and other assets from IC Biomedical, a private entity on 2 November 2020. Chart acquired the business from IC Biomedical upon ICB's acquisition of these assets and the cryobiological assets of Worthington Industries. The Microbulk cryogenic tank business was originally developed by the former Taylor-Wharton.

ConocoPhillips announced on 3 November 2020 the introduction of four innovations that will further enhance the functionality of its proprietary Optimized Cascade natural gas liquefaction process or OCP™ technology - a new plant configuration (OCP Compass™), heavy removal unit (HRU) technology (OCP CryoSep™), nitrogen removal unit (NRU) technology (OCP Nitro™), a software solution (OCP Navigator™).

Southern California Gas (SoCalGas) and San Diego Gas and Electric (SDG&E) announced on 23 November 2020 the creation of a Hydrogen Blending Demonstration Program. Blending hydrogen with natural gas is part of a multi-pronged strategy the subsidiaries of Sempra Energy are undertaking to decarbonize their natural gas grid. The vision is to leverage surplus renewable electricity generated in the middle of the day to produce green hydrogen, which then can be injected into the natural gas grid for storage and use. SoCalGas, in partnership with the National Fuel Cell Research Center, and University of California Irvine, is leading the way in developing this technology, launching the first power-to-gas demonstration project in the United States in 2015.

LNG Canada revealed on 27 November 2020 that the local health authority had confirmed positive COVID-19 cases among the LNG Canada workforce.

The government of Alberta announced on 5 November 2020 that it had reached an agreement with the federal government that kept the province in charge of regulating methane emissions. The government of Alberta claims that its methane regulation is estimated to cut more emissions by 2030 than the federal system would if it applied in Alberta, and will do so at half the cost to industry.

Sempra LNG and IEnova announced on 17 November 2020 that they sanctioned a new investment to build ECA LNG Phase 1, adding liquefaction-export capacity at the Energía Costa Azul (ECA) regasification terminal in Baja California, Mexico. ECA LNG Phase 1 is the only LNG export project globally to reach a final investment decision (FID) to date in 2020 and is expected to be the first LNG-export plant on the Pacific coast of North America. ECA LNG Phase 1 will be built and operated as a single-train liquefaction facility with a nameplate capacity of 3.25 million tonnes per year of LNG and an initial offtake capacity of approximately 2.5 million tonnes per year of LNG. ECA LNG has secured definitive 20-year sales and purchase agreements with Mitsui & Co., Ltd. and an affiliate of Total SE for the

purchase of approximately 2.5 million tonnes per year of LNG from ECA LNG Phase 1. TechnipFMC was selected earlier in 2020 to perform the engineering, procurement and construction (EPC) of the Phase 1 facility.

### **[Middle East]**

The Saudi Arabian Oil Company (Aramco) announced on 3 November 2020 its financial results for the third quarter of 2020, in which the company revealed that it achieved a record historic single-day natural gas production of 10.7 bscfd (equivalent to 81.27 million tonnes per year) on 6 August 2020 from both conventional and unconventional fields.

ADNOC LNG announced on 11 November 2020 that it had signed up to a six-year supply agreement with Vitol for the sale of 1.8 million tonnes per year of post-2022 LNG volumes and a two-year supply agreement with Total for 0.75 million tonnes per year of 2021 and 2022 LNG volumes.

The Abu Dhabi National Oil Company (ADNOC) and TOTAL announced on 11 November 2020 the delivery of the first unconventional gas in the United Arab Emirates (UAE). The unconventional gas was delivered from the Ruwais Diyab Unconventional Gas Concession located 200 km west of Abu Dhabi city. The unconventional gas is delivered through a purpose-built gas pipeline and centralized early production facility in the Diyab field. In November 2018, ADNOC signed an agreement with TOTAL granting it a 40% stake in the concession.

