

LNG Review June 2021 - Recent issues and events -

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Introduction

The strong demand for LNG in Northeast Asia, especially in China, unplanned outages at some LNG production facilities and the firmer European spot gas market partly due to rising carbon prices in the EU emission trading market, have kept assessed Asian spot LNG prices higher since the middle of June in the highest level after 2014.

China imported 7.03 million tonnes of LNG, an increase of 36.5% year-on-year, in May 2021, surpassing Japan for two straight months. China's cumulative import of LNG during the first five months of the year increased by 30% year-on-year to reach 33.23 million tonnes, surpassing Japan's 33.18 million tonnes in the same period. China's natural gas consumption during the five months was 153.3 bcm, an increase of 17.1% year-on-year.

Qatar Petroleum (QP) has announced that it has received high qualities of offers for equity participation in the North Field East project, the largest LNG production capacity expansion in the history. QP has also noted that it has received offtake interests for double the 32 million tonnes per year volume on offer. This is an indication of recognised competitiveness of the project not only for its sheer size but also for the attached CCS project.

Initiatives continue emerging at LNG projects elsewhere in the world to make clean LNG even cleaner and greener. Australia's Woodside has announced a solar power plan, as well as new interim and long-term targets to achieve net zero greenhouse gas emissions by 2050 at its Pluto LNG. Cheniere Energy of the United States has announced an initiative to collaborate with natural gas producers to improve information on GHG footprints. Venture Global LNG has announced plans of CCS at its LNG projects. Russian and Canadian LNG project proponents have been also active in their decarbonisation efforts.

[Asia Pacific]

Tokyo Gas announced on 15 June 2021 that it had received a third-party validation report for its plan regarding carbon neutral city gas implemented in fiscal 2019 and 2020.

* 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.

Classification Society ClassNK announced on 16 June 2021 that it had granted an Approval in Principle (AiP) to Tsuneishi Shipbuilding Co., Ltd. for the company's concept design of a dual-fuelled (LNG and fuel oil) bulker "KAMSARMAX GF".

NYK announced on 15 June 2021 that it had signed a memorandum of understanding (MoU) for construction of LNG-fueled PCTCs at Shin Kurushima Dockyard and Nihon Shipyard. Twelve new ships are planned to be built, six ships each at the two shipyards. The ships will be delivered successively from fiscal 2025 to fiscal 2028.

Mitsui O.S.K. Lines (MOL) announced on 18 June 2021 "MOL Group Environmental Vision 2.1" as a guide to achieve net zero GHG emissions by 2050, which envisages introduction of approximately 90 LNG-fuelled vessels by 2030 and approximately 110 net zero emissions ocean-going vessels by 2035.

A coalition of 23 multinational companies entered on 11 June 2021 a Memorandum of Understanding (MoU) to initiate a joint study on ammonia as an alternative marine fuel.

Astomos Energy Corporation announced on 11 June that it had signed an agreement to purchase a VLGC-size cargo of carbon-neutral LPG from Shell.

According to data from NDRC (National Development and Reform Commission), China's natural gas consumption during the first five months of 2021 was 153.3 bcm, an increase of 17.1% year-on-year. According to China's Customs Statistics, the country imported 7.03 million tonnes of LNG, an increase of 36.5% year-on-year, in May 2021, surpassing Japan for two straight months. China's cumulative import of LNG during the first five months of the year increased by 30% year-on-year to reach 33.23 million tonnes, surpassing Japan's 33.18 million tonnes in the same period.

China National Offshore Oil Corporation (CNOOC) announced on 10 June 2021 that the company had started construction of six 270,000 cubic metre LNG storage tanks in Yancheng Binhai Port Industrial Park in Jiangsu province. The tanks have been independently developed and designed by CNOOC.

China's Hudong-Zhonghua Shipbuilding announced on 29 June 2021 that it had held the naming ceremony for a floating storage and regasification unit (FSRU) built for Greek shipping company Dynagas. The 174,000-cubic metre Transgas Power is the first FSRU built in China.

Norway's Crown LNG Holding AS announced on 9 June 2021 its plan of an LNG terminal as a gravity-based structure that sits on the seabed approximately 11 kilometres offshore Kakinada, India. Crown LNG has signed an agreement with East LNG; to finance, build and lease the infrastructure for the terminal. Crown has also been contracted for operations and management of the facility for 25 years. The company said that it was working towards a final investment decision (FID) in 2022.

