

**LNG Review May 2018**  
**- Recent issues and events -**  
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**Introduction**

Northeast Asia continued to increase LNG imports significantly by 11% in April 2018, compared to the same month a year ago. But, in fact, only Japan in April 2018 decreased volumes significantly by 15%, while China, Chinese Taipei, and Korea still imported a lot more LNG compared to April 2017.

Asian LNG spot prices crept up steadily during May 2018 from the low USD 8s to the high of 9s per million Btu partly being pulled up by high crude oil prices.

Gas giants continue expanding their presences in the global gas markets. China expanded gas production, imports and consumption at another rapid pace in April. The United States produced the highest daily amount of dry natural gas in March than any other month in the modern history. Russia's Gazprom exported to Europe 5.8% more gas in the first five months of 2018 than in the same period one year earlier. By early May 2018, the Yamal LNG project exported 2 million tonnes of LNG after starting up production in late 2017.

This paper looks at some of significant events in the LNG industry during the month of May 2018.

**[Asia Pacific]**

According to Japan's trade statistics, Japan's LNG import in April 2018 decreased by 14.7%, or 965 thousand tonnes year on year to 5.608 million tonnes, whereas the corresponding payment decreased only by 4.0% with unit prices at USD 9.58 per million Btu.

Japan's METI (Ministry of Economy, Trade and Industry) and NEDO (New Energy and Industrial Technology Development Organization) will host a ministerial conference on hydrogen utilisation and development on Tuesday 23 October 2018 in Tokyo.

Keiyo Gas and Otaki Gas plan to establish Nanohana Pipeline (Rape Blossoms Pipeline) Company to construct and operate a 30 km pipeline running between Tepco Fuel and Power Company's Futtsu LNG receiving terminal and Anegasaki Thermal Power Station. As the two gas companies currently use the pipeline owned by the Tepco Group, they intend to solidify their stable supply system by having their own pipeline, with construction set to

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begin in 2019 and operation in 2022.

"K" Line, Chubu Electric Power, Toyota Tsusho, and NYK Line agreed to launch the LNG Bunkering business in Japan and established two joint ventures.

Isuzu Motors Limited and LEVO (Organization for the Promotion of Low Emission Vehicles) started a road-test program of heavy-duty LNG-fuelled trucks for the first time in Japan.

JERA, Fluence Energy LLC and LYON Group signed a Memorandum of Understanding (MOU) creating a framework for strategic development of the energy storage business for the Asia-Pacific region. JERA and LYON have been jointly developing hybrid solar and energy storage projects in Australia together with FLUENCE as energy storage system provider. This MOU expands the collaboration among parties into the Asia-Pacific region.

Japan's policy advisory committee made recommendations in early June 2018 including ideas to promote competition in the recently liberalised city-gas retail market: [1] range, rather than standard, heating value regulations; [2] acceptance of aggregation of customers; [3] introduction of gas wholesale services; [4] improving gas transportation tariff; [5] a more competitive market for safety management and installation and maintenance services of inhouse pipes; and [6] promotion of third-party use of LNG terminals.

Energy Capital Vietnam (ECV) signed a Memorandum of Understanding (MOU) with The People's Committee of Bac Lieu Province to develop an LNG to power project. The MOU provides the basis for ECV as the exclusive investor. ECV has engaged with technical consultants and is in discussions with GE and Cheniere.

The National Development and Reform Commission (NDRC) revealed that the country produced 12.9 bcm, imported 9 bcm, and apparently consumed 21.7 bcm in April 2018, representing year-on-year increases by 6.9%, 42.2%, and 19.2% respectively. During the first four months of the year, the country's natural gas production was 53.1 bcm, import was 38.4 bcm, and apparent consumption was 90.6 bcm, increasing by 4.9%, 41.3%, and 17.7%, respectively.

According to China's National Bureau of Statistics, natural gas production was 12.89 billion cubic meters in April 2018, a 6.3% increase over the same month in 2017. Cumulative natural gas production during the first four months of the year grew by 4.0% from the same period one year earlier to 52.63 bcm.