The Abu Dhabi National Oil Company (ADNOC) announced on 12 November 2020 that it had signed a strategic framework agreement with Total, to explore joint research, development and deployment partnership opportunities in the areas of CO<sub>2</sub> emission reductions and carbon capture, utilization and storage (CCUS). The first commercial-scale CCUS facility in the Middle East at ADNOC's Al Reyadah facility has the capacity to capture 800,000 tonnes of CO<sub>2</sub> annually. ADNOC plans to expand the capacity of this program six-fold by capturing CO<sub>2</sub> from its own gas plants, with the aim of reaching 5 million tonnes of CO<sub>2</sub> every year by 2030.

Qatar Petroleum (QP) announced on 9 November 2020 the establishment and the start of operations of QP Trading LLC (QP Trading), as its dedicated LNG trading arm. QP Trading signed its first deal with Singapore's Pavilion Energy Trading & Supply Pte. Ltd. QP Trading will deliver up to 1.8 million tonnes of LNG per year for 10 years to Singapore. The deal represents the first long-term LNG arrangement containing specific environmental criteria and requirements designed to ultimately reduce the carbon footprint of the LNG supplies, QP said. QP is already implementing a series of projects and initiatives to reduce emissions and to capture and sequester more than 5 million tonnes of CO<sub>2</sub> per year by 2025.



Pavilion Energy said that the agreement was a result of a tender that Pavilion Energy launched in April 2020. The tender sought for supply partners' commitment to co-develop and implement a GHG quantification and reporting methodology for LNG from well to discharge port. Pavilion Energy said that it expected this methodology to become standardised as a common industry framework via a statement of GHG emissions, paving the way towards more environmentally responsible and sustainable natural gas strategies.

### **[Africa]**

Kosmos Energy announced on 9 November 2020 that in Mauritania and Senegal Kosmos had collaborated with operator bp and the national oil companies of Mauritania and Senegal on the optimization of Phase 2 to expand the project's capacity to 5 million tonnes per year. That would be smaller than the previous plan for Phase 2.

### **[Europe / Russia]**

According to an OIES report, pressure is mounting on the natural gas and LNG community to reduce methane emissions following the European Commission's Methane Strategy. There are increasing calls for emissions from imported pipeline gas and LNG to be quantified and based on actual measurements, as opposed to standard emission factors.

According to the European Commission (EC) website, major players in the oil and gas industry agreed to report methane emissions with a new, much higher level of transparency - the new OGMP2.0 framework. The Oil and Gas Methane Partnership (OGMP) is a Climate and Clean Air Coalition (CCAC) initiative led by the UN Environment Programme (UNEP), the European Commission (EC), and the Environmental Defense Fund (EDF).

The EU (European Union) Ombudsman said in a decision on 17 November 2020 that the European Commission's sustainability assessments had been "suboptimal" in the Commission's process for approving fossil fuel projects as "Projects of Common Interest" (PCI). The Ombudsman said future assessments of projects seeking PCI status should take into account CO<sub>2</sub> and methane emissions.

Nordsol announced on 17 November 2020 that Renewi, Nordsol and Shell had started the construction of the first bio-LNG installation in Amsterdam Westpoort. The installation will soon produce 3,400 tonnes of bio-LNG per year.

Mitsui O.S.K. Lines, Ltd. (MOL) announced on 17 November 2020 that the World's largest LNG-Bunkering Vessel "GAS AGILITY" carried out LNG Bunkering to the world's largest 23,000 TEU LNG-Fuelled Container Vessel "CMA CGM Jacques Saade" owned by CMA CGM at Rotterdam Port on 13 November 2020. GAS AGILITY is owned by Emerald Green Maritime Limited, a wholly owned subsidiary of MOL, and chartered by Total's

affiliate Total Marine Fuels Global Solutions (TMFGS).