India's H-Energy announced on 16 June 2021 that it had signed a Memorandum of Understanding (MoU) with Petrobangla. The companies are expected to finalize a long-term agreement to supply regasified LNG to Bangladesh through a cross-border pipeline.

The Australian Government announced on 16 June 2021 a call for area nominations for the 2021 Greenhouse Gas Acreage Release, covering Commonwealth waters across Australia. The release will provide companies the opportunity to explore for offshore greenhouse gas injection and storage locations.

Australia's Oceania Marine Energy and Norway's Kanfer Shipping announced on 15 June 2021 that the companies had signed a Letter of Intent (LOI) to bring the world's first ammonia-ready LNG bunkering vessel to Australia.

Transborders Energy announced on 15 June 2021 that it had executed Joint Study Agreements with JX Nippon Oil & Gas Exploration Corporation (JX NOEX) and Toho Gas to co-develop deepC Store. deepC Store will consist of capturing CO₂ from industrial sources, shipping of liquid CO₂ to a CO₂ Floating Storage and Injection (FSI) hub facility in offshore Australia, and a CO₂ injection well for storage in a subsurface storage complex.

Australia's Global Energy Ventures (GEV) announced on 7 June that it had initiated development of a pilot-scale C-H₂ Ship with a cargo capacity of 430 tonnes of hydrogen.

Chevron announced on 8 June that Chevron Technology Ventures, LLC had participated in a capital raising round for Melbourne-based solar technology developer RayGen Resources Pty Ltd (RayGen).

Santos announced on 8 June that the company and Beach Energy had been awarded a AUD 15 million grant from the Australian Government's Carbon Capture Use and Storage Development Fund. The Moomba carbon capture and storage (CCS) project in outback South Australia which will store 1.7 million tonnes of carbon dioxide (CO₂) per year with capacity for up to 20 million tonnes annually across the Cooper Basin.

Santos announced on 29 June the launch of Front-End Engineering and Design (FEED) for the Dorado project offshore Western Australia. Dorado is an integrated oil and gas project which is planned to be developed in two phases. Phase 1 development involves the production of oil and condensate through a well head platform (WHP) and floating production, storage and offloading facility (FPSO). Phase 2 will then develop the significant natural gas resources in the basin and provide future backfill supply to Santos' current WA domestic gas infrastructure assets.

Chevron announced on 2 July that the Gorgon partners would proceed with the Jansz-Io Compression (J-IC) project. J-IC is positioned to maintain gas supply from the Jansz-Io field to the three existing LNG trains and domestic gas plant on Barrow Island, the company said. A modification of the existing Gorgon development, J-IC will involve the

construction and installation of a 27,000-tonne normally unattended floating Field Control Station (FCS), approximately 6,500 tonnes of subsea compression infrastructure and a 135 km submarine power cable linked to Barrow Island. Construction and installation activities are estimated to take approximately five years to complete. J-IC follows the Gorgon Stage 2 project, which is nearing completion of the installation phase, to supply gas to the Gorgon plant from four new Jansz-10 and seven new Gorgon wells.

Woodside announced on 8 June that it had set new interim and long-term targets to achieve net zero greenhouse gas emissions by 2050 at Pluto LNG. The targets, which have been approved by Western Australian Minister for Environment under Woodside's contemporised Pluto Greenhouse Gas Abatement Program (GGAP), include an interim target to abate 30% of emissions by 2030 and long-term targets to abate 100% of emissions by 2050. The targets are based on the proposed expansion of Pluto LNG and account for emissions associated with a two-train facility. Woodside is targeting a final investment decision for Scarborough and Pluto Train 2 in the second half of 2021.

Eni announced on 7 June positive drilling and testing of the Maha 2 appraisal well, located in West Ganal block offshore Kalimantan, in Indonesia. The company said that the development plan will most likely foresee a sub-sea completion and a tie-in to Jangkrik FPU.

Indonesia's Pertamina announced on 29 June that Perusahaan Gas Negara (PGN) and Pertamina International Shipping (PIS) had signed a Head of Agreement (HoA) on the supply of LNG carriers and LNG bunkering facilities.