According to China's customs statistics, the country's import of natural gas (including LNG and pipeline gas) in April 2018 amounted to 6.82 million tonnes. The cumulative import in the first four months of the year was 27.42 million tonnes, a 34% increase from a year earlier. Out of 6.82 million tonnes import of natural gas (the largest in

the world for the third time, following the same title in September and November 2017) in the month, LNG accounted 3.39 million tonnes and pipeline gas accounted 3.43 million tonnes. During the first four months of 2018, China imported 15.75 million tonnes of LNG and 11.67 million tonnes of pipeline gas, representing 56.5% and 17.7% increases respectively compared to the same period one year earlier.

China National Offshore Oil Corporation (CNOOC) loaded a 69,000-tonne LNG cargo from Indonesia into the country's first customs-bonded tank at its Hainan terminal on Wednesday 2 May 2018.

CNOOC will start building six 220,000 cubic meter LNG tanks by the end of 2018 at its Tianjin LNG terminal. The new facilities are expected to start operating in 2022. The terminal is expected to have 7.25 million tonnes of annual LNG processing capacity by 2030, up from 3.21 million tonnes in 2018.

Beijing Gas Blue Sky Holdings Limited completed the acquisition of a 29% equity stake of the LNG terminal in Caofeidian. ENN's Zhoushan terminal, the country's first privately owned LNG import terminal in Zhejiang, is expected to start operations in weeks.

Mitsui O.S.K. Lines (MOL) announced the delivery of the LNG carrier *CESI Lianyungang*, which was ordered by the joint venture of China COSCO Shipping Corporation Limited (CCSC) and China Petroleum & Chemical Corporation (SINOPEC), at Hudong-Zhonghua Shipbuilding (Group) (Hudong) on 31 May 2018. The vessel is the sixth in the China LNG Transportation Project announced in April 2013 to transport LNG from the Australia Pacific LNG project (APLNG).

China's National Development and Reform Commission (NDRC) announced plans to harmonize residential and industrial city-gate gas prices. The harmonization will occur gradually, with a maximum upward price adjustment for residential city-gate prices of CNY 350 / 1,000 m<sup>3</sup> in the first year.

Osaka Gas Engineering secured consulting jobs for LNG receiving terminals planned by CPC and Taiwan Power, respectively.

India's Gail has sold majority of LNG volumes from the United States for the next two years through time and destination swap deals. GAIL has contracted 5.8 million tonnes per year of LNG under two long-term contracts from the United States. In early June 2018, the first LNG Cargo under the long-term contract between GAIL and Gazprom Marketing & Trading Singapore (GMTS) of Russia arrived at the Dahej LNG terminal.

CTCI Engineering won a contract from the Adani Group to build an LNG import terminal at Dharma Port in Odisha on India's east coast. The terminal is expected to have an import capacity of 5 million tonnes per year.

Petrobangla inked a sales and purchase agreement (SPA) with Oman Trading

International (OTI) to import 1 million tonnes per year of LNG delivered ex-ship (DES) for 10 years. This is the country's second binding SPA to import LNG after Qatar's RasGas. The base contract quantity would be 0.5 million tonnes per year subject to completion of the LNG terminal of Excelerate Energy and another 0.5 million tonnes subject to completion of another terminal by Summit Group.

EXMAR executed a 10-year charter with Gunvor for the provision of its FSRU (floating Storage and Regasification Unit) and related services in Bangladesh. The EXMAR FSRU barge is currently at Keppel Shipyard undergoing site specific modifications. The FSRU barge is expected to arrive in Bangladesh in the fourth quarter of 2018. In the meantime, Bangladesh terminated talks with Trafigura to install a small floating LNG import terminal.

Sri Lanka's Board of Investment approved an LNG terminal project by China Machinery Engineering Corporation in Hambantota, where China Merchants Port Holdings controls a Chinese-built port on a 99-year lease.

In early June 2018, Australian Industrial Energy (AIE) selected Port Kembla as the site for an LNG import terminal with capacity in excess of 100 PJ per year (1.8 million tonnes). AIE has entered into 12 Memorandums of Understanding (MoU's) for the supply of gas. The AIE consortium comprises Squadron Energy, Marubeni Corporation and JERA. AGL Energy expects to make a final investment decision (FID) on its floating LNG receiving terminal in the financial year of 2019.