NYK announced on 6 November 2020 that it and its partners had dissolved Marine LNG Zeebrugge NV/SA, a JV company created to manage the global brand "Gas4Sea" for the bunkering of LNG fuel for ships. The partners additionally agreed to transfer all shares of the exclusive vessel holding company for the LNG bunkering vessel (LBV) Engie Zeebrugge to NYK and make the holding company a wholly owned subsidiary of NYK. NYK has changed the name of the LBV from Engie Zeebrugge to Green Zeebrugge, and continue using the ship.

Gasum announced on 18 November 2020 that it had signed a new agreement with Equinor on supplying LNG in the ARA area including Antwerp, Rotterdam and Amsterdam. The bunkering for Equinor will mainly be performed by Gasum's bunker vessels Coralius and Kairos.

Fluxys said on 30 November 2020 that the Open Season for additional regasification capacity at the Zeebrugge LNG terminal had been successful. Fluxys plans to take a final investment decision (FID) in February 2021 at the latest.

German LNG Terminal GmbH has received the draft exemption decision from the Bundesnetzagentur (German regulatory authority). The draft decision, to be reviewed by the Federal Cartell Office and the European Commission, states that the terminal will be exempted from tariff- and network access regulation on a long-term basis and applies to the throughput capacity of 8 bcm per year.

LTew (LNG Terminal Wilhelmshaven GmbH) announced on 6 November 2020 that it was re-evaluating previous plans for an LNG terminal in Wilhelmshaven, Germany. The company said that it had decided to do so because of market players' reluctance to make binding bookings for import capacities at the planned terminal.

Total announced on 12 November 2020 that it had acquired from the Viessmann group of Charging Solutions, the subsidiary specialized in Electric Vehicle charging infrastructure of its affiliate Digital Energy Solutions (DES). Total becomes the operator in Germany of a network of a 2,000 charge points.

Finland's Gasum announced on 30 November 2020 that it had completed its first LNG bunkering operation in Emden, Germany. The bunkering was performed on November 22 to SIEM Confucius by Gasum's LNG bunker vessel Coralius.

Norway's Equinor announced on 2 November 2020 its ambition to become a net-zero energy company by 2050. The ambition includes emissions from production and final consumption of energy. Earlier in 2020, Equinor announced its plans to achieve carbon neutral global operations by 2030 and to reduce absolute greenhouse gas (GHG) emissions in Norway to near zero by 2050.

Equinor announced on 17 November 2020 that it had received the report of the

Petroleum Safety Authority Norway (PSA) after its inspection of the accident and electrical system at Hammerfest LNG in the period 21 to 24 September 2020. Equinor has started improving the conditions that led to the order, deviations and improvement areas indicated in the PSA report. The PSA's report in writing confirmed the findings communicated in the earlier verbal summary of the inspection and concludes that a systematic approach to the application and execution of deviation handling is missing. The report further indicates a lack of correction and follow-up of conditions pointed to by the PSA during former inspections. The PSA report states that the inspection has proven serious breaches to the regulations on deviation handling and orders Equinor to review the company's system for recording and follow-up of identified deviations, secure handling of identified deviations and implement measures that are required to secure compliance with the company's systems for recording and follow-up of deviations.

Gasum announced on 2 November 2020 that it acquired the entire share capital in Skövde Biogas AB from Torran Gas Holding AB on 31 October. Gasum will increase the volume of in-house produced biogas in its portfolio. Gasum also announced on 20 November 2020 that Oulun Energia and Gasum planned to build a biogas plant in conjunction with Oulun Energia's Laanila eco power plant.

Spain's Endesa announced on 18 November 2020 a plan to adapt its port terminal in Los Barrios, in Algeciras (Cádiz) to supply LNG to ships. It will be the largest LNG bunkering terminal in Spain.

Italy's Snam announced on 25 November 2020 that it would be one of the first energy companies to reach carbon neutrality in 2040 through the development of green gases and, in particular, hydrogen.

Air Liquide announced on 19 November 2020 the construction of its first two biomethane production units in collaboration with its local partner Dentro il Sole (DIS). The two units will be built in Truccazzano (Milan) and Fontanella (Bergamo) in Italy, recycling organic material from agricultural and livestock activities to convert it into biomethane.