[North America]

The U.S. House of Representatives on 25 June 2021 voted to undo the previous administration's 2020 rollback of regulations to reduce emissions of methane from oil and gas infrastructure, following a similar move by the Senate in April.

The U.S. Department of Energy's (DOE), Office of Fossil Energy and Carbon Management (FECM) announced on 17 June 2021 a research project with Oak Ridge National Laboratory (ORNL) to evaluate existing domestic oil and natural gas infrastructure and provide a Geographical Assessment of Natural Gas Infrastructure and Pipeline Materials for Blended Gas Transport for hydrogen, methane and other gas blends.

JERA announced on 16 June 2021 that it had received notice of acceptance of its grant application to conduct a feasibility study on CO₂ capture and methanation in the United States under the New Energy and Industrial Technology Development Organization's program. The company plans to evaluate the potential of a methanation business that would produce CO₂-free methane gas from hydrogen generated using renewable energy and CO₂ captured from existing thermal power plants and refineries. The company will conduct the

study from June 2021 to February 2022.

Cheniere Energy announced on 10 June 2021 a collaboration with five natural gas producers and several leading academic institutions to implement quantification, monitoring, reporting and verification (QMRV) of greenhouse gas (GHG) emissions performance at natural gas production sites. The program will support Cheniere's climate strategy initiatives, including the company's plan to provide Cargo Emissions Tags (CE Tags) to customers beginning in 2022. The project will monitor sites for carbon dioxide and for both fugitive and vented methane emissions. The initiative will also verify emissions performance and identify opportunities to reduce emissions.

Sempra revealed during its investor day presentation on 30 June 2021 that the company would develop a 6 million tonne per year train at its Cameron LNG export facility in Louisiana, instead of two trains with 9.97 million tonnes per year capacity. A final investment decision (FID) could be made by the end of 2022. The company also revealed that it and Saudi Aramco agreed to cease their 2019 agreements to negotiate transferring a 25% stake in the Port Arthur project and a potential offtake deal.

Tellurian announced with Gunvor on 27 May and with Vitol on 3 June 2021, respectively, an LNG SPA each, for 3 million tonnes per year for ten years, indexed to a combination of two indices, JKM and TTF, netted back for transportation charges. The LNG would be delivered FOB from Tellurian's Driftwood LNG.

Tellurian announced on 22 June that its subsidiary Driftwood Pipeline LLC had submitted an application with the Federal Energy Regulatory Commission (FERC) to construct and operate Line 200 and 300, an approximately 37-mile (60 km), dual 42-inch diameter interstate pipeline that will originate near Ragley in Beauregard Parish, Louisiana and end near Carlyss in Calcasieu Parish, Louisiana. The new pipeline has been designed and routed to connect the supply located 21 miles (34 km) north of Lake Charles to the demand located within and south of Lake Charles. Later, Tellurian announced on 29 June that its subsidiary Driftwood LNG had exercised its long-term lease option with the Lake Charles Harbor and Terminal District on the 477 acre (1.93 km²) site in Sulphur, Louisiana, for an initial term of 20 years with extension options of up to 50 years.

Stabilis Solutions announced on 1 June that it had completed the acquisition of an LNG production facility in Port Allen, Louisiana from HR Nu Blu Energy. Built in 2018, the facility has nameplate production capacity of 30,000 LNG gallons (48 tonnes) per day which increases Stabilis' total nameplate production capacity by approximately 30%.

Kinder Morgan, Inc. announced on 1 June that it had agreed to acquire Stagecoach Gas Services LLC, a natural gas pipeline and storage joint venture between Consolidated Edison and Crestwood Equity Partners LP. Stagecoach consists of 4 natural gas storage

facilities with a total FERC-certificated working gas capacity of 41 billion cubic feet (0.853 million tonnes) and 185 miles (298 km) of natural gas pipelines with multiple interconnects to major interstate natural gas pipelines, including Tennessee Gas Pipeline (TGP), a KMI subsidiary. The transaction is expected to close in the third quarter.

EQT Corporation announced on 29 June targets to achieve net zero Scope 1 and 2 greenhouse gas (GHG) emissions in its Production segment operations by or before 2025. EQT had also announced participation in the OGMP 2.0.