Santos rejected an acquisition offer from Harbour Energy as too low and terminated all discussions with the firm.

Western Australia's Environmental Protection Authority (EPA) looks into whether the Gorgon project could meet a condition that at least 80% of CO<sub>2</sub> extracted from the gas reservoirs over any five-year period is captured. The condition was included when the state approved the project in 2009.

Woodside has been in discussion with Japan's Chiyoda Corporation on prospects of shipping hydrogen. The company is considering switching its North West Shelf LNG plant to be powered by solar energy and batteries, instead of gas.

Western Gas completed the Basis of Design for development of the Equus Gas Project with first gas planned from 2023, and issued a request for proposals to secure a project development partner. The company acquired the project from Hess in November 2017. The Basis of Design comprises an offshore processing facility and a pipeline to shore, with landfall near Onslow. Gas supply is expected to be up to 250 terajoules of gas a day (1.7 million tonnes per year).

Woodside plans to expand the Scarborough gas project off Northwest Australia,

looking to begin producing gas in 2023, two-years earlier than originally planned. Woodside is increasing the size of Pluto's second train to 4 - 5 million tonnes per year. First gas would be piped to the North West Shelf LNG plant via a link from the Pluto facility. Following completion of the train, the Pluto plant will receive Scarborough gas.

For the Browse development to produce 10 million tonnes per year of LNG/LPG, 1.4 million tonnes per year of domestic gas supply and 50 kbbbl/d of condensate, the company targeting NWS JV alignment on non-binding priced key tolling terms by June 2018, Calliance Brecknock RFSU (ready for start up) in 2026, and Torsa RFSU in 2027.

Mitsui & Co. announced that the takeover offer for all of issued shares of AWE Limited was completed.

Transborders Energy's Small Scale Floating LNG (FLNG) project has been granted Major Project Status by the Minister for Jobs and Innovation and Minister for Resources and Northern Australia. Transborders is working with its partners Add Energy and TechnipFMC, its technical advisor MODEC and a major Asian LNG Buyer to progress the development.

Malaysia's Petronas sold its LNG cargo for the first time through an online trading platform, GLX. Petronas had issued a tender invite to 30 registered GLX members for the sale of its Delivered Ex-Ship (DES) cargo. The bidding process garnered healthy interest from bidders throughout the trade window. Petronas in early June 2018 filed an application before the Federal Court seeking for a declaration on the Petroleum Development Act 1974 (PDA) being the law applicable for the petroleum industry in Malaysia, and that Petronas is the exclusive owner of the petroleum resources as well as the regulator for the upstream industry throughout Malaysia, including in Sarawak.

KBR was awarded a pre-FEED contract by INPEX for the Abadi onshore LNG Project in the Arafura sea in Indonesia. KBR will provide services including site master plan development, scope of work for the FEED phase as well as an EPC schedule and cost estimate. This work is expected to be performed within approximately six months, with KBR performing studies to establish configuration of the LNG process plant, supporting utilities, and product storage and export facilities.

Papua New Guinea's PNG LNG project aims to finalise supply agreements with shortlisted companies for up to 1.3 million tonnes per year of LNG in the first half of 2018, project partner Oil Search said.

### **[North America]**

In March 2018, for the tenth consecutive month, dry natural gas production in the United States increased year-to-year from the same month a year ago. The preliminary level for dry natural gas production in March 2018 was 2,467 billion cubic feet (Bcf) (51 million

tonnes), or 79.6 Bcf/day. This level was 8.0 Bcf/day (11.2%) higher than the March 2017 level of 71.6 Bcf/day. The average daily rate of dry natural gas production for March was the highest for any month since EIA began tracking monthly dry production in 1973.

According to data provided by the Department of Energy (DOE), the United States exported 4.94 million tonnes of LNG in the first quarter of 2018, including volumes from the Sabine Pass and Cove Point plants, as well as ISO container shipments.

The United States Commodity Futures Trading Commission (CFTC) issued a report assessing the market impacts due to the United States transitioning from being a net importer to a net exporter of LNG in 2016.