Greece's DESFA signed an agreement for the acquisition of a 20% stake in Gastrade SA, the company that develops the project of a floating storage and regasification unit (FSRU) in Alexandroupolis. The FSRU will have an LNG storage capacity of up to 170,000 m<sup>3</sup> and a natural gas sent out capacity that will exceed 5.5 bcm per year. This is a European Project of Common Interest (PCI - EU Regulation 347/2013), a priority project of the European Union. The Terminal is expected to be operational in early 2023.

PGNiG chartered two 174,000 m<sup>3</sup> LNG carriers from Knutsen OAS Shipping. The ships will be used for trading LNG contracted by PGNiG with suppliers including Venture Global LNG in the United States from 2023.

On 5 November 2020, PGNiG Obrót Detaliczny and LOTOS Asphalt conducted the first bunkering of a ship with LNG at the Port of Szczecin with the use of cryogenic LNG tanker trucks. PGNiG Obrót Detaliczny is a PGNiG Group company providing LNG bunkering services at five ports in Poland (Szczecin, Świnoujście, Police, Gdynia, and Gdańsk).

LNG Croatia announced on 21 November 2020 that the FSRU vessel 'LNG CROATIA' had left Viktor Lenac shipyard for Sagunto, Spain, where the commissioning cargo would be loaded on the FSRU. The FSRU vessel arrived at the location of the terminal in early December 2020, in order to start commercial operations in January 2021.

Gazprom announced on 30 November 2020 that net sales of gas to Europe and other countries decreased by RUB 748.850 billion, or 40 %, to RUB 1,135.130 billion for the first nine months of 2020 compared to the same period of the prior year. The company said that volumes of gas sold to Europe and other countries decreased by 10%, or 17.0 bcm (to 154.4 bcm from 171.4). At the same time average prices denominated in the US Dollar decreased by 40%.

NOVATEK announced on 25 November 2020 that NOVATEK-Western Arctic, a wholly owned subsidiary, had completed Russia's first ship-to-ship LNG transshipment in the Kildin Strait of the Barents Sea. The Arc7 ice-class LNG tanker "Nikolay Yevgenov" reloaded an LNG cargo delivered from the Yamal LNG facility at Sabetta to the conventional tanker "Yamal Spirit". The transfer was conducted at a temporary LNG Offshore Transshipment Complex in the seaport of Murmansk.

NOVATEK announced on 25 November 2020 that the overall progress of the Arctic LNG 2 project was estimated at 29%, with concrete casting of the first GBS platform estimated to be 67% completed. The modules fabrication progress for the first GBS is estimated at 46%. 17 production wells have already been drilled at the Utrenneye field with three (3) drilling rigs in operation. Two (2) more drilling rigs are expected to be mobilized before year end 2020.

Mitsui O.S.K. Lines (MOL) announced on 2 November 2020 that charter agreements were signed for three icebreaking LNG carriers with ARCTIC LNG 2, the largest shareholder of which is NOVATEK, on 28 October 2020. The vessels will be built by Daewoo Shipbuilding & Marine Engineering (DSME) and are scheduled for delivery in 2023. The vessels will mainly transport LNG from an LNG loading plant on the Gydan Peninsula in the Russian Arctic to the floating LNG storage units (FSU) to be installed at the transshipment terminals in Kamchatka (eastbound) and Murmansk (westbound) via the Northern Sea route.

Naftogaz announced on 27 November 2020 that it had joined the Oil and Gas Methane Partnership 2.0.

**[South America]**

Spain's Naturgy announced on 13 November 2020 that it had reached an agreement with the China's State Grid International Development Limited (SGID) to sell its holding (96.04%) in the electricity grids business in Chile, Compañía General de Electricidad (CGE).

Reference: Company announcements, Cedigaz News Report.

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