

## LNG Review November 2022 - Recent issues and events - Hiroshi Hashimoto\*

### **Introduction**

East Africa has shipped its first LNG into the global LNG market. Partners have confirmed that LNG production and shipment have begun at the Coral Sul Floating LNG project in Mozambique.

Japan's average LNG import price was JPY 156,399 per tonne and USD 20.79 per million Btu in October 2022, both down from the preceding month for the first time in four months, but still in the historical high level. Notably, four cargoes were imported for over USD 50 per million Btu and around JPY 400 thousand per tonne.

During the first 10 months of 2022, the European Union and the United Kingdom combined imported 36 million tonnes more LNG than one year earlier, while the world traded only 16 million tonnes more. Asia and Central and South America reduced LNG imports by 15 and 6 million tonnes, respectively.

China and India reduced LNG imports by 13 and 4 million tonnes, respectively, during the same period, while some other countries brought in more LNG. China's and India's gas consumption decreased by 1.1% and 5%, respectively. China used 5% less and India used 28% less gas for power generation.

The U.S. Federal Energy Regulatory Commission (FERC) approved construction of Commonwealth LNG project with capacity of 8.4 million tonnes per year, as the first such approval in more than two years. Sempra's Port Arthur LNG Phase 1 (13.5 million tonnes per year) and Energy Transfer's Lake Charles LNG (16.5 million tonnes per year) both revealed their respective FID targets in the first quarter of 2023, which should see their LNG production from 2027.

LNG marketing activities have advanced from Qatar after completion of selections of international partners in the NFE/NFS (North Field East / South) projects. The first long-term LNG sales deal was concluded from the NFE project - 4 million tonnes per year for 27 years to China. Sales agreements for up to 2 million tonnes per year for 15 years or more to Germany - the first such long-term sales of LNG from Qatar to Germany. The volumes will be supplied from the joint ventures between QatarEnergy and ConocoPhillips.

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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.

## **[Asia Pacific]**

NYK announced on 2 November 2022 that it had decided to order two LNG-fueled large coal carriers from Oshima Shipbuilding Co., Ltd. The vessels are scheduled to be delivered in 2025.

Chevron Corporation and Mitsui O.S.K. Lines, Ltd. (MOL) announced on 10 November 2022 the signing of a Joint Study Agreement (JSA) on the feasibility of transporting liquified carbon dioxide (CO<sub>2</sub>) from Singapore to permanent storage locations offshore Australia. Chevron and MOL will explore the technical and commercial feasibility of initially transporting up to 2.5 million tonnes per year of liquified CO<sub>2</sub> by 2030.

Pavilion Energy, Gasum and CNOOC Gas and Power Group announced on 15 November 2022 the signing of a Heads of Agreement (HoA) for strategic collaboration to strengthen a global LNG bunker supply network in the world's top three bunkering regions, i.e. Singapore, North West Europe (including Amsterdam, Rotterdam and Antwerp), as well as China coastal areas.

Japan and Thailand on 16 November 2022 signed a memorandum of understanding (MoU) on emergency cooperation in LNG and joint investment in the LNG sector.

Tokyo Gas Engineering Solutions Co., Ltd. (TGES) announced on 9 November 2022 that it had been awarded contracts by Gulf MTP LNG Terminal Co. Ltd. (GMTP), a joint venture between Gulf Energy Development Public Company Limited and PTT Tank Corporation, a subsidiary of PTT Public Company Limited (PTT), to update the FEED works for an LNG receiving terminal construction plan and EPCC process management works in the Map Ta Phut district.

Tokyo Gas Co., Ltd. and Marubeni Corporation announced on 4 November 2022 that the two companies, PetroVietnam Power, the largest IPP operator in the Socialist Republic of Vietnam, and COLAVI, a machinery manufacturer and marketer in the Quảng Ninh province, had established Quảng Ninh LNG Power JSC (QNLP). QNLP will conduct a feasibility study on an LNG-to Power project, including development, construction, and operation of an onshore LNG receiving terminal and a gas-fired power generation plant of 1.5 GW capacity in Cẩm Phả in the Quảng Ninh province, as well as procurement of LNG and sales of power to the Vietnam Electricity Group.