Devon Energy announced on 21 June 2021 that it was establishing new environmental performance targets focused on reducing the carbon intensity of its operations, minimizing freshwater use, and engaging constructively with its value chain. The company is targeting reductions of its Scopes 1 and 2 GHG emissions intensity by 50% and methane emissions intensity by 65% by 2030 from a 2019 baseline. Devon is targeting a flaring intensity of 0.5% of gross natural gas produced by 2025 and eliminating routine flaring by 2030.

Sempra Energy announced on 15 June 2021 that Southern California Gas (SoCalGas) and its H2 Hydrogen Home had been named one of Fast Company's World-Changing Ideas in the North America category. The award honours products, concepts, companies, policies, and designs that are pursuing innovation for the good of society and the planet. SoCalGas' H2 Hydrogen Home is the first project of its kind in the United States aiming to show how carbon-free gas made from renewable electricity can be used in pure form or as a blend to fuel clean energy systems of the future. The H2 Hydrogen Home, which will be built later in 2021 in the city of Downey, is the first fully integrated demonstration project with solar panels, a battery, and electrolyzer to convert solar energy to hydrogen and a fuel cell to supply electricity for the home.

Royal Caribbean announced on 16 June 2021 the start of construction of the cruise ship Icon of the Seas at the Meyer Turku shipyard in Finland. Debuting in fall 2023, Icon will be the cruise line's first of three ships to be powered by LNG.

Canada's Cryopeak LNG Solutions Corporation announced on 7 June the commencement of operations at its new LNG production facility in Fort Nelson, British Columbia. Phase 1 production capacity is 27,000 LNG gallons per day and the plant is scalable to 100,000 gallons per day under its current permit.

The Haisla Nation and Pembina Pipeline Corporation announced on 8 June a partnership agreement whereby Pembina will become the Haisla Nation's partner in the proposed Cedar LNG Project. Pembina will acquire the equity interests in Cedar LNG currently owned by PTE Cedar LP and Delfin Midstream Inc., with a resulting approximate ownership of 50% each between the Haisla Nation and Pembina. Pembina will assume

operatorship. Cedar LNG is a proposed floating LNG facility in Kitimat, British Columbia, within the traditional territory of the Haisla Nation. Cedar LNG's facility will be interconnected to the existing BC Hydro transmission system, utilizing renewable electricity. The Project will have a liquefaction capacity of 3 million tonnes per year of LNG and will source natural gas from the Montney resource play in northeast British Columbia. Cedar LNG has secured a long-term transportation agreement on the Coastal GasLink pipeline for 400 million cubic feet per day of firm capacity. Cedar LNG expects to make a final investment decision (FID) in 2023, with the expected in-service date planned for 2027.

Pembina Pipeline and Inter Pipeline Limited announced on 1 June 2021 that they had signed an arrangement agreement for Pembina to acquire Inter Pipeline.

Pieridae Energy Limited announced on 2 July that the company failed to meet all the key conditions to make a final investment decision (FID) on the Goldboro LNG project by 30 June. Hence the company had made the decision to move Goldboro LNG in a new direction. The company said it would analyse alternatives that could make an LNG project more compatible with the current environment. The company will continue its work to optimize operation and development of its Foothills resources and midstream assets, including the carbon capture and sequestration and blue power development.

Canada's GNL Québec and the Hanseatic Energy Hub announced on 3 June that they had launched a strategic partnership on "low-GHG emission" LNG exports from Canada to Germany. The parties have agreed to develop standards and processes for importing LNG from LNG Québec's Énergie Saguenay carbon-neutral export plant to the Hanseatic Energy Hub's carbon-neutral regasification terminal in Stade, near Hamburg.

Air Products and Baker Hughes announced on 9 June a strategic global collaboration to develop next generation hydrogen compression to lower the cost of production and accelerate the adoption of hydrogen as a zero-carbon fuel. Baker Hughes will provide Air Products with advanced hydrogen compression and gas turbine technology for global projects, including NovaLT16 turbines for Air Products' net-zero hydrogen energy complex in Edmonton, Alberta, Canada and advanced compression technology for the NEOM carbon-free hydrogen project in the Kingdom of Saudi Arabia.

