ANGVA2U Info *4/2018. 9th August 2018. (for ANGVA members only)*

ANGVA2U Info *aim is to share information, data, and news related to NGV with ANGVA members. However, these information, data, and news are collected and shared in good faith, without any guarantees of accuracies. Members are advice to use these information and data prudently and at their own risks.*

++

1.0 Role of LNG in the growth of NGVs

LNG is playing a major role in the development and expansion of natural gas vehicles in the following ways:

- Supply of Natural Gas to the nation - through LNG ships via LNG Import and Regasification Terminals. Complementing or making up the shortage of domestic / pipeline supply of natural gas.
- Supply of Natural Gas to NGV Refueling Stations - through LNG road tankers to LNG and / or LCNG stations.
- Supply to LNG vehicles – through LNG refueling stations to provide fuel to vehicle engines through the onboard vehicle LNG storage tank & LNG fueling system.

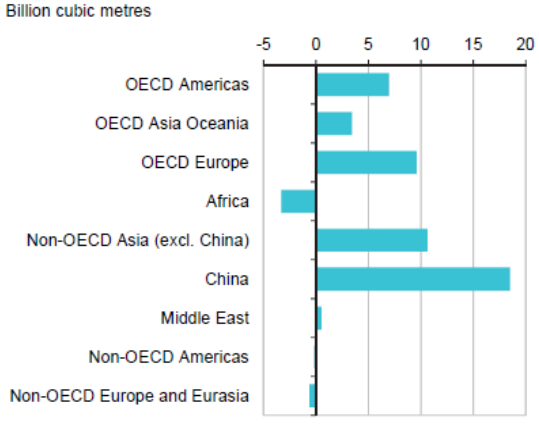
The supply of LNG to NGV markets will create additional demand for LNG, thus helping to expand the nation LNG distribution and transportation system and improves the economic viability of the imports of LNG into the country.

According to the International Energy Agency (IEA – *Natural Gas Information 2018 Report*), global gas trade approached 1.2 tcm (trillion cubic meters) in 2017 with LNG accounting for 32.9 % of the global trade compared to 31.7% last year. This LNG growth is primarily attributed to the surge in LNG exports from United States and Australia.

In 2017, non-OECD countries (OECD – *Organisation for Economic Co-operation and Development*) continued importing more LNG than previous years, accounting for 38.1 % of the global LNG imports.

This year's growth was mainly pushed by China which had the largest absolute increase (+18.5 bcm, +59.6% compared to 2016) and became the second largest LNG importer globally behind Japan, with Korea third. Additionally, 2017 was also a year of increase for the rest of NON-OECD Asia with increase in imports from countries such as Chinese Taipei (+2.0 bcm), Thailand (+1.4 bcm) and Pakistan. For India, there was a slight decrease in imports compared to previous years.

Figure 6. Change in LNG imports, 2016 – 2017p



The LNG market continued its globalization in 2017, with 18 countries with liquefaction capacity operating and 41 countries with regasification capacity. In 2017, Russia commissioned its first LNG liquefaction terminal in the Atlantic basin and Malta its first LNG regasification one.

The spread between LNG import prices in the United States and Japan & Korea was 2.56 USD/MBtu in 2017, -68% down from the 7.91 USD/MBtu observed in 2014. This gradual convergence is aligned with the expansion of LNG capacity worldwide which is creating a global market and prices for LNG trade.

Figure 11. Natural gas import prices by pipeline

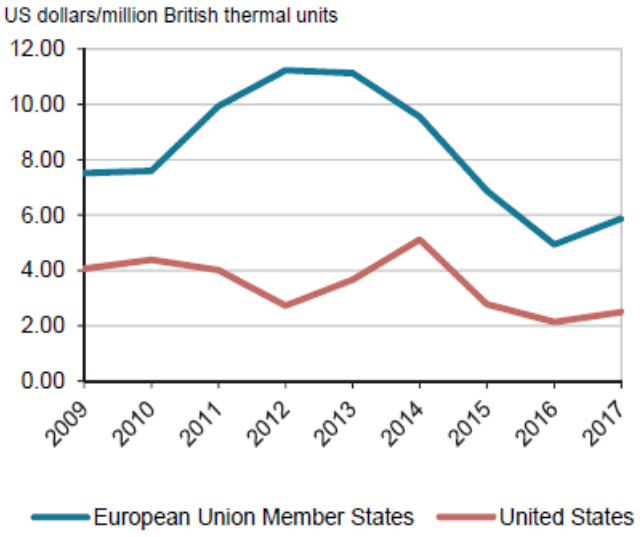
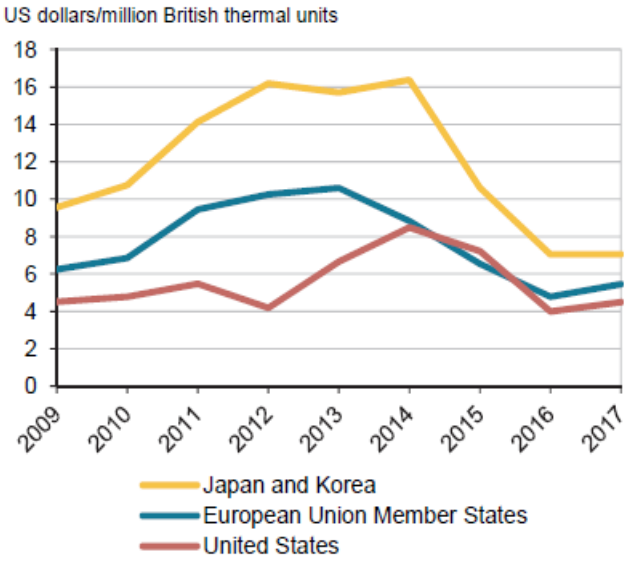