Shell announced on 1 November 2022 that Shell Petroleum N.V. had completed the sale of its 100% shareholding in Shell Philippines Exploration B.V (SPEX) to Malampaya Energy XP Pte Ltd (MEXP), a subsidiary of Prime Infrastructure Capital Inc (Prime Infra). The sale completion transfers control of SPEX to Prime Infra effective 1 November 2022. SPEX will continue to own a 45% operating interest and be the operator of the Malampaya gas field. The other members of the Service Contract 38 consortium are UC38 LLC, a

subsidiary of Udenna Corporation, and PNOC Exploration Corporation (PNOC EC). They respectively own 45% and 10% participating interests.

According to NDRC, China's gas consumption grew 1.8% year-on-year to 30.53 bcm in October 2022. During the first ten months of 2022, the country consumed just under 300 bcm, decreasing by 1.1% from one year earlier.

bp China announced on 24 November 2022 on SHPGX (Shanghai Petroleum and Natural Gas Exchange) a long-term LNG contract with China's Shenzhen Energy.

Shell announced on 4 November 2022 that the company had signed a non-binding memorandum of understanding (MoU) with Sinopec, Baowu and BASF to explore the feasibility of developing what it calls an "open-source" carbon capture, utilisation and storage (CCUS) project in the East China region. If successful, the project could be China's first large-scale open-source CCUS project with a potential capacity of "tens of million tonnes of CO<sub>2</sub>" per year, according to Shell. The open-source project could potentially offer industrial companies in the middle and lower reaches of the Yangtze River contractual opportunities to capture and store their CO<sub>2</sub> emissions, according to the announcement.

The Board of India's Petronet LNG at its meeting held on 10 November 2022 accorded investment approval for setting up of Floating Storage and Regasification Unit (FSRU) based LNG terminal at Gopalpur Port with capacity of up to 4 million tonnes per year.

Australia Pacific LNG announced on 24 November 2022 a new gas supply agreement of 1.55 PJ (28,000 tonnes) for 2023 with Queensland Nitrates Pty Ltd (QNP), a producer of ammonium nitrate, for its facility in Central Queensland. APLNG said in FY 2022, it provided more than 150 PJs (2.8 million tonnes) of gas to domestic customers, mostly under medium- and long-term gas supply agreements.

Australia's Origin Energy Limited announced on 10 November 2022 that it had received an indicative, conditional and non-binding proposal from Brookfield Asset Management Inc., together with its affiliates and their managed funds (Brookfield) and MidOcean Energy (MidOcean), an LNG company formed and managed by EIG (the Consortium), to acquire all the issued shares in Origin.

Australia's Woodside Energy announced on 28 November 2022 that the company had shipped an LNG cargo to Europe on board the Woodside Rees Withers from Australia's North West Shelf and delivered it to Uniper Global Commodities SE (Uniper). The cargo was delivered on 27 November to the Gate Terminal.

Woodside Energy and the Japan Bank for International Cooperation (JBIC) announced on 1 November 2022 that they had signed a memorandum of understanding (MOU) aimed at securing a stable supply of energy for Japan and to assist in achieving its decarbonisation goals.

Australia's Santos announced on 29 NOVEMBER 2022 that a small gas leak had been identified in a subsea flange on the main gas trunkline from the John Brookes platform, offshore Western Australia to the Varanus Island gas processing facilities. The platform and pipeline were immediately shutdown and depressurised and all personnel demobilised. The company said that at this stage it was expected repairs would take approximately four to six weeks to return to full production. Varanus Island will continue producing at reduced rates.

Australia's Santos and the Japan Bank for International Cooperation (JBIC) announced on 5 October 2022 that they had signed a Memorandum of Understanding (MOU) to promote the securing of stable energy and the progression of decarbonisation goals.