Canada's Tourmaline Oil Corporation announced on 11 June that it had concluded an agreement to acquire privately owned Black Swan Energy Limited. The transaction is expected to close in the second half of July. Tourmaline envisions the North Montney as the key sub-basin for supplying Canadian LNG. The acquisition complements Tourmaline's core Gundy development and, along with the more recent Polar Star, Chinook, and Saguario transactions, will establish Tourmaline as the largest current North Montney producer.

TC Energy Corporation confirmed on 9 June that it had terminated the Keystone

XL Pipeline Project.

Mexico's regulator CRE granted on 14 June New Fortress Energy permits to regasify, store and distribute LNG at its planned Pichilingue terminal in Baja California Sur.

[Middle East]

Qatar Petroleum (QP) announced on 30 June 2021 a long-term Sale and Purchase Agreement (SPA) with Shell to supply 1 million tonnes per year of LNG to China for ten years. Deliveries will commence in January 2022 to multiple terminals in China. QP plans to supply the volumes from its Qatargas 1 venture, which will become 100% owned by QP as of January 2022. With the agreement, China would be supplied with 12 million tonnes per year of LNG under long term SPAs from Qatar, QP said. The company also announced on 23 June 2021 that it had received offers for double the equity available to partners in the bidding process for the North Field East project. QP noted that it had received offtake commitments/ sales and purchase agreements for double the 32 million tonnes per year volume on offer. QP also said that it started decarbonizing its LNG a while ago, and that it currently captures and sequesters two million tonnes per year of CO₂, which will grow to 9 million tonnes by 2030.

Oman LNG announced on 8 June 2021 that it had signed an agreement with Shell to deliver the country's first carbon-neutral LNG cargo. According to the announcement, the cargo is the first carbon-neutral LNG from the Middle East using nature-based carbon credits to offset full lifecycle CO₂ emissions generated across the LNG value chain.

[Africa]

Nigeria LNG announced that a groundbreaking ceremony of the Train 7 project was held at the Company's plant site on Bonny Island, Rivers State, on 15 June 2021. The project is expected to increase NLNG's current six-train plant capacity by about 35% from 22 to 30 million tonnes per year. The project is scheduled to span approximately five years, the company said. Earlier, NLNG announced on 8 June that it had signed Sales and Purchase Agreements (SPAs) with three Nigerian companies to supply 1.1 million tonnes per year of LNG to the domestic market.

Karpowership announced on 17 June 2021 that KARMOL's (50/50 joint venture between Karpowership and Mitsui OSK Lines (MOL)) first Floating Storage and Regasification Unit (FSRU), KARMOL LNGT Powership Africa, arrived in Senegalese waters on 31 May 2021 from Singapore. The vessel will connect to a Powership, a floating power plant, owned by Karpowership, through gas pipelines. The Karadeniz Powership Aysegül Sultan, has a capacity of 235MW and has been in operation since October 2019.

[Europe / Russia]

The European Council announced on 11 June 2021 a general approach on the revision of the Trans-European Networks for Energy (TEN-E) Regulation. In the case of Cyprus and Malta, that are not interconnected to the trans-European gas network, projects under development that have been granted the Project of Common Interest (PCI) status under the previous Regulation will maintain their status until the interconnection is complete.

GIE (Gas Infrastructure Europe) published on 15 June 2021 a study presenting the essential role of underground gas storages in establishing an integrated energy system and hydrogen economy in Europe by 2050.

TotalEnergies, Macquarie's Green Investment Group (GIG), and Renewable Infrastructure Development Group (RIDG) announced on 15 June that The Offshore Wind Power Ltd (OWPL) consortium intended to bid for sites in Scotland's forthcoming offshore wind leasing round (ScotWind).

Gate LNG terminal announced on 30 June that the terminal's first carbon-neutral cargo arrived in May brought by TotalEnergies and OMV.

German LNG Terminal GmbH announced on 4 June that the European Commission had approved the exemption decision for the Brunsbüttel terminal. In December 2020, German LNG Terminal was informed of the decision of the German Federal Network Agency (Bundesnetzagentur- BNetzA), granting it exemption from tariff and network access regulation. German LNG Terminal GmbH is a joint venture between Dutch companies Gasunie LNG Holding B.V. and Vopak LNG Holding B.V. as well as Oiltanking GmbH, a subsidiary of Marquard & Bahls AG, based in Hamburg, Germany.

bp announced on 14 June 2021 that it had agreed to join Statkraft and Aker Offshore Wind in a consortium bidding to develop offshore wind energy in Norway. The partnership will pursue a bid to develop offshore wind power in the Sørilige Nordsjø II (SN2) licence area.