Cheniere Energy made a positive Final Investment Decision (FID) with respect to Train 3 at Cheniere's Corpus Christi liquefaction project and plans to issue a full notice to proceed to Bechtel to continue construction which began in late 2017 under limited notice to proceed. This represents the first FID on new liquefaction capacity in the United States since 2015.

Tokyo Gas received its first LNG cargo from the Cove Point LNG project in Maryland, at the Negishi LNG receiving terminal. Tokyo Gas has a liquefaction tolling arrangement at the Cove Point plant and sale of the LNG through ST Cove Point, the company's joint venture with Sumitomo Corporation, and buys 1.4 million tonnes of LNG out of 2.3 million tonnes per year that ST Cove Point processes at the plant.

Venture Global LNG and Galp of Portugal entered into a 20-year Sales and Purchase Agreement (SPA) for the supply of 1 million tonnes per year from the Venture Global Calcasieu Pass LNG export facility, in Cameron Parish, Louisiana. Galp will purchase LNG on a free-on-board basis (FOB) for 20 years starting from the commercial operation date of the Venture Global Calcasieu Pass LNG export facility, expected in 2022.

Venture Global LNG and BP entered into a 20-year Sales and Purchase Agreement (SPA) for the supply of two million tonnes per year from the Venture Global Calcasieu Pass LNG export facility, currently under development in Cameron Parish, Louisiana, USA. BP will purchase LNG on a free-on-board basis (FOB) for 20 years starting from the commercial operation date of the Venture Global Calcasieu Pass LNG export facility, currently expected in 2022. Venture Global LNG is developing both the 10 MTPA Venture Global Calcasieu Pass facility at the intersection of the Calcasieu Ship Channel and the Gulf of Mexico and the 20 MTPA Venture Global Plaquemines LNG facility in Plaquemines Parish, Louisiana on the Mississippi River.

The United States Coast Guard (USCG) completed its review of the Waterway Suitability Assessment for Jordan Cove Energy Project's proposed LNG plant at Coos Bay, Oregon, and recommended to FERC (Federal Energy Regulatory Commission) that the

waterway be considered suitable for LNG marine traffic associated with the project.

ExxonMobil announced greenhouse gas reduction measures that are expected to lead to significant improvements in emissions performance by 2020, including a 15% decrease in methane emissions and a 25% reduction in flaring.

Osaka Gas, Kyushu Electric Power, Sojitz, and Chugoku Electric Power agreed to acquire a combined 81% stake in Kleen Energy, a 620 MW natural gas-fired power plant in Middletown, Connecticut, operating since 2011.

Total and Clean Energy Fuels entered into a broad strategic agreement to drive deployment of new natural gas heavy-duty trucks. Total will become Clean Energy's largest stockholder with ownership of 25%.

The California Energy Commission adopted building standards that require solar photovoltaic systems starting in 2020. The building energy efficiency standards are the first in the nation to require solar.

BP Alaska and Alaska Gasline Development Corporation (AGDC) agreed to key terms of a Gas Sales Agreement, including price and volume, in early May 2018. The parties anticipate finalizing a long-term gas sales agreement in 2018 for AGDC to purchase BP Alaska's share of 30 trillion cubic feet (TCF) of gas from the Prudhoe Bay and Point Thomson units. BP operates the Prudhoe Bay field - the largest oil and gas field in North America and owns a 26% share of Prudhoe Bay as well as a 32% share of the nearby Point Thomson field.

LNG Canada announced that Malaysia's Petronas is buying a 25% share in LNG Canada's proposed LNG export project at Kitimat, British Columbia. LNG Canada's owners will be Shell (40%), Petronas (25%), PetroChina (15%), Mitsubishi Corporation (15%), and Kogas (5%). In summer 2017, Petronas cancelled its proposed Pacific NorthWest LNG project at Port Edward, British Columbia.

Pieridae Energy entered into a term sheet to negotiate a binding LNG sale and purchase agreement (SPA) to supply up to 1 million tonnes per year for 10 years to Europe from the Second Train of the Goldboro liquefaction facility in Nova Scotia.