Santos said on 2 December 2022 that the company did not anticipate any material cost or schedule impact, and first gas from the Barossa Gas Project remained on track to be delivered in the first half of 2025, in spite of the Federal Court decision on the day to set aside NOPSEMA's (National Offshore Petroleum Safety and Environmental Management Authority) approval of the project's Drilling Environment Plan.

Malaysia's PETRONAS confirmed on 16 November 2022 that a fire incident had occurred at the Sabah-Sarawak Gas Pipeline (SSGP) near KP 132, nearby Lawas, Sarawak. The incident is believed to have involved a third-party contractor performing work unrelated to SSGP operations nearby the pipeline's Right-of-Way (ROW) area.

PETRONAS announced on 11 November its signatory membership to the United Nations Environment Programme (UNEP)'s Oil and Gas Methane Partnership 2.0 (OGMP2.0), as well as the International Renewable Energy Agency's (IRENA) global Alliance for Industry Decarbonisation.

### **[North America]**

In its Q3 2022 Earnings Call on 3 November, Cheniere Energy said, "If I ever gave you the impression that we feel confident that there will be an armada of European load serving utilities as counterparties, I misspoke. I think that those will be few and far between." "We, of course, have done the transactions with Equinor and Engie, as you know, this year, and we are optimistic that European-based buyers will be part of the portfolio and part of the solution going forward. But we do see the Asian market as the primary growth driver and the primary long-term contracting opportunity. [E]ven though we have been a critical part of rebalancing Europe last year and this year and we'll continue to do our best to support its efforts to meet its energy demands, we don't expect a lot of load serving European utilities to be in that 30-plus counterparty list going forward."

Mitsubishi Corporation, Tokyo Gas, Osaka Gas, and Toho Gas revealed on 22 November 2022 plans to produce e-methane (synthetic methane) in the United States,

liquefy it at the Cameron LNG facility in Louisiana. The four firms have entered into an agreement to conduct a feasibility study. The targeted e-methane production volume is 130,000 tonnes in 2030, once a final investment decision is made in 2025.

Sempra Infrastructure, a subsidiary of Sempra, and Williams announced on 15 November 2022 that they had entered into a heads of agreement (HOA) for the offtake of LNG and development of associated natural gas pipeline projects. The HOA contemplates two 20-year long-term sale and purchase agreements (SPAs) for 3 million tonnes per year of LNG in the aggregate from the Port Arthur LNG project in Jefferson County, Texas, and the Cameron LNG Phase 2 project in Hackberry, Louisiana. The HOA also contemplates a separate natural gas sales agreement for 0.5 Bcfd to be delivered in the Gillis, Louisiana area, as feed gas supply for the LNG projects. In addition, the companies anticipate forming a strategic joint venture to own, expand and operate the existing 2.35 Bcfd Cameron Interstate Pipeline that is expected to deliver natural gas to the Cameron LNG Phase 2 project, as well as the proposed Port Arthur Pipeline Louisiana Connector that is expected to deliver natural gas to the Port Arthur LNG facility.

Sempra said in its Third-Quarter 2022 Earnings Results presentation on 3 November that Sempra Infrastructure was targeting a final investment decision (FID) for Phase 1 of its Port Arthur LNG project in the first quarter of 2023. This follows the company's recent announcement that it has finalized its fixed-price engineering, procurement and construction (EPC) contract for Port Arthur LNG Phase 1 and the substantial completion of marketing for Phase 1, which was achieved during the second quarter. A similarly sized Port Arthur LNG Phase 2 project is also under active marketing and development. The company continues to advance its Cameron LNG Phase 2 project under development and anticipates FID on Train 4 after the front-end engineering and design process is completed, which is currently targeted for the summer of 2023.