Equinor presented on 15 June its strategy to accelerate the company's transition while growing cash flow and returns. The company has set an ambition to reach a 40% reduction in net carbon intensity by 2035, on the way towards net zero by 2050.

Höegh LNG announced on 8 June 2021 that the company had agreed with Gen2 Energy to cooperate on the development of a seaborne logistics chain for green hydrogen as envisioned by Gen2 Energy after acquiring a minority stake in Gen2 Energy.

Finland's shipping company Wasaline announced on 9 June that its LNG-powered ferry Aurora Botnia had left shipbuilder Rauma Marine's shipyard for its sea trials.

Denmark's Ørsted announced on 15 June that it had identified the 100 MW straw-fired unit at the Avedøre Power Station in Copenhagen as the best point source of sustainable CO₂ for the next phases of the Green Fuels for Denmark Power-to-X facility.

Burckhardt Compression announced on 14 June that it had received an order for a Diaphragm Compressor manufactured in Shenyang, China and shipped as a container-installed compression unit to Switzerland for a new green hydrogen production plant.

Spain's Enagás announced on 4 June that its subsidiary Scale Gas and Peninsula, an independent shipper of marine fuels, had reached an agreement for the construction and joint ownership of an LNG supply vessel with a capacity of 12,500 m³, which will operate in the Strait of Gibraltar. The vessel will be chartered by Peninsula and will use Enagás' regasification plants, mainly the one in Huelva, as LNG loading points. The vessel is scheduled for delivery in the third quarter of 2023 by Korea's Hyundai Mipo Dockyard.

Spain's HAM Group announced on 30 June 2021 that the company had delivered its 100th LNG service station in France. The company said that it had designed, built and commissioned more than 25% of the LNG service stations in Europe.

The European Commission announced on 17 June that it had approved, under EU State aid rules, a €166.7 million Greek support measure for the construction of a new LNG terminal in Alexandroupolis. The project will contribute to the security and diversification of energy supplies in Greece and, more generally, in the region of Southeast Europe, without unduly distorting competition, as it will constitute a new potential energy source to feed into the interconnector between Greece and Bulgaria ("IGB").

DESFA announced on 17 June that DESFA and Dioriga Gas had signed the Advanced Reservation of Capacity Agreement (ARCA) for the construction of the connections between the planned floating storage and regasification unit of Dioriga Gas, which is set to be developed by the subsidiary of Motor Oil in the Gulf of Agioi Theodoroi, in Corinth and the National Natural Gas Transmission System (NNGTS) owned and operated by DESFA.

Turkey's BOTAŞ has installed its first floating storage and regasification unit (FSRU) "Ertuğrul Gazi" at the Dörtyol terminal.

Chart Industries announced on 15 June that it had booked an order for a helium liquefaction large scale helium plant for one of the largest independent oil and gas producers in Russia. Chart said that the plant would be the second of its kind, and Cryo Technologies provided the customer's first helium plant. Equipment deliveries are anticipated to be complete by the end of 2022.

Russian Maritime Register of Shipping (RS), classification society, announced on 10 June 2021 that the company and Gaztransport & Technigaz (GTT) had joined their forces to advance the safety and efficiency of new LNG transportation technologies and signed a new Cooperation Agreement to meet the demands of the LNG market. The new agreement expands the scope of cooperation of the parties that was initially formalized in March 2019. RS and GTT will work jointly towards the introduction of safe and viable membrane fuel

tanks solutions for RS-classed ships while the application of LNG as fuel promotes membrane technologies for fuel tanks.

Russian President announced on 4 June 2021 at St Petersburg International Economic Forum plenary session that the laying of pipes for the first string of the Nord Stream 2 pipeline was concluded on the same day.

Russia's Yamal LNG announced on 2 July the scheduled maintenance of the first LNG train with a shutdown from 1 to 19 August. The regular maintenance is carried out in accordance with the approved annual schedule and will not affect the planned LNG production volume for the year, the company said.