Figure 12. LNG import prices



Source of information, data and graphs: International Energy Agency, IEA. www.iea.org

2.0 Selected News

2.1 India

India's dependency on LNG imports growing. *1st August 2018.*

India Ratings and Research (Ind-Ra) has published the July 2018 edition of its credit news digest on India's oil and gas sector. The report highlights the trends in the sector, with a focus on domestic production, import, consumption, refining and gross under-recovery, regulatory changes and recent rating actions.

India's dependency on imported LNG has increased, indicated by stagnant domestic natural gas (NG) production and increased imports since 2008, opines Ind-Ra. The average imported LNG share was 45% of the overall domestic NG consumption in FY18, compared with 25% in FY08.

LNG imports increased at a CAGR of 9.2% to 73 million m^3/d in FY18 from 30 million m^3/d in FY08 due to sustained demand. The increased use of NG in fertilizer and power sectors coupled with growth of city gas distribution network has driven domestic NG consumption. On the other hand, domestic NG production has been stagnant at 90 million m^3/d with a CAGR of 0.1% since FY08. This has led to increased reliance on the import of LNG, as domestic consumption has been gradually increasing.

Ind-Ra notes that LNG imports continue to increase despite the rise in Asian spot LNG prices since April 2016, thus indicating strong demand for NG and dependence on LNG imports to fulfil the same.

Furthermore, In June 2018, NG production was 2.8% y/y lower and NG consumption was 15.9% higher. During the month, production volumes of Oil & Natural Gas Corp. Ltd, Oil India Ltd and private/joint venture fields declined 1.1% y/y, 7.1% y/y and 7.1% y/y, respectively. The increase in consumption was on account of an increase in domestic demand. The domestic demand was met by a 39.0% y/y increase in LNG imports during June 2018. On a cumulative basis, LNG imports were up 19.1% y/y in 1Q19.

India's crude oil production decreased 3.4% y/y in June 2018. During the month, the production volumes of Oil & Natural Gas Corp., Oil India Ltd and fields under production sharing contracts declined 4.6% y/y, 0.1% y/y and 1.7% y/y, respectively. Crude oil import volume increased 6.4% y/y during June 2018. India's crude oil import dependency was 84.1% in June 2018 and 83.9% in 1Q19. Petroleum Planning & Analysis Cell (PPAC) estimates crude imports at 227 million metric t for FY19 (FY18: 220 million metric t).

In June 2018, refining throughput was 21.9 million metric t, up 9.1% y/y. The refining throughput was up 5.0% y/y in 1QFY19. Public sector refineries processed higher volumes on a y/y basis, supporting the overall increase in the throughput. During the month, India's petroleum product output increased 12.0% y/y to 22.7 million metric t. On a cumulative basis, the production was 6.6% y/y higher in 1Q19.

Source: *www.hydrocarbonengineering.com/gas-processing/01082018/indias-dependency-on-lng-imports-growing/*

2.2 Bangladesh

Weather-delayed Bangladesh LNG terminal to begin ops. *3rd August 2018*

Image courtesy of Qatargas

FSRU Excellence that has delivered the commissioning cargo to Bangladesh Oil, Gas and Mineral Corporation (Petrobangla) in April could finally spring into action.

The vessel is expected to start operation within a week at the Moheshkhali Island enabling Bangladesh to import liquefied natural gas and feed it to the power projects in the energy-starved country.

Reuters reports a director at the Petrobangla as saying that the vessel has been on hold since arriving from Qatar's Ras Laffan complex with the commissioning LNG cargo, unable to dock at the import infrastructure due to bad weather.

The FSRU Excellence, owned by the Texas-based floating LNG solutions provider Excelerate Energy has a 500 million standard cubic feet of gas per day (MMscf/d) regasification capacity.

The weather pushed the company to declare force majeure on the project, however, Petrobangla said it does not accept it saying no payments will be made before the gas flow starts.