Sempra announced on 22 November 2022 that Sempra Infrastructure and ConocoPhillips had executed a 20-year Sale and Purchase Agreement (SPA) for 5 million tonnes per year of LNG from Phase 1 of the Port Arthur LNG project in Jefferson County, Texas. The parties have also entered into an equity sale and purchase agreement whereby ConocoPhillips will acquire 30% of the equity in Phase 1 of Port Arthur LNG, and a natural gas supply management agreement whereby ConocoPhillips will manage the feedgas supply requirements for Phase 1. The Port Arthur LNG Phase 1 project is expected to include two liquefaction trains and LNG storage tanks, and associated facilities capable of producing up to 13.5 million tonnes per year of LNG.

Sempra announced on 1 December 2022 that it had entered into a long-term sale and purchase agreement (SPA) with INEOS. INEOS has agreed to purchase 1.4 million

tonnes per year of LNG delivered free-on-board (FOB) from the proposed Phase 1 of Sempra's Port Arthur LNG project for 20 years. The companies have also signed a non-binding heads of agreement (HOA) for INEOS' potential purchase of an additional 0.2 million tonnes per year from the Port Arthur LNG Phase 2 project.

Freeport LNG Development, L.P. provided on 15 November 2022 the results of an independent, third-party root cause failure analysis (RCFA) report on the 8 June 2022 incident that occurred at its liquefaction facility. The RCFA report was commissioned by Freeport LNG and conducted by an incident investigation company, IFO Group. The direct cause was identified as "Isolation of a piping segment containing cryogenic liquefied natural gas (LNG) without proper overpressure protection". The Pipeline and Hazardous Materials Safety Administration (PHMSA) issued the report after Freeport disclosed a summary of the consultant's review. PHMSA said it accepted the redacted report but would later make its own determination on what to exclude.

Freeport LNG Development, L.P. (Freeport LNG) provided on 18 November 2022 an update on the reconstruction and resumption of operations. As of 14 November, the reconstruction work was 90% complete, anticipated to be completed by the end of November. At the time of the update, it was expected that approximately 2 BCF per day of production would be achieved in January 2023 and full production was anticipated in March 2023.

Energy Transfer LP (ET) said in its Q3 2022 Earnings Call on 1 November that Lake Charles LNG had executed 6 LNG offtake agreements for an aggregate of nearly 8 million tonnes per year, including a 20-year LNG agreement with Shell NA LNG LLC that was executed in August. ET expects to finance a significant portion of the capital cost of the project by means of the sale of equity in the project to infrastructure funds and possibly to one and more industry participants in conjunction with LNG offtake agreements. ET said that it had recently signed nonbinding letter agreements with two Japanese customers for LNG offtake and ET was in negotiations with several customers for long-term offtake contracts. ET also said it was targeting FID by the end of the first quarter of 2023.

The U.S. Federal Energy Regulatory Commission (FERC) on 17 November 2022 granted Commonwealth LNG approval to build its proposed LNG plant in Louisiana with a capacity of 8.4 million tonnes per year. The approval was the first by FERC for an LNG liquefaction plant in over two years. The regulator has also raised concerns over the project's greenhouse gas emissions. The project still needs several permits (from the Department of Energy to export gas, as well as those from the U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration, Fish and Wildlife Service and the U.S. Coast Guard) before construction can start as planned in the third quarter of 2023. FERC chairman mentioned in the ruling a significant adverse impact of 3.5 million tonnes of GHGs.

Commonwealth LNG is developing a six-train LNG plant on the west bank of the Calcasieu Ship Channel at the mouth of the Gulf of Mexico near Cameron, Louisiana. Commonwealth LNG has secured two 20-year sales and purchase agreements (SPAs) with Woodside for up to 2.5 million tonnes per year, an MoU for 1 million tonnes per year with Summit Oil and Shipping Company of Bangladesh, and an HoA for 3 million tonnes per year with Gunvor.