Russia's NOVATEK announced on 2 June that NOVATEK Gas & Power Asia and Zhejiang Energy Gas Group signed a Heads of Agreement (HOA) for long-term supply of LNG from the Arctic LNG 2 project for up to 1 million tonnes per year for 15 years on a DES basis. NOVATEK also announced on the day that NOVATEK Gas & Power Asia and Glencore signed a Heads of Agreement (HOA) for long-term supply of LNG from the Arctic LNG 2 project for in excess of 0.5 million tonnes per year.

NOVATEK and TotalEnergies announced on 3 June 2021 that they had signed a Memorandum of Understanding (MOU) on decarbonization, hydrogen and renewables. The Parties intend to cooperate on reducing greenhouse gas emission at joint projects by implementing carbon capture and storage technologies and utilizing renewable energy sources at joint LNG projects. In addition, the MOU considers the production and usage of hydrogen as a low-carbon fuel, as well as the marketing of carbon-neutral products including LNG. Specifically, technical solutions will be considered to improve the efficiency of power generation for LNG production, including using waste heat utilization technologies. The MOU also envisages developing and deploying technologies to convert gas turbine equipment to hydrogen fuel. Furthermore, the Parties also agreed to work on solutions for the construction of wind power generation facilities and other renewable energy sources to reduce the carbon footprint of LNG projects.

NOVATEK and TotalEnergies also announced a Share Purchase Agreement on the sale to the latter of a 10% participation interest in Arctic Transshipment LLC. Arctic Transshipment LLC is NOVATEK's subsidiary that will operate two LNG transshipment complexes currently under construction in the Kamchatka and Murmansk regions.

NOVATEK announced on 3 June that it and Fortum signed a Memorandum of Understanding (MOU) on cooperation in renewable power. The MOU envisages that NOVATEK, including the Cryogas-Vysotsk LNG project in particular, will purchase electricity produced by Fortum's renewable power facilities in Russia. Using green energy produced by wind farms owned by Fortum and its joint ventures at the Company's LNG plant in Vysotsk

will enable NOVATEK to offer its LNG customers a more sustainable product with a reduced Scope 2 carbon footprint (purchased electricity), NOVATEK said.

NOVATEK announced on 4 June that the company and the Leningrad Region had signed a Cooperation Agreement covering social and economic development in the region. The company's Cryogas-Vysotsk LNG plant and Ust-Luga Gas Condensate Fractionation and Transshipment Complex are located in the region.

Russia's Gazprom announced on 9 June 2021 that the first production train of the Amur Gas Processing Plant (GPP) had been commissioned. With a design processing capacity of 42 billion cubic meters of gas per year, the GPP plant receives multi-component gas via the Power of Siberia gas pipeline from the Chayandinskoye field (Yakutia); later on, it will also receive gas from the Kovyktinskoye field (Irkutsk Region). The commissioning of the next five trains is synchronized with increases in the volumes of gas transmitted via Power of Siberia. In 2025, the GPP will reach its full design capacity. Operating at full capacity, the GPP will have capacity to produce 2.4 million tonnes of ethane, 1.5 million tonnes of LPG, and 200,000 tonnes of pentane-hexane fraction. The Amur GPP is also expected to produce 60 million cubic meters of helium per year.

Russia's Sovcomflot (SCF Group) announced on 4 June that the company and Sakhalin Energy, the operator of the Sakhalin-2 project, signed long-term time-charter contracts for SCF's two existing LNG-fuelled tankers, Korolev Prospect and Vernadsky Prospect. The vessels will be delivered to the charterer in 2024 and employed to shuttle crude oil for the Sakhalin-2 project. Prior to delivery, both tankers will be upgraded to allow direct fuelling from the project's Prigorodnoye production complex LNG terminal.

[South America]

Excelerate Energy announced on 2 June 2021 that the company's floating storage and regasification unit (FSRU) Exemplar had begun operations in Bahía Blanca, Argentina.

Equinor announced on 1 June 2021 that the company (operator), ExxonMobil, Petrogal Brasil and Pré-sal Petróleo SA (PPSA) had decided to develop phase one of the Bacalhau field in the Brazilian pre-salt Santos area. It is the first greenfield development by an international operator in the pre-salt area.

Brazil's Petrobras announced on 21 June 2021 that it had disqualified Excelerate Energy LP's bid on a lease for an LNG terminal in the Bahia state for not complying with the rules of the tender.

Reference: Company announcements, Cedigaz News Report.

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