Shell announces an agreement to sell its entire stake in Canadian Natural Resources Limited with Goldman Sachs & Co, RBC Capital Markets, Scotiabank and TD Securities.

Mexico's Comisión Federal de Electricidad (CFE) no longer participates in a tender for an LNG import project in Pajaritos, southern Mexico.

### **[Middle East]**

Chiyoda Corporation concluded a Memorandum of Understanding (MOU) with Abu Dhabi Gas Liquefaction Company (ADNOC LNG) to provide state-of-the-art digital technologies on ADNOC LNG's facilities.

Saudi Aramco signed the Unconventional Gas Stimulation Services contract with Halliburton. The new agreement will provide lump sum turnkey stimulation services which include major hydraulic fracturing and well intervention operations.

Qatar Petroleum announces awarding the DETAIL DESIGN to APPROVED FOR CONSTRUCTION status for the offshore jackets for the new North Field Expansion Project to McDermott, paving the way to commencing the drilling campaign in 2019. The offshore facilities will be integrated with the three new mega LNG trains. India's Petronet LNG is interested in partnering with ONGC Videsh to buy a stake in Qatar Petroleum's (QP) upcoming gas exploration and LNG projects.

Total will not be in a position to continue the South Pars 11 (SP11) project and will have to unwind all related operations before 4 November 2018 unless Total is granted a specific project waiver by the United States authorities with the support of the French and European authorities.

Total has signed a Memorandum of Understanding (MoU) with the Government of Oman to develop natural gas resources in Oman. Total will use its equity gas entitlement as feedstock to develop in Oman a regional hub for LNG bunkering service. This will be achieved thanks to a new small-scale modular liquefaction plant to be built in Sohar port. The plant will comprise a train of around 1 million tonnes per year.

The Korea Export-Import Bank and the Korea Trade Insurance Corporation will provide a total of USD 2.3 billion for three Korean companies to build Kuwait's first LNG import terminal. According to the Korea Export-Import Bank, the project costs a total of USD 3.6 billion, with payment guaranteed by the Kuwait Petroleum Corporation (KPC).

## **[Africa]**

Eni announced the start-up of the third production unit (T-2) of the Zohr project, increasing the installed capacity to 1.2 bcf/d (9 million tonnes per year). The outstanding result has been achieved only a few months after the field's start-up in December 2017. This confirms the programme to pursue a production level of 2 bcf/d by end 2018, followed by a plateau of 2.7 bcf/d (20 million tonnes per year) in 2019.

The LNG plant developed by Golar LNG off Cameroon exported its inaugural cargo in May 2018.

Nigeria's House of Representatives has passed a motion urging the government to halt the proposed sale of its stake in the Nigerian Liquefied Natural Gas Limited (NLNG). NLNG is owned by Nigerian National Petroleum Corporation (NNPC) (49%), Shell (25.6%), Total (15%) and Eni (10.4%).

Marathon Oil and its partners executed a Heads of Agreement (HOA) with the



Government of Equatorial Guinea and necessary third parties establishing the framework for processing third-party natural gas volumes through the Alba Plant LLC's liquefied petroleum gas (LPG) processing plant and EG LNG's liquefied natural gas (LNG) production facility, both located in Punta Europa, EG.

Noble Energy executed, along with the Government of Equatorial Guinea and necessary third-parties, a Heads of Agreement (HOA) establishing the framework for development of the Alen field located offshore Equatorial Guinea, to be processed through Alba Plant LLC's Liquefied Petroleum Gas plant and EGLNG's Liquefied Natural Gas (LNG) facility. The Alen field, located in Blocks O and I, offshore Equatorial Guinea, has been producing natural gas and condensate since 2013. Natural gas produced has been reinjected into the reservoir to enhance liquids recovery. Noble Energy operates the field with a 45% working interest.

Golar LNG said Schlumberger had decided to withdraw from the OneLNG joint venture due to problems with the project's financing. Golar and Ophir remain engaged in discussions with a number of counterparties over a financing solution for the Fortuna FLNG project.

Rosneft and the Ghana National Petroleum Corporation (GNPC) signed the package of documents assuming the delivery to the port of Tema (Ghana) over 12 years of 1.7 million tonnes per year of LNG, its regasification using the processing capacities of Tema terminal. Rosneft and GNPC also signed a framework cooperation agreement.