The U.S. Environmental Protection Agency (EPA) and PEMEX announced on 14 November 2022 a significant collaboration to reduce greenhouse gas emissions, specifically methane, that will advance the global methane reduction goals of the Global Methane Pledge. EPA and PEMEX will work through diagnostic and economic analyses to support decision making to reduce methane emissions in the near term across its onshore oil and natural gas operations. Through this cooperation EPA and PEMEX will work together to: Identify major methane emissions sources across PEMEX's operations, including specific hotspot sites, infrastructure and equipment sources, and operational sources of methane. Recommend mitigation options to mitigate these sources, including flare capture and flare efficiency opportunities, equipment replacement and operational changes to eliminate routine venting, and regular leak detection and repair. With EPA technical support, by the first half of 2023, PEMEX will develop and release a plan for implementing these mitigation activities, beginning with PEMEX's onshore oil and gas operations, including measures to reduce routine flaring and venting and fugitive methane emissions.

Sempra said in its Q3 2022 Earnings Call on 3 November said that construction of the first phase of the Energía Costa Azul (ECA) LNG export project in Baja California, Mexico, was slightly behind the original plan, but the company continued to expect to commence commercial operations in the middle of 2025.

New Fortress Energy (NFE) announced on 22 November 2022 that it had finalized its agreements with Petróleos Mexicanos (Pemex) to develop and operate an integrated upstream and natural gas liquefaction project off the coast of Veracruz in Southeast Mexico. NFE will invest in the continued development of the Lakach field over a two-year period by completing seven offshore wells. NFE will deploy to the Lakach field its 1.4 million-tonne-per-year Sevan Driller FLNG unit, which is undergoing conversion in a shipyard in Singapore. The Lakach FLNG unit is one of five FLNG units NFE plans to deploy in the next two years. NFE will provide upstream services to Pemex whereby NFE produces natural gas and condensate in exchange for a fee for every unit of production. NFE will produce natural gas in the Lakach field and will have the right to purchase, at a contracted rate, sufficient volumes for its FLNG unit, while Pemex will sell the remaining natural gas volumes and all of the produced condensate to its customers onshore.

### **[Middle East]**

QatarEnergy announced on 29 November 2022 the signing of two long-term sale and purchase agreements (SPAs) between QatarEnergy and ConocoPhillips affiliates for delivery of up to 2 million tonnes per year of LNG from Qatar to Germany. A ConocoPhillips subsidiary will purchase the agreed quantities to be delivered ex-ship to the "German LNG" terminal, which is under development in Brunsbüttel in northern Germany, with deliveries expected to start in 2026. The agreements mark the first long-term LNG supply to Germany with a supply period that extends for at least 15 years. The LNG volumes will be sourced from the two joint ventures between QatarEnergy and ConocoPhillips that hold interests in Qatar's North Field East (NFE) and North Field South (NFS) projects.

QatarEnergy announced on 21 November 2022 a 27-year Sale and Purchase Agreement (SPA) with China Petroleum & Chemical Corporation (Sinopec) for 4 million tonnes per year of LNG to China. The LNG volumes will be supplied from the NFE LNG project. The agreement is the second LNG SPA between QatarEnergy and Sinopec, following a 10-year SPA signed in March 2021 for 2 million tonnes per year. The SPA is also the first long-term LNG offtake agreement from the NFE project, and comes on the heels of QatarEnergy's conclusion of international partnership agreements for the NFE and NFS projects, which are expected to come online in 2026 and 2027, respectively.

Mitsui O.S.K. Lines, Ltd. (MOL) announced on 10 November 2022 a long-term charter contract of 24 October for three newbuilding LNG carriers with QatarEnergy. The vessels will be built at Hudong-Zhonghua Shipbuilding (Group) Co., Ltd. in China, and are scheduled for delivery in 2027. Earlier, MOL signed a long-term charter contract with QatarEnergy in April 2022 for four newbuilding LNG carriers.

NYK announced on 4 November 2022 that the joint-venture companies that NYK is a part of had signed a long-term time-charter contract with QatarEnergy for five LNG carriers. The joint-venture companies have also executed shipbuilding contracts for the five 174,000 m<sup>3</sup> LNG carriers with Hudong-Zhonghua Shipbuilding (Group) Co., Ltd.