Petrobangla will be supplied with up to 2.5 million tons of LNG per annum from Qatar under a 15-year deal.

Source:www.lngworldnews.com/weather-delayed-bangladesh-lng-terminal-to-begin-ops/?utm_source=emark&utm_medium=email&utm_campaign=daily-update-lng-world-news-2018-08-03&uid=46966

2.3 Myanmar

LNG facility in Myanmar to bolster energy ties. *4th August 2018*

New Delhi: India plans to set up an LNG terminal in Myanmar as part of New Delhi's energy diplomacy strategy.

The terminal to import super-cooled natural gas will be in addition to similar facilities planned by Indian companies in Bangladesh and Sri Lanka as part of a larger plan of energy connectivity in South Asia, oil minister Dharmendra Pradhan said.

"Regional integration through connectivity across all modes - physical, utilities-based and digital - among our countries in the immediate neighbourhood is one of the top priorities of our government. It is imperative that we, together as a group, address the weak links and overcome challenges," he said.

The BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) region is abundant in energy resources such as hydropower, hydrocarbons, and renewables. "Since the region enjoys high insolation (sunlight), it is appropriate that we consider the development of a common solar grid here," he said.

Also, Bangladesh and Myanmar have large gas reserves which can be explored as alternative sources of supply.

Similarly, Nepal and Bhutan have immense potential in hydroelectricity, which is untapped because of the absence of a market that can create demand.

Speaking at a seminar on "Assessing India's Connectivity with Its Neighbourhood", Pradhan said on Friday that Numaligarh Refinery (NRL) in Assam is exploring the supply of diesel to Myanmar and looking at options to build fuel storage and distribution facilities in that country.

"Indian Oil Corp (IOC) is also working with Myanmar companies in setting up LPG storage facilities and Petronet LNG is setting up an LNG terminal there," he said. Pradhan, however, did not give details.

"India is working with Bangladesh in interconnecting gas grids and supplying diesel through pipelines," he said.

Currently, Indian firms supply diesel through rail rake from Siliguri in Assam to Parbatipur in Bangladesh and are in the process of constructing a 130-km long product pipeline for uninterrupted supply.

"Also, Indian companies are working on connecting India's gas grid with that of Bangladesh and supply gas for power generation at Khulna Power Plant," he said.

Source: *www.telegraphindia.com/business/lng-facility-in-myanmar-to-bolster-energy-ties-249870*

2.4 Pakistan

SOCAR to launch LNG shipment to Pakistan in coming months. *4th August 2018.*

Baku, Azerbaijan

Azerbaijani state oil company SOCAR will begin delivery of liquefied natural gas (LNG) to Pakistan in the coming months, Pakistan LNG Limited, an LNG terminal operator, told Trend.

SOCAR has become one of the winners of a tender to supply the company with LNG.

The LNG will be delivered in two cargoes, 140,000 cubic meters each. The first cargo will be shipped on October 10-11; the second on October 20-21.

Other winners of the tender, held on July 26, along with SOCAR, are Gunvor International, BB Energy and Trafigura Pte Ltd.

Pakistan's energy needs are 79.58 million tons of oil equivalent. Some 38 percent of these needs are met with natural gas, 34 percent with oil, and 6 percent with LNG and other resources.

Pakistan is increasing LNG intake amid increasing demand for gas and decline in production.
Source: https://en.trend.az/business/energy/2937064.html

3.0 Conversion Factor

The gas industry uses different units: in US, it is typical to use billion cubic feet (bcf) and million cubic feet per day (mmcfd) while in Europe it is common to use billion cubic meters (bcm) and it is becoming usual to use kilowatt-hours (kWh) to report on gas production and consumption. In the LNG industry, it is common to use million tons (Mt). To assist in the conversions, below is a Conversion Table by BP. (***Note:*** *1 kilowatt hour (kWh) of energy equals 0.0034 million British Thermal Units (mmbtu) in energy)*

Natural gas and LNG	To convert					
	Billion cubic metres NG	Billion cubic feet NG	Million tonnes oil equivalent	Million tonnes LNG	Trillion British thermal units	Million barrels oil equivalent
From	Multiply by					
1 billion cubic metres NG	1	35.3	0.9	0.74	35.7	6.16
1 billion cubic feet NG	0.028	1	0.025	0.021	1.01	0.17
1 million tonnes oil equivalent	1.11	39.2	1	0.82	39.7	6.84
1 million tonnes LNG	1.36	48.0	1.22	1	48.6	8.37
1 trillion British thermal units	0.028	0.99	0.025	0.021	1	0.17
1 million barrels oil equivalent	0.16	5.74	0.15	0.12	5.80	1

Source: *www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017*

4.0 End

Any comments and suggestions on the topics and information covered and to be covered in future are most welcome. Please send your comments and suggestions to Lee Giok Seng at email: leegs@angva.org