Anadarko Petroleum said Mozambique LNG's near-term marketing objective has been met with non-binding key terms agreed with multiple buyers for more than 8.5 million tonnes per year.

The Tanzanian government has said it is still holding discussions with investors on the planned LNG plant. It was planning a pre-front end engineering design (pre-FEED) study for the LNG plant in Lindi.

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

Elengy and its subsidiary Fosmax LNG, owner of the Fos Cavaou LNG terminal, are adapting the terminal to offer a new LNG bunker-vessel loading service. This service will enable the terminal to accommodate smaller vessels (capacity less than 20,000 m<sup>3</sup>) which will be able to supply ships in the port of Marseille-Fos and other sites in the Mediterranean Sea. 30% of the project is being financed by European funding. The proposed modification of the wharf at the LNG terminal to be completed in June 2019. Elengy estimate that the terminal will be able to accommodate around 50 micro-tankers per year.

Shell opened its first Belgian LNG station in Herstal, Liège. Catering to trucks, the

station is located near the three-border point at the E313, a key route for international road freight. The new station can supply 150 trucks with LNG daily. Shell already has 7 LNG stations in the Netherlands and intends to open further LNG stations in Europe over the next 12 months.

The AGM (annual general meeting) of shareholders in Statoil approved the board of directors' proposal to change the company name to Equinor ASA.

The LNG terminal to be built at the Finnish Port of Hamina by Wärtsilä under a turnkey contract has reached financial close and received the necessary building permits. Wärtsilä is also joining the project through a minority investment in Hamina LNG Oy. The main shareholders are Hamina Energy and Estonian energy company Alexela. The construction work has already commenced, to be operational in 2020.

Sweden's CMP (Copenhagen Malmö Port) offers LNG bunkering. The cement carrying vessel Iceland was provided with LNG supplied by Skangas via tank lorries. In a few months, vessels will be able to bunker LNG at the Port of Gothenburg. The infrastructure company Swedegas, which will own and operate the facility, and the Norwegian company Barents NaturGass, which can supply the LNG with ISO-containers from main European terminals, have entered into an agreement.

Spain modified three of its natural gas laws in late May 2018 in a new Royal Decree 335/2018 with the aim of improving the third-party use of infrastructure as well as providing a regulatory structure for new services such as LNG bunkering, and for the procedure for closing gas infrastructure assets.

The Port of Huelva, Enagás and HuelvaPort inaugurated cold storage facilities in the port of Huelva. The system makes use of the residual cold produced during the regasification process at the Enagás LNG terminal.

Nauticor and Gas Natural Fenosa conducted the first LNG bunkering of the tanker 'Fure Vinga' owned by Furetank in Europe at the Port of Cartagena. The vessel received 120 tonnes from six LNG tanker trucks.

Gas Natural Fenosa completes 70% of the gas cargo corridor Paris/Algeciras for road transport through the BESTWay project. BESTWay inaugurated a gas supply point in Jaén and in the coming months will complete the project with the opening of two service stations in Madrid and Jerez. BESTWay is to develop nine LNG refuelling stations along the Atlantic Corridor between Algeciras and Paris.

In May 2018, Spain's demand for natural gas grew by 11.6% over the same period the previous year, reaching 26,255 GWh (1.74 million tonnes). This increase was driven by greater conventional demand, particularly from the industrial sector, as well as larger deliveries of gas for electricity generation. In the first five months of 2018, demand for natural

gas increased by 7.4% compared to the same period in 2017.

Snam and Baker Hughes (BHGE) signed an agreement aimed at developing micro-liquefaction infrastructure to boost sustainable mobility in heavy duty trucks and to promote sustainability in maritime transportation in Italy. Total annual combined production from the four plants could be 140,000 tonnes.

Gas Natural cancelled a project to build an LNG terminal in the port of Zaule in Trieste in northern Italy, originally proposed in 2004.