NewMed Energy and Uniper announced on 8 November 2022 a non-binding MoU to explore ways of collaborating on the supply of LNG and producing blue and green hydrogen. The parties will look into the supply of natural gas from Israel to Germany in the immediate term using existing production and transmission infrastructure in line with the availability of the transmission pipeline between Israel and Egypt, where the natural gas will be delivered to LNG facilities. The two sides will investigate the feasibility of LNG deliveries from the Leviathan reservoir to Uniper, which will require expansion of the existing Leviathan infrastructure (Phase 1B) as well as liquefaction of the gas at one of the existing facilities in Egypt or at a new-build independent floating liquefaction facility in Israel.

## **[Africa]**

Bechtel announced on 11 November 2022 that a feasibility study - Egyptian LNG Zero Routine Flaring Study - had been awarded to Bechtel-led Coalition for Decarbonization of existing facility. The coalition includes Enppi, Petrojet, Baker Hughes, GE Digital, HSBC and NBE. The study will assess implementation of a zero-flaring system at the Egyptian LNG export plant (ELNG) in Idku, east of Alexandria. The feasibility study will assess options for total routine flaring recovery through modifications to the existing flare and compression systems at the ELNG facility, reducing methane emissions.

JGC Holdings Corporation announced on 18 November 2022 that JGC Corporation in partnership with Technip Energies had been awarded the contract for the front-end engineering and design (FEED) of a floating liquified natural gas (FLNG) facility project in Nigeria, pioneered by UTM FLNG Limited to produce 1.2 million tonnes per year of LNG, as well as LPG and condensate.

Eni on behalf of its Area 4 Partners (ExxonMobil, CNPC, GALP, KOGAS and ENH) in Mozambique announced on 13 November that the first shipment of LNG produced from the Coral gas field, had departed from Coral Sul Floating Liquefied Natural Gas (FLNG) facility. bp will purchase 100% of LNG output from Coral Sul FLNG which has the capacity to produce up to of 3.4 million tonnes of LNG per year.

## **[Europe / Russia]**

The European Commission proposed on 22 November 2022 a Market Correction Mechanism with a temporary instrument to automatically intervene on the gas markets in case of extreme gas price hikes. The proposed instrument consists of a safety price ceiling of €275 on the month-ahead TTF derivatives.

EU energy ministers on 24 November reached an agreement on a new regulation concerning temporary rules for joint purchasing of gas, measures to curb intra-day price volatility, 'solidarity rules' for gas exchange in crisis situations and for a new price benchmark.

The EU Agency for the Cooperation of Energy Regulators (ACER) announced on 1 December 2022 a plan to establish an Expert Group on LNG Price Assessment/Benchmarks.

GE Gas Power and Shell Global Solutions announced on 7 November a development agreement to pursue potential pathways aiming to reduce the carbon intensity of Shell's LNG supply projects around the world. One of the possible paths to decarbonize LNG production is to use hydrogen as a low carbon fuel in engines. According to the announcement, Shell's Blue Hydrogen Process is a leading technology that can deliver the lowest carbon intensity fuel of its kind. GE's B&E class heavy-duty gas turbines can already operate on 100% hydrogen emitting up to 25 ppm NOx with the use of water in diffusion combustors. As part

of the agreement, GE is targeting gas turbine technology with the capability to operate on 100% hydrogen without the use of water while still maintaining NOx emissions.

Engie Global Energy Management & Sales said on 14 November 2022 that it had won 30 TWh (2 million tonnes) per year of regasification capacity for 16 years at the Fos Cavaou LNG terminal.

According to Germany's grid operator (Bundesnetzagentur), the country's natural gas inventories are full, reaching 99.3% as of midday on 4 November 2022. Germany's gas consumption is around a third below business-as-usual levels, while Northwest Europe's overall gas demand is around 20% below this time of 2021.

Germany's Niedersachsen Ports announced on 15 November 2022 the completion of the jetty for Germany's first FSRU-based LNG import facility in Wilhelmshaven.

Deutsche ReGas announced on 19 November that the German Federal Network Agency, the Bundesnetzagentur (BNetzA), had exempted Deutsche ReGas LNG import terminal project, Deutsche Ostsee, at the Baltic port of Lubmin, from tariff and access rules.

Deutsche ReGas announced on 23 November 2022 that Germany's first FSRU had arrived in the Mukran Port on the island of Ruegen. The company chartered the 2009-built 145,000-cbm FSRU Neptune from TotalEnergies. Høegh LNG Partners has a 50% stake in the unit, MOL owns 48.5%, and Tokyo LNG Tanker has 1.5%. Deutsche ReGas would prepare the FSRU in cooperation with the Mukran Port prior to the unit heading to Lubmin. This includes reducing the FSRUs draught from the current 9.6 to around 5.2 meters.

Denmark's gas system operator Energinet said on 1 November 2022 that the new Baltic Pipe pipeline between Norway and Poland received its first direct deliveries of Norwegian gas after a Danish terminal started operations following delays.

Shell announced on 28 November 2022 that it had reached an agreement with Davidson Kempner Capital Management LP, Pioneer Point Partners and Sampension to acquire 100% shareholding of Nature Energy Biogas A/S (Nature Energy). Based in Denmark, Nature Energy is a producer of Renewable Natural Gas (RNG) from agricultural, industrial, and household wastes. By purchasing the shares in Nature Energy, Shell will acquire the largest RNG producer in Europe.

### **[South America]**

Karpowership announced on 8 November 2022 that Brazil-based floating storage and regasification unit controlled by KARMOL joint venture between Karpowership and Mitsui OSK Lines (MOL) had received its first LNG from France's Dunkerque LNG terminal.

bp Trinidad and Tobago LLC (bpTT) announced on 29 November 2022 that its Cassia C development had delivered first gas. Cassia C is expected to produce, at peak, about

200 - 300 million standard cubic feet a day of gas. Production will go towards T&T's LNG and petrochemical industries.

### **[Global issues]**

The U.S. Environmental Protection Agency (EPA) announced on 11 November 2022 that it was strengthening its proposed standards to cut methane and other harmful air pollution. Supplementing proposed standards EPA released in November 2021, the updates would provide more comprehensive requirements to reduce climate and health-harming air pollution, including from existing oil and gas sources.

The UN announced on 11 November 2022 a new satellite-based system to detect methane emissions. The Methane Alert and Response System (MARS) is a data-to-action platform set up as part of the UNEP International Methane Emissions Observatory (IMEO) strategy to get policy-relevant data into the right hands for emissions mitigation.

The United States, European Union, Japan, Canada, Norway, Singapore, and the United Kingdom announced on 11 November 2022 that they are committed to taking rapid action to address the dual climate and energy security crises that the world faces. They recognize that the fossil energy sector must lead in rapid methane mitigation. They will support domestic and international action to achieve emissions reductions across the fossil energy value chain, such as: Supporting international efforts to improve methane emissions measurement; monitoring, reporting, and verification; and transparency, including through partnership with the UNEP International Methane Emissions Observatory; Strengthening coalitions to reduce methane and CO<sub>2</sub> emissions in value chains of internationally traded fossil fuels; and Encouraging companies' participation in the Oil and Gas Methane Partnership 2.0 (OGMP2.0) standard.

Technip Energies and Baker Hughes announced on 17 November 2022 a Memorandum of Understanding (MoU) that sets the groundwork for their cooperation on the joint development of a new above 1 and up to 2 million tonnes per year range LNG modularized solution for the onshore market. The joint development aims to provide an additional offering to the two companies' respective proprietary LNG modularized solutions: Baker Hughes' 1 million tonnes per year range LNG Mid-scale Modular Solution (MMS), with a production capacity of 0.8 to 1 million tonnes per year, and Technip Energies' "SnapLNG™" with a production capacity of 2 to 3 million tonnes per year.

Reference: Company announcements, Cedigaz News Report.

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