Greece's gas company DEPA, the Bulgarian Energy Holding EAD (BEH) and GASTRADE S.A., reached agreement regarding the future capacity reservation by DEPA to the Project of Common Interest "LNG Terminal in Northern Greece" developed by GASTRADE in Alexandroupolis as well as for DEPA's participation in the relevant market test that will be carried out in the coming months. DEPA said that a truck loading station at Revithoussa LNG terminal, at least three new LNG-powered vessels, one LNG barge based in Piraeus port and one LNG marine installation in Western Greece will be in operation by 2020.

The European Commission (EC) ended its antitrust case against Gazprom after placing binding obligations on the company, which it says will enable the free flow of gas at competitive prices in central and eastern European gas markets. The case was launched in 2011 when 20 of Gazprom's offices were raided across 10 countries. EC rejected calls from certain eastern European countries for the company to be fined.

Ukrtransgaz reported in early May 2018 on operation results of the Ukrainian gas transmission system for the first four months of the year. The volumes of natural gas transported via Ukraine from Russian to the EU countries and Moldova amounted to 27.7 billion cubic meters, representing a decreased by 2.8 billion cubic meters, or 9.2%, from the same period of 2017. In early June 2018, Naftogaz said a Dutch court had approved its petition to freeze Dutch assets of Gazprom to enforce an arbitration ruling that Naftogaz should receive USD 2.6 billion from the Russian company.

During the first five months of 2018, Gazprom produced 217.3 bcm of gas, which is 9.5% (18.8 bcm) more than in the same period of 2017. Gazprom increased exports of gas to Europe by 5.8% or 4.7 bcm to 86 bcm. Gazprom said its first-quarter 2018 net income had risen 11% to RUB 371.6 billion (USD 6 billion), thanks to higher gas prices and sales volumes. Gazprom's sales increased by 18% to RUB 2.14 trillion.

Nord Stream 2 AG in early May 2018 started the offshore preparatory works for the subsequent pipelaying in the Bay of Greifswald. Five dredgers are now working on the trench for the two pipeline strings. Scheduled construction works are expected to be implemented in 2018 as planned.

Gazprom and the Government of Turkey signed a Protocol on the onshore section of

the transit string of the TurkStream gas pipeline. The string will deliver Russian gas to European consumers. Gazprom and BOTAS inked an agreement detailing the terms and conditions of the construction work.

Novatek and Total signed a binding agreement on the terms to enter the Arctic LNG 2 project. The agreement provides for the acquisition by Total of a 10% participation interest in the project as well as the right to acquire additionally up to 5% in case Novatek decides to decrease its participation interest below the currently planned 60%. The project envisages three LNG trains at 6.6 million tonnes per year each, using gravity-based structure (GBS) platforms. The project is based on the hydrocarbon resources of the Utrenneye field.

By early May 2018 Yamal LNG had shipped 2 million tonnes of LNG produced at its first LNG train. Novatek created Maritime Arctic Transport LLC to manage and optimize transportation costs, build up the unique competencies of Arctic navigation and ensure centralized management of the Arctic fleet.

Azerbaijan inaugurated the South Caucasus Pipeline which will feed into the Trans-Anatolian Natural Gas Pipeline (TANAP) in Turkey.

### **[South America]**

LNG production in Trinidad has been recovering since November 2017 after the BP-operated Juniper project came onstream in August. Shell announced in May 2018 startup of gas production from its Starfish field, part of the East Coast Marine Area (ECMA). Gas from the field will supply both the LNG and petrochemical markets.

Bolivia and Algeria agreed to study the feasibility of developing an LNG plant at the port of Ilo in Peru.

### **[Global issues]**

Global natural gas consumption increased by 3.3% to 3640 bcm in 2017, according to CEDIGAZ First Estimates 2017. Natural gas production grew by 3.7%, well above the past five-year average of 1.3%/year. In 2017, international gas trade (net of LNG re-exports) pursued its acceleration, surging 9.1% to reach a new record of 1204 bcm, propelled by both pipeline trade (+ 8.5%) and LNG flows (+ 10.5%).

Reference: Company announcements, Reuters, 中央社, Business Korea, Nairametrics Nigeria, All Africa, Daily Sabah, AAP, Trinidad and Tobago Newsday, Natural Gas Intelligence, Cedigaz News Report